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Table C-1: Vascular Plant Species Inventory

Scientific Name		Common Name	Provincial Status¹
<u>PTERIDOPHYTES</u>		<u>FERNS & ALLIES</u>	
Dryopteridaceae		Wood Fern Family	
<i>Athyrium</i>	<i>filix-femina var. angustum</i>	Northern Lady Fern	S5
<i>Dryopteris</i>	<i>carthusiana</i>	Spinulose Wood Fern	S5
<i>Matteuccia</i>	<i>struthiopteris var. pennsylvanica</i>	Ostrich Fern	S5
<i>Onoclea</i>	<i>sensibilis</i>	Sensitive Fern	S5
Equisetaceae		Horsetail Family	
<i>Equisetum</i>	<i>arvense</i>	Field Horsetail	S5
<u>GYMNOSPERMS</u>		<u>CONIFERS</u>	
Cupressaceae		Cedar Family	
<i>Juniperus</i>	<i>virginiana</i>	Eastern Red Cedar	S5
Pinaceae		Pine Family	
<i>Picea</i>	<i>glauca</i>	White Spruce	S5
<i>Pinus</i>	<i>strobus</i>	Eastern White Pine	S5
<i>Pinus</i>	<i>sylvestris</i>	Scotch Pine	SE5
<u>DICOTYLEDONS</u>		<u>DICOTS</u>	
Anacardiaceae		Sumac or Cashew Family	
<i>Rhus</i>	<i>typhina</i>	Staghorn Sumac	S5
<i>Toxicodendron</i>	<i>radicans var. rydbergii</i>	Western Poison-ivy	S5
Apiaceae		Carrot or Parsley Family	
<i>Aegopodium</i>	<i>podagraria</i>	Goutweed	SE5
<i>Daucus</i>	<i>carota</i>	Wild Carrot	SE5
Apocynaceae		Dogbane Family	
<i>Asclepias</i>	<i>syriaca</i>	Common Milkweed	S5
<i>Cynanchum</i>	<i>rossicum</i>	Swallow-wort	SE5
<i>Achillea</i>	<i>millefolium ssp. millefolium</i>	Common Yarrow	SE?
<i>Arctium</i>	<i>minus</i>	Common Burdock	SE5
<i>Cirsium</i>	<i>arvense</i>	Canada Thistle	SE5
<i>Erigeron</i>	<i>annuus</i>	Annual Fleabane	S5
<i>Erigeron</i>	<i>strigosus</i>	Daisy Fleabane	S5
<i>Eupatorium</i>	<i>maculatum var. maculatum</i>	Spotted Joe-pye-weed	S5

Scientific Name		Common Name	Provincial Status¹
<i>Leucanthemum</i>	<i>vulgare</i>	Ox-eye Daisy	SE5
<i>Solidago</i>	<i>altissima</i> ssp. <i>altissima</i>	Tall Goldenrod	S5
<i>Solidago</i>	<i>flexicaulis</i>	Zig-zag Goldenrod	S5
<i>Solidago</i>	<i>juncea</i>	Early Goldenrod	S5
<i>Symphyotrichum</i>	<i>cordifolium</i>	Heart-leaved Aster	S5
<i>Symphyotrichum</i>	<i>lanceolatum</i> ssp. <i>lanceolatum</i>	White Panicked Aster	S5
<i>Symphyotrichum</i>	<i>lateriflorum</i> var. <i>lateriflorum</i>	Calico Aster	S5
<i>Symphyotrichum</i>	<i>puniceum</i> var. <i>puniceum</i>	Purple-stemmed Aster	S5
<i>Taraxacum</i>	<i>officinale</i>	Common Dandelion	SE5
<i>Tussilago</i>	<i>farfara</i>	Coltsfoot	SE5
Balsaminaceae		Touch-me-not Family	
<i>Impatiens</i>	<i>capensis</i>	Spotted Touch-me-not	S5
Berberidaceae		Barberry Family	
<i>Caulophyllum</i>	<i>thalictroides</i>	Blue Cohosh	S5
<i>Podophyllum</i>	<i>peltatum</i>	May-apple	S5
Betulaceae		Birch Family	
<i>Betula</i>	<i>papyrifera</i>	White Birch	S5
<i>Ostrya</i>	<i>virginiana</i>	Hop Hornbeam	S5
Caprifoliaceae		Honeysuckle Family	
<i>Lonicera</i>	<i>tatarica</i>	Tartarian Honeysuckle	SE5
<i>Sambucus</i>	<i>canadensis</i>	Common Elderberry	S5
<i>Sambucus</i>	<i>racemosa</i> ssp. <i>pubens</i>	Red-berried Elderberry	S5
<i>Viburnum</i>	<i>lentago</i>	Nannyberry	S5
<i>Viburnum</i>	<i>opulus</i>	Guelder Rose	SE4
Cornaceae		Dogwood Family	
<i>Cornus</i>	<i>alternifolia</i>	Alternate-leaved Dogwood	S5
<i>Cornus</i>	<i>amomum</i> ssp. <i>obliqua</i>	Silky Dogwood	S5
<i>Cornus</i>	<i>stolonifera</i>	Red-osier Dogwood	S5
Cucurbitaceae		Gourd Family	
<i>Echinocystis</i>	<i>lobata</i>	Prickly Cucumber	S5
Fabaceae		Pea Family	
<i>Lotus</i>	<i>corniculatus</i>	Bird's-foot Trefoil	SE5
<i>Melilotus</i>	<i>alba</i>	White Sweet-clover	SE5
<i>Robinia</i>	<i>pseudo-acacia</i>	Black Locust	SE5
<i>Trifolium</i>	<i>pratense</i>	Red Clover	SE5

Scientific Name		Common Name	Provincial Status¹
<i>Vicia</i>	<i>cracca</i>	Tufted Vetch	SE5
Fagaceae		Beech Family	
<i>Fagus</i>	<i>grandifolia</i>	American Beech	S5
Geraniaceae		Geranium Family	
<i>Geranium</i>	<i>robertianum</i>	Herb-robert	SE5
Grossulariaceae		Currant Family	
<i>Ribes</i>	<i>cynosbati</i>	Prickly Gooseberry	S5
Guttiferae		St. John's-wort Family	
<i>Hypericum</i>	<i>perforatum</i>	Common St. John's-wort	SE5
Juglandaceae		Walnut Family	
<i>Juglans</i>	<i>cinerea</i>	Butternut	S3?
Lamiaceae		Mint Family	
<i>Mentha</i>	<i>arvensis ssp. borealis</i>	American Wild Mint	S5
Oleaceae		Olive Family	
<i>Fraxinus</i>	<i>americana</i>	White Ash	S5
<i>Fraxinus</i>	<i>pennsylvanica</i>	Red Ash	S5
Onagraceae		Evening-primrose Family	
<i>Circaea</i>	<i>lutetiana ssp. canadensis</i>	Yellowish Enchanter's Nightshade	S5
<i>Epilobium</i>	<i>hirsutum</i>	Great Hairy Willow-herb	SE5
Papaveraceae		Poppy Family	
<i>Sanguinaria</i>	<i>canadensis</i>	Bloodroot	S5
Plantaginaceae		Plantain Family	
<i>Plantago</i>	<i>lanceolata</i>	Ribgrass	SE5
Polygonaceae		Smartweed Family	
<i>Rumex</i>	<i>crispus</i>	Curly-leaf Dock	SE5
Pyrolaceae		Wintergreen Family	
<i>Pyrola</i>	<i>elliptica</i>	Shinleaf	S5
Ranunculaceae		Buttercup Family	
<i>Actaea</i>	<i>pachypoda</i>	White Baneberry	S5
<i>Actaea</i>	<i>rubra</i>	Red Baneberry	S5

Scientific Name		Common Name	Provincial Status¹
<i>Anemone</i>	<i>acutiloba</i>	Sharp-lobed Hepatica	S5
<i>Anemone</i>	<i>virginiana</i> var. <i>virginiana</i>	Thimbleweed	S5
<i>Ranunculus</i>	<i>abortivus</i>	Kidney-leaf Buttercup	S5
<i>Ranunculus</i>	<i>acris</i>	Tall Buttercup	SE5
Rhamnaceae		Buckthorn Family	
<i>Rhamnus</i>	<i>cathartica</i>	Common Buckthorn	SE5
Rosaceae		Rose Family	
<i>Crataegus</i>	<i>monogyna</i>	English Hawthorn	SE5
<i>Fragaria</i>	<i>vesca</i> ssp. <i>americana</i>	Woodland Strawberry	S5
<i>Fragaria</i>	<i>virginiana</i> ssp. <i>virginiana</i>	Scarlet Strawberry	SU
<i>Geum</i>	<i>canadense</i>	White Avens	S5
<i>Malus</i>	<i>pumila</i>	Common Crabapple	SE5
<i>Prunus</i>	<i>serotina</i>	Black Cherry	S5
<i>Prunus</i>	<i>virginiana</i> ssp. <i>virginiana</i>	Choke Cherry	S5
<i>Rosa</i>	<i>multiflora</i>	Multiflora Rose	SE4
<i>Rubus</i>	<i>allegheniensis</i>	Alleghany Blackberry	S5
<i>Rubus</i>	<i>idaeus</i> ssp. <i>strigosus</i>	Wild Red Raspberry	S5
<i>Rubus</i>	<i>occidentalis</i>	Thimble-berry	S5
<i>Rubus</i>	<i>odoratus</i>	Purple Flowering Raspberry	S5
<i>Sorbus</i>	<i>aucuparia</i>	European Mountain-ash	SE4
Rubiaceae		Madder Family	
<i>Galium</i>	<i>mollugo</i>	White Bedstraw	SE5
Salicaceae		Willow Family	
<i>Populus</i>	<i>grandidentata</i>	Large-tooth Aspen	S5
<i>Populus</i>	<i>tremuloides</i>	Trembling Aspen	S5
<i>Salix</i>	<i>discolor</i>	Pussy Willow	S5
<i>Salix</i>	<i>eriocephala</i>	Missouri Willow	S5
<i>Salix</i>	<i>fragilis</i>	Crack Willow	SE5
Sapindaceae		Maple Family	
<i>Acer</i>	<i>negundo</i>	Manitoba Maple	S5
<i>Acer</i>	<i>saccharum</i>	Sugar Maple	S5
Scrophulariaceae		Figwort Family	
<i>Verbascum</i>	<i>thapsus</i>	Common Mullein	SE5
Solanaceae		Nightshade Family	
<i>Solanum</i>	<i>dulcamara</i>	Bitter Nightshade	SE5

Scientific Name		Common Name	Provincial Status ¹
Tiliaceae		Linden Family	
<i>Tilia</i>	<i>americana</i>	American Basswood	S5
Ulmaceae		Elm Family	
<i>Ulmus</i>	<i>americana</i>	White Elm	S5
Urticaceae		Nettle Family	
<i>Urtica</i>	<i>dioica ssp. gracilis</i>	American Stinging Nettle	S5
Verbenaceae		Vervain Family	
<i>Verbena</i>	<i>hastata</i>	Blue Vervain	S5
Violaceae		Violet Family	
<i>Viola</i>	<i>pubescens</i>	Downy Yellow Violet	S5
Vitaceae		Grape Family	
<i>Parthenocissus</i>	<i>inserta</i>	Inserted Virginia-creeper	S5
<i>Vitis</i>	<i>riparia</i>	Riverbank Grape	S5
<u>MONOCOTYLEDONS</u>		<u>MONOCOTS</u>	
Araceae		Arum Family	
<i>Arisaema</i>	<i>triphyllum ssp. triphyllum</i>	Small Jack-in-the-pulpit	S5
Cyperaceae		Sedge Family	
<i>Carex</i>	<i>arctata</i>	Drooping Wood Sedge	S5
<i>Carex</i>	<i>bebbii</i>	Bebb's Sedge	S5
<i>Carex</i>	<i>blanda</i>	Woodland Sedge	S5
<i>Carex</i>	<i>crisatella</i>	Crested Sedge	S5
<i>Carex</i>	<i>gracillima</i>	Graceful Sedge	S5
<i>Carex</i>	<i>granularis</i>	Meadow Sedge	S5
<i>Carex</i>	<i>pellita</i>	Woolly Sedge	S5
<i>Carex</i>	<i>retorsa</i>	Retorse Sedge	S5
<i>Carex</i>	<i>spicata</i>	Spiked Sedge	SE5
<i>Carex</i>	<i>stipata var. stipata</i>	Awl-fruited Sedge	S5
<i>Carex</i>	<i>vulpinoidea</i>	Fox Sedge	S5
<i>Scirpus</i>	<i>atrovirens</i>	Dark-green Bulrush	S5
Juncaceae		Rush Family	
<i>Juncus</i>	<i>dudleyi</i>	Dudley's Rush	S5
Liliaceae		Lily Family	

Scientific Name		Common Name	Provincial Status¹
<i>Allium</i>	<i>tricoccum</i>	Wild Leek	S5
<i>Erythronium</i>	<i>americanum ssp. americanum</i>	Yellow Dog's-tooth Violet	S5
<i>Maianthemum</i>	<i>racemosum ssp. racemosum</i>	False Solomon's Seal	S5
<i>Trillium</i>	<i>erectum</i>	Purple Trillium	S5
<i>Trillium</i>	<i>grandiflorum</i>	White Trillium	S5
Orchidaceae		Orchid Family	
<i>Epipactis</i>	<i>helleborine</i>	Common Helleborine	SE5
Poaceae		Grass Family	
<i>Agrostis</i>	<i>gigantea</i>	Red-top	SE5
<i>Bromus</i>	<i>inermis ssp. inermis</i>	Awnless Brome	SE5
<i>Dactylis</i>	<i>glomerata</i>	Orchard Grass	SE5
<i>Glyceria</i>	<i>striata</i>	Fowl Meadow Grass	S4S5
<i>Phalaris</i>	<i>arundinacea</i>	Reed Canary Grass	S5
<i>Phleum</i>	<i>pratense ssp. pratense</i>	Timothy	SE5
Typhaceae		Cattail Family	
<i>Typha</i>	<i>latifolia</i>	Broad-leaved Cattail	S5

Species Diversity

Total Species: **128**

Native Species: **90**

Exotic Species **38**

¹NHIC (2010a): S5 = secure; S4 = apparently secure; S3 = vulnerable; SU = unrankable; SE = exotic; ? = indicates uncertainty in the assigned rank.

Table C-2: Description of Ecological Land Classification (ELC) Communities

ELC TYPE	Community Description
FOREST (FO)	
Deciduous Forest (FOD)	
FOD5-1 (3.2 ha) Dry – Fresh Sugar Maple Deciduous Forest	This mature upland community was dominated by sugar maple in the canopy, sub-canopy and understory layers, with occasional occurrences of American beech in the canopy and hop hornbeam in the subcanopy. The most abundant ground layer species was enchanter's nightshade, with occasional to abundant occurrences of sugar maple seedlings, wild leek, white trillium, drooping woodland sedge, zig-zag goldenrod, and calico aster. The community contained a small inclusion of FODM4-4
FOD8-1 (1.3 ha) Fresh – Moist Poplar Deciduous Forest	This mid-age, lowland community was situated on both sides of a dry watercourse. The most abundant canopy and sub-canopy species was trembling aspen, with associations of white elm, basswood and Manitoba maple. Butternut was abundant in the sub-canopy. Common crabapple was abundant in the shrub layer along with buckthorn, Manitoba maple, and white elm. Like the FOD5-1 community, enchanter's nightshade dominated the ground cover. Occasional species observed included jack-in-the-pulpit, tall goldenrod, dandelion, woodland strawberry, ostrich fern, graceful sedge, meadow sedge, fowl manna grass, field horsetail, tall buttercup, and white trillium.
FODM4-4 (0.2 ha) Dry – Fresh Ironwood Deciduous Forest Type	This community was an inclusion in the larger FOD5-1 community. Ironwood dominated the canopy, while zig-zag goldenrod was the most abundant ground species.
CULTURAL (CU)	
Cultural Meadow (CUM)	
CUM1 Dry – Moist Old Field Meadow	This community type occurred in several areas on site as a complex with CUT1 or THDM4 communities. It typically consisted of a dense layer of ground vegetation species, with little woody vegetation. The most frequently observed species included tufted vetch, white bedstraw, and tall goldenrod, with occasional observations of common st-john's wort, common milkweed, timothy grass, annual fleabane, reed-canary grass, and spiked sedge.

Cultural Thicket (CUT)

CUT1 (2.2 ha)

Mineral Cultural Thicket

This community type occurred in several areas on site as a complex with CUM1 communities. These communities generally consisted of shrub layers composed primarily of staghorn sumac, common buckthorn, and red-osier dogwood, with rare to occasional occurrences of pussy willow and regenerating tree species. Riverbank grape and Allegheny blackberry were abundant in the ground layer.

THDM4 (0.3 & 0.9 ha)

Dry – Fresh Deciduous Regeneration Thicket

This community occurred at the eastern edge of the property as a complex with the CUM1 community type. Its composition consisted mainly of regenerating black locust trees, with occasional occurrences of green ash, and rare occurrences of common buckthorn, long-beaked willow, English hawthorn, and other young tree species.

MARSH (MA)

Meadow Marsh (MAM)

MAM2-2 (1.9 ha)

Reed-canary Grass Mineral Meadow Marsh, with inclusions of SWT2-5 (0.13 ha) (Red-osier Mineral Thicket Swamp) and MAMM1-2 (0.05 ha) (Cattail Graminoid Mineral Meadow Marsh)

This dry meadow marsh community consisted of a ground layer dominated by reed-canary grass, with abundant to occasional occurrences of other herbaceous species such as swamp aster, tall goldenrod, crested sedge, panicked aster and dark-green bulrush, among others. This community also contained an inclusion of red-osier dogwood mineral thicket swamp, confined to its western edge, and an inclusion of cattail graminoid mineral meadow marsh in its interior.

No surface water was present at the time of the survey.

MAM2-2 (0.4 ha)

Reed-canary Grass Mineral Meadow Marsh, with an inclusion of SWT2-2 (0.2 ha) (Willow Mineral Thicket Swamp)

This dry meadow marsh community consisted of a dense ground layer dominated by reed canary grass, with rare occurrences of curly dock and wild cucumber.

Along its eastern edge was a small inclusion of willow thicket swamp, primarily consisting of Missouri and pussy willows.

No surface water was present at the time of the survey.

SWAMP (SW)

Deciduous Swamp (SWD)

SWD4-1 (0.4ha)

Willow Mineral Deciduous Swamp

This community had a canopy consisting mainly of crack willow, with a ground layer consisting of reed-canary grass with occasional occurrences of spotted-touch-me-not, stinging nettle, Dudley's rush, tall goldenrod, and several sedge species, among others.

Table C-3: Water Quality Results for Reaches 1 and 2 (June 26, 2012)

Parameter	Inventory Point Number						
	1-1	1-2	1-3	1-4	1-5	2-1	2-2
Air Temperature (°C)	25	25	25	25	25	25	25
Water Temperature (°C)	13.35 @ 10:13	16.09 @11:05	15.9 @11:30	15.52 @ 11:51	n/a	n/a	18.53 @ 14:32
Conductivity (us/cm)	390	621	627	559	n/a	n/a	705
Dissolved Oxygen (mg/L)	10.33	9.48	9.13	8.91	n/a	n/a	8.7
pH	8.88	8.71	8.59	8.49	n/a	n/a	8.51

Table C-4: Habitat Descriptions for Reaches 1 and 2 (June 26, 2012)

Parameter	Inventory Point Number						
	1-1	1-2	1-3	1-4	1-5	2-1	2-2
UTM	672666 4872331	0672676 4872582	0672664 4872657	0672678 4872655	0673122 4872836	0673755 4872573	0673761 4872613
water velocity	slow	slow	slow	slow	no water	no water	slow
In stream cover	undercut banks and cobble	undercut banks, 10% cover	undercut banks, 50% cover	undercut banks, 40% cover	undercut banks, 75% cover	60% cover	75% cover
Bank stability	well vegetated	all vegetated	50% eroding	20% eroding	all vegetated	all vegetated- no defined channel	all vegetated
substrate	cobble, gravel and silt	silt	clay, silt and gravel	silt, sand, clay, muck and detritus	sand, clay, gravel and silt	silt and detritus	clay, muck, detritus and silt
Mean wetted width (m)	0.5	0.4	0.5	0.5	1	no defined channel- dry	0.3
Bank full (m)	2.5	1.5	3	1	2	no defined channel- dry	1
Mean depth (m)	0.1	0.15	0.05	0.05	no water	no defined channel- dry	0.05
Max depth (m)	0.15	0.3	0.1	0.1	no water	no defined channel- dry	0.1
Canopy Cover	95% closed	80% open	85% closed	80% closed	100% open	90% open	85% open
Fish observations	none	none	none	none	none	none	none
Migratory Obstructions	dry parts of the channel	debris in water	dry in some areas	low water levels	dry channel	dry channel	dry in some areas

Table C-5: Watercourse Characteristics

Watercourse Inventory Point	Description of Watercourse
Reach 1	
Inventory Point 1-1	<p>Inventory Point 1-1 was situated within a low lying thick wooded area. Riparian vegetation included deciduous trees in the canopy, and saplings and dense herbaceous vegetation in the understory. The vegetation community was comprised of Raspberry, Riverbank Grape, Wild Strawberry, White Ash and Hawthorn. Canopy closure was approximately 95%.</p> <p>The creek's substrate at Inventory Point 1-1 is comprised of cobble, gravel and silt and has a narrow and shallow channel with very little water (see Table C-4). Inventory Point 1-1 has little relief along this section of the creek and maintains a relatively direct alignment.</p>
Inventory Point 1-2	<p>Inventory Point 1-2 is located north of Inventory Point 1-1, along Reach 1. This Inventory Point is surrounded by Reed Canary grass, Riverbank Grape, Goldenrod, Milkweed, Red Osier Dogwood and Raspberry. The canopy was much more open at Inventory Point 1-2 compared to Inventory Point 1-1 (80% open).</p> <p>The creek's substrate was predominately comprised of silt, with a deeper incised channel than Inventory Point 1-1 (see Table C-4). Inventory Point 1-2 had little relief in this section of the creek and maintained a relatively direct alignment.</p>
Inventory Point 1-3	<p>Inventory Point 1-3 is upstream of 1-2, and exhibited different habitat characteristics than Inventory Points downstream. Inventory Point 1-3 has a riparian area comprised of Jewelweed, various grass species, Manitoba maple and Goldenrod. Its canopy is 85% closed.</p> <p>The creek at Inventory Point 1-3 had a substrate comprised of clay, silt and gravel and has a narrow, shallow channel with very little water on the date of investigation. Inventory Point 1-3 had little relief in this section of the creek and maintained a relatively direct alignment.</p>

Inventory Point 1-4

Inventory Point 1-4 is located where a channel flowing east to west meets up with the main Reach 1 channel at the northwest portion of the Subject Property. Inventory Point 1-4 is similar to Inventory Point 1-3 and is surrounded by Goldenrod, Jewelweed, Bittersweet Nightshade, Willow sp., Poplar sp., Staghorn Sumac, Manitoba maple, Stinging Nettle and various grass species. The canopy cover at this Inventory Point is 80% closed.

The creek at Inventory Point 1-4 had a substrate comprised of silt, sand, clay, muck and detritus. The channel was narrow and shallow with little water on the date of investigation. Inventory Point 1-4 had little relief in this section of the creek and maintained a relatively direct alignment.

Inventory Point 1-5

Inventory Point 1-5 is a dry channel at the northeast portion of the Subject Property. The canopy here is 100% open and the riparian vegetation is comprised of Goldenrod, various grass species Riverbank Grape and Wild Cucumber.

The creek at Inventory Point 1-5 had a substrate comprised of sand, clay, gravel and silt. The channel was deeply incised with no water on the date of investigation (see **Table C-4**). Inventory Point 1-5 had little relief in this section of the creek and maintained a relatively direct alignment.

Reach 2

Inventory Point 2-1

Inventory Point 2-1 is located on the east side of the study area, running north to south. At this point along Farewell Creek the channel was dry and undefined. The canopy cover is approximately 90% open. The riparian zone is comprised of Dogwood, jewelweed and various grass species.

The creek at Inventory Point 2-1 had a substrate comprised of silt and detritus. The undefined channel was assessed to be dry on the date of investigation. Inventory Point 2-1 had little relief in this section of the creek and maintained a relatively direct alignment.

Inventory Point 2-1

Inventory Point 2-2 was located further upstream from Inventory Point 2-1. Inventory Point 2-2 had a very narrow, almost dry channel, surrounded by Jewelweed and Reed Canary Grass. The canopy was approximately 85% open.

Table C-6: Terrestrial Wildlife Species Inventory

Scientific Name	Common Name	Provincial Status¹
AMPHIBIANS		
<i>Lithobates pipiens</i>	Northern Leopard Frog	S5
BIRDS		
<i>Ardea herodias</i>	Great Blue Heron	S5
<i>Cathartes aura</i>	Turkey Vulture	S5B
<i>Buteo jamaicensis</i>	Red-tailed Hawk	S5
<i>Charadrius vociferus</i>	Killdeer	S5B, S5N
<i>Larus delawarensis</i>	Ring-billed Gull	S5B,S4N
<i>Zenaida macroura</i>	Mourning Dove	S5
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	S4B
<i>Picoides villosus</i>	Hairy Woodpecker	S5
<i>Colaptes auratus</i>	Northern Flicker	S4B
<i>Empidonax traillii</i>	Willow Flycatcher	S5B
<i>Empidonax minimus</i>	Least Flycatcher	S4B
<i>Sayornis phoebe</i>	Eastern Phoebe	S5B
<i>Myiarchus crinitus</i>	Great Crested Flycatcher	S4B
<i>Tyrannus tyrannus</i>	Eastern Kingbird	S4B
<i>Vireo gilvus</i>	Warbling Vireo	S5B
<i>Vireo olivaceus</i>	Red-eyed Vireo	S5B
<i>Cyanocitta cristata</i>	Blue Jay	S5
<i>Corvus brachyrhynchos</i>	American Crow	S5B
<i>Eremophila alpestris</i>	Horned Lark	S5B
<i>Tachycineta bicolor</i>	Tree Swallow	S4B
<i>Hirundo rustica</i>	Barn Swallow	S4B
<i>Poecile atricapillus</i>	Black-capped Chickadee	S5
<i>Sitta canadensis</i>	Red-breasted Nuthatch	S5
<i>Troglodytes aedon</i>	House Wren	S5B
<i>Catharus guttatus</i>	Hermit Thrush	S5B
<i>Hylocichla mustelina</i>	Wood Thrush	S4B
<i>Turdus migratorius</i>	American Robin	S5B
<i>Dumetella carolinensis</i>	Gray Catbird	S4B
<i>Toxostoma rufum</i>	Brown Thrasher	S4B
<i>Sturnus vulgaris</i>	European Starling	SNA
<i>Bombycilla cedrorum</i>	Cedar Waxwing	S5B
<i>Seiurus aurocapilla</i>	Ovenbird	S4B

Scientific Name	Common Name	Provincial Status¹
<i>Mniotilta varia</i>	Black-and-white Warbler	S5B
<i>Geothlypis philadelphia</i>	Mourning Warbler	S4B
<i>Geothlypis trichas</i>	Common Yellowthroat	S5B
<i>Setophaga ruticilla</i>	American Redstart	S5B
<i>Setophaga petechia</i>	Yellow Warbler	S5B
<i>Setophaga coronata</i>	Yellow-rumped Warbler	S5B
<i>Spizella passerina</i>	Chipping Sparrow	S5B
<i>Spizella pusilla</i>	Field Sparrow	S4B
<i>Pooecetes gramineus</i>	Vesper Sparrow	S4B
<i>Passerculus sandwichensis</i>	Savannah Sparrow	S4B
<i>Melospiza melodia</i>	Song Sparrow	S5B
<i>Cardinalis cardinalis</i>	Northern Cardinal	S5
<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	S4B
<i>Passerina cyanea</i>	Indigo Bunting	S4B
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	S5
<i>Quiscalus quiscula</i>	Common Grackle	S5B
<i>Molothrus ater</i>	Brown-headed Cowbird	S4B
<i>Icterus galbula</i>	Baltimore Oriole	S4B
<i>Carpodacus mexicanus</i>	House Finch	SNA
<i>Carduelis tristis</i>	American Goldfinch	S5B
MAMMALS		
<i>Canis latrans</i>	Coyote	S5
<i>Procyon lotor</i>	Raccoon	S5
<i>Mephitis mephitis</i>	Striped Skunk	S5
<i>Odocoileus virginianus</i>	White-tailed Deer	S5
SUMMARY		
Total Amphibians:	1	
Total Reptiles:	0	
Total Birds:	52	
Total Breeding Birds:	47	
Total Mammals:	4	
SIGNIFICANT SPECIES		
Global:	0	
National:	1	
Provincial:	1	
Regional:	0	
Local:	0	

¹NHIC (2010a): S5 = secure; S4 = apparently secure; SNA = conservation ranking not applicable; S#B = Breeding Status Rank; S#N = Non Breeding Status Rank.

Butternut Health Assessments

James Leslie, BHA #145
Stantec Consulting
70 Southgate Drive, Suite 1
Guelph ON N1G 4P5
519-836-6050

Paul Dalmazzi
Hydro-One
483 Bay Street South Tower
Toronto ON M5G 2P5

January 8, 2014

RE: 2013 Butternut health assessment, Corner of Winchester Road E and Concession Road 7, Clarington ON

Dear Paul Dalmazzi,

This letter is in regard to my re-assessment of the Butternut trees on your property. The original assessment was completed in 2012; this re-assessment was completed specifically for trees within or near the project footprint to accurately account for changes made under Ontario Regulation 242/08. Please read this letter carefully as it contains important information about the Endangered Species Act, 2007 (ESA).

Butternut is listed as an endangered species on the Species at Risk in Ontario List, and as such, it is protected under the ESA from being killed, harmed, or removed. If you are planning to undertake an activity that may affect Butternut, you may be eligible to follow the requirements set out in section 23.7 of Ontario Regulation 242/08 under the ESA, or you may need to seek an authorization under the ESA (e.g., a permit).

Please visit e-laws at the link provided below for the full legal requirements about activities eligible under section 23.7 of Ontario Regulation 242/08 and conditions that must be fulfilled. Information about butternut is also available at <http://www.ontario.ca/environment-and-energy/butternut-trees-your-property>. If you are not eligible to follow this regulation, please contact the local Ministry of Natural Resources (MNR) to determine whether you will need to seek a permit. A link to the directory of MNR offices is also provided below.

If you are eligible to follow the rules in regulation, your first step is to submit this BHA Report and the original data forms which are enclosed in this package (photocopies won't scan properly) to the local MNR District Manager. The BHA Report must be submitted at least 30 days prior to registering to kill, harm, or remove a Butternut tree. During this 30 day period, no Butternut trees (of any category) may be killed, harmed, or removed. During this time period, MNR may

Web-links:

Endangered Species Act, 2007

http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_07e06_e.htm

Ontario Regulation 242/08 (refer to section 23.7)

http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_080242_e.htm

Summary of changes related to Butternut

<http://www.ontario.ca/environment-and-energy/butternut-trees-your-property>

MNR office locations

http://www.mnr.gov.on.ca/en/ContactUs/2ColumnSubPage/STEL02_179002.html

contact you for an opportunity to examine the trees that were assessed.

If MNR elects to audit the health assessment, a representative of the MNR will contact you using the information you supplied when you submitted the BHA Report. Following any audit, MNR will advise if there are any problems with the BHA that impact your eligibility for the regulation.

If you are eligible to follow section 23.7 of Ontario Regulation 242/08 and MNR does not contact you regarding an audit during the 30 day period, you may register your activity using the “Notice of Butternut Impact” form on the MNR Registry (link provided) and then proceed with your activity.

The designated Butternut Health Assessor has provided the following assessment of the Butternut trees located and assessed at the above noted property during the site visit on October 8, 2013. Please be advised that Butternut trees other than those identified in this BHA Report must also be assessed by a BHA if a proposed activity may cause them to be killed, harmed or removed.

Please retain this letter and the following BHA Report for your records, along with any other documentation you may receive from the MNR should an audit of the assessment occur.

If you have any questions, please do not hesitate to contact me or the Species at Risk Biologist in the local MNR district office.

Sincerely,

James Leslie

Enclosures:

1. BHA Report
2. Original data forms
3. Electronic and printed copies of the Excel data analysis spreadsheet

Explanation of Butternut Categories.

Category 1: Butternut assessed as Category 1 (also referred to as “non-retainable”) are affected by butternut canker to such an advanced degree that retaining the tree would not support the protection or recovery of butternut trees in the area in which the tree is located.

Category 2: Butternut assessed as Category 2 (also referred to as “retainable”) are not affected by butternut canker of the degree to which it is affected by butternut is not too advanced and retaining the tree could support the protection and recovery of butternut trees in the area the tree is located.

Category 3: Butternut assessed as Category 3 (also referred to as “archivable” or “putatively resistant”) are trees that may be useful in determining resistance to butternut canker. Please note, that these trees are not eligible under section 23.7 of Ontario Regulation 242/08.

Hybrids: Trees assessed as hybrid Butternut trees are not protected under the ESA.

Note: Municipal by-laws and other legislation may be applicable.

Butternut Health Assessment Report

James Leslie, BHA #145
Stantec Consulting
70 Southgate Drive, Suite 1
Guelph ON N1G 4P5
519-836-6050

Paul Dalmazzi
Hydro-One
483 Bay Street South Tower
Toronto ON M5G 2P5

RE: 2013 Butternut health assessment, Corner of Winchester Road E and Concession Road 7, Clarington ON

Date of assessment: October 8, 2013

Total number of trees assessed:12

Stantec Consulting Ltd. was retained by Hydro One Networks Inc. (Hydro One) to complete a Natural Heritage Existing Conditions report to support the preparation of a Class EA for the construction of a 500-230 kV auto-transformer Station in the Municipality of Clarington. During site investigations, 46 butternut trees were identified and assessed by a certified Butternut Health Assessor. The original assessment was completed in 2012; this re-assessment was completed specifically for trees within or near the project footprint to accurately account for changes made under Ontario Regulation 242/08.

All butternut trees within the Study Area were numbered on site in 2012 using white paint. The select trees that were re-assessed in 2013 had new numbers assigned to them due to the nature of the data collection forms. These new numbers were only applied to the data collection forms; the trees were not physically re-numbered with white paint. The corresponding numbering system is outlined in the Tables below.

Changes from the 2012 survey are as follows (based on the 2012 numbering system):

- Tree #1, previously categorized as retainable, was genetically tested and determined to be a hybrid (initiative undertaken by Hydro One)
- Tree #16, previously categorized as retainable, was re-assessed as category 1
- Tree #21, previously categorized as retainable, was re-assessed as category 1
- Tree #23, previously categorized as retainable, was re-assessed as a hybrid
- Tree #24, previously categorized as retainable, was re-assessed as category 1

Category 1 trees do not meet the retention criteria in the Butternut Assessment Guidelines based on crown vigour and the degree of cankers on the root flare and/or stem. The following trees can be killed, harmed or removed after the 30 day period that follows submission of this BHA Report to the MNR District Manager without any additional requirements under the ESA but their removal may be subject to municipal by-laws and other legislation.

Please note: The Ontario Recovery Team encourages that all Butternut trees be conserved, whether they meet the retention criteria or not. Removal of cankered trees is not an objective of the Recovery Strategy for Butternut.

The following tree(s) have been assessed as Category 1 : (non-retainable)			
Category	2012 Tree Number	2013 Tree Number	UTM Coordinates
1	16	3	17, 672774, 4872684
1	21	4	17, 672661, 4872624
1	24	6	17, 672659, 4872601
Total number of Category 1 trees:			3

Category 2 trees satisfy the retention criteria in the Butternut Assessment Guidelines. Activities that may affect up to ten (10) Category 2 trees may be eligible under section 23.7 of Ontario Regulation 242/08 in accordance with the conditions set out in the Regulation.

The following tree(s) have been assessed as Category 2 : (retainable)			
Category	2012 Tree Number	2013 Tree Number	UTM Coordinates
2	10	2	17, 672658, 4872649
2	22	5	17, 672657, 4872616
2	28	7	17, 672664, 4872572
2	29	8	17, 672668, 4872566
2	33	9	17, 672692, 4872642
2	34	10	17, 672681, 4872565
2	36	11	17, 672681, 4872560
2	46	12	17, 672780, 4872692
Total number of Category 2 trees:			8

Category 3 trees are not eligible to be killed, harmed or removed under section 23.7 Ontario Regulation 242/08. MNR should be contacted for an application for an authorization issued under the ESA.

The following tree(s) have been assessed as Category 3 : (achievable)			
Category	2012 Tree Number	2013 Tree Number	UTM Coordinates
3	4	1	17, 672762, 4872683
Total number of Category 3 trees:			1

Hybrid Butternut trees are not protected under the ESA, but their removal may be subject to municipal by-laws and other legislation.

The following tree(s) have been assessed as hybrid trees :		
	2012 Tree Number	UTM Coordinates
Hybrid	23	17, 672660, 4872603
Total number of hybrid trees:		1

We understand that Hydro One has taken considerable measures to avoid the Butternut trees at the site, and most recently, Hydro One has been able to minimize the removal and impact to trees 2, 3, 5, 9, 46, and potentially 34, 35, and 36 (based on 2012 tree numbering). Based on the information provided by Hydro One no other trees will be affected by proposed Clarington Transformer development.

Please note that Hydro One will be completing the online registration of Butternut following the 30 day review period as per Section 23(4) 4 of the Regulation.

NOTE: This concludes summary of the BHA Report. A complete BHA Report must include the original (hard copy) data forms (all completed sets of Form 1 and Form 2), an electronic copy of the Excel data analysis spreadsheet, plus one printed copy of the spreadsheet.

2013 ESA 2007 Butternut retainable tree analysis

Contact the OMNR Provincial SAR Branch for a more detailed explanation of its derivation (June 2009/2013).

BHA #		145		Assessment Date(s)		8-Oct-13		Total # trees		12											
Landowner name		Hydro One Inc.																			
Property Location		Corner of Winchester Road E and Concession Road 7, Clarington, ON																			
		input field data						automatic calculations from field data						Categories: 1=non retainable (NR), 2=retainable (R), 3= Archivable (A)							
2013 Tree #	2012 Tree #	Live Crown %	tree dbh (cm)	# bole cankers				# root flare (RF) cankers		< 40 m from cankered tree	Circ. (cm) = $\pi \times \text{dbh}$	total bole canker width (sooty $\times 2.5 + \text{open} \times 5$)	total RF canker width (sooty $\times 2.5 + \text{open} \times 5$)	bole canker % of circ.	RF canker % of circ.	total bole & root canker % of $2 \times \text{Circ}$	"2" cases			"3" cases	
				sooty (S) (will be assigned 2.5 cm per canker)	(will be assigned 5 cm per canker)	open (O)	(will be assigned 5 cm per canker)	RF S	RF O								LC% ≥ 50 and BC% = 0	LC% > 70 & BRC% < 20	LC% > 70 & BC% < 20		Final R Tree Call
1	4	95	30	0	0	0	0	1	0	y	94.2	0	2.5	0	3	1	2	2	2	2	3
2	10	100	7	0	0	0	0	0	0	n	21.98	0	0	0	0	0	2	2	2	2	2
3	16	100	11	3	0	0	0	3	0	y	34.54	7.5	7.5	22	22	1	1	1	1	1	1
4	21	25	1	0	0	0	0	0	0	n	3.14	0	0	0	0	0	1	1	1	1	1
5	22	95	48	3	1	0	0	3	0	n	150.72	10	7.5	7	5	6	1	2	2	2	2
6	24	95	7	1	1	1	0	4	0	n	21.98	10	10	45	45	45	1	1	1	1	1
7	28	100	9	0	0	0	0	0	0	y	28.26	0	0	0	0	0	2	2	2	2	2
8	29	100	7	1	0	0	0	0	0	y	21.98	2.5	0	11	0	6	1	2	2	2	2
9	33	95	8	3	1	0	0	0	0	n	25.12	10	0	40	0	20	1	2	1	2	2
10	34	100	19	2	0	0	0	1	0	y	59.66	5	2.5	8	4	6	1	2	2	2	2
11	36	100	17	0	0	0	0	1	0	y	53.38	0	2.5	0	5	2	2	2	2	2	2
12	46	100	3	0	0	0	0	0	0	y	9.42	0	0	0	0	0	2	2	2	2	2

Butternut Data Collection FORM 2 (2010 Edition)

(PLEASE USE BLOCK LETTERS)

Fill when Form 1 indicates canker is well established. The information on Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Shaded fields are mandatory for Butternut Health Assessments

Site Code(A,B,...Z, AA...)

Surveyor ID or BHA # 145

Date (dd/mm/yyyy) 08-10-2013

Surveyor Last Name LESLIE

Tree ID Numbering: 1,2,3,... Starting from 1 for each site

Tree # 006 Zone 17 Easting 672659 Northing 4872691

Crown Class 2 Live Crown % 095 Main Stem Length(m) 01 Below crown Seed Signs
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species JUGLONE

MARKED AS "24" HEIGHT ~ 4.1m

Tree # 007 Zone 17 Easting 672664 Northing 4872572

Crown Class 100 Live Crown % 02 Main Stem Length(m) 02 Below crown Seed Signs
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species VITRIPA RHACATH

MARKED AS "28" HEIGHT ~ 4.5m

Tree # 008 Zone 17 Easting 672668 Northing 4872562

Crown Class 2 Live Crown % 03 Main Stem Length(m) 03 Below crown Seed Signs
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species MALUS VITRIPA

MARKED AS "29" HEIGHT ~ 4.5m

Tree # 009 Zone 17 Easting 672692 Northing 4872642

Crown Class 2 Live Crown % 05 Main Stem Length(m) 05 Below crown Seed Signs
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 01 Bark Type S # Callused Wounds 00
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species TILAMEL

MARKED AS "33"

Tree # 009 Zone 17 Easting 672681 Northing 4872565

Crown Class 1 Live Crown % 00 Main Stem Length(m) 01 Below crown Seed Signs
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species JUGLONE

MARKED AS "34" HEIGHT ~ 8m

Please enter matching page link code on forms 1 and 2

Page Link

(Contact Information follows all applicable privacy policies and guidelines)

Please return forms to:
 Forest Gene Conservation Association
 Suite 233, 266 Charlotte St.
 Peterborough, ON, K9J 2V4
 www.fgca.net

49731

Fill when Form 1 indicates canker is well established. The information on Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Shaded fields are mandatory for Butternut Health Assessments

Site Code(A,B,...Z, AA...)

Surveyor ID or BHA # 1145

Date (dd/mm/yyyy) 08 - 10 - 2013

Surveyor Last Name LESLIE

Tree ID Numbering: 1,2,3,...Starting from 1 for each site

Tree # 010 Zone 17 Easting 672681 Northing 4872560

Crown Class 1 Live Crown % 100 Main Stem Length(m) 22 Below crown Seed Signs
 Twig Dieback #Stems Butternut Origin Male Flowers
 Branch Dieback Defoliation Discolouration 017 DBH(cm) Natural Planted Unknown None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root = <2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species
 V I F R I P A
 S J G C I N E

MARVED AS "36"

Tree # 011 Zone 17 Easting 672790 Northing 4872692

Crown Class 1 Live Crown % 100 Main Stem Length(m) 22 Below crown Seed Signs
 Twig Dieback #Stems Butternut Origin Male Flowers
 Branch Dieback Defoliation Discolouration 003 DBH(cm) Natural Planted Unknown None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 01
 #Open #Sooty Root = <2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

MARVED AS "46" - ALL 3 STEMS SHOW VIBROT, BUT ALL DAMAGED FROM DEER - 2.3M TALL BROWS

Tree # Zone Easting Northing

Crown Class Live Crown % Main Stem Length(m) Below crown Seed Signs
 Twig Dieback #Stems Butternut Origin Male Flowers
 Branch Dieback Defoliation Discolouration DBH(cm) Natural Planted Unknown None

Assess below live crown
 #Epic-Live #Epic-Dead Bark Type # Callused Wounds
 #Open #Sooty Root = <2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

Tree # Zone Easting Northing

Crown Class Live Crown % Main Stem Length(m) Below crown Seed Signs
 Twig Dieback #Stems Butternut Origin Male Flowers
 Branch Dieback Defoliation Discolouration DBH(cm) Natural Planted Unknown None

Assess below live crown
 #Epic-Live #Epic-Dead Bark Type # Callused Wounds
 #Open #Sooty Root = <2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

Tree # Zone Easting Northing

Crown Class Live Crown % Main Stem Length(m) Below crown Seed Signs
 Twig Dieback #Stems Butternut Origin Male Flowers
 Branch Dieback Defoliation Discolouration DBH(cm) Natural Planted Unknown None

Assess below live crown
 #Epic-Live #Epic-Dead Bark Type # Callused Wounds
 #Open #Sooty Root = <2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

Please enter matching page link code on forms 1 and 2

Page Link

(Contact information follows all applicable privacy policies and guidelines)

Please return forms to:
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 Suite 233, 266 Charlotte St.
 Peterborough, ON, K9J 2V4
 www.fgca.net

49731



James Leslie, BHA #145
Stantec Consulting
70 Southgate Drive, Suite 1
Guelph ON N1G 4P5

June 26, 2012

Attn: Doug Magee
Hydro-One
483 Bay Street South Tower
Toronto ON M5G 2P5

**Re: Clarington Butternut Health Assessment;
Municipality of Clarington**

Dear Doug Magee,

This letter is in regard to my assessment of the Butternut trees on the property of Hydro One, which is being copied to Bohdan Kowalyk of the Ontario Ministry of Natural Resources (OMNR) Aurora District Office. This assessment was then field verified by Mr. Kowalyk on June 25, 2012, at which time six new trees were identified and added to the assessment and mapped appropriately.

OMNR may contact you regarding the need for audit of my assessment within 30 days of receiving a copy of this letter. Trees identified in this assessment (including those assessed to be non-retainable) cannot be harmed or removed for 30 days unless notice has been received in writing from the district manager approving this assessment report. During this period OMNR will notify you about a potential audit of the assessment. If OMNR has not contacted you within 30 days of the submission of this assessment to OMNR, you may proceed with proposed activities to kill, harm or take trees determined to be **non-retainable** in my assessment unless there are municipal bylaws or other legislation prohibiting this.

Retainable Butternut are protected and cannot be removed without an authorization under the Endangered Species Act 2007, i.e. without either (1) an overall benefit permit or, if no more than 10 trees are concerned, (2) a planting plan that has been approved by the OMNR, or has not been approved or refused within 30 days following its submission to the OMNR district office.

As a qualified Butternut Health Assessor (BHA), I am providing the following comments about the Butternut trees I located and assessed at the above noted property during the site visit on May 30th, June 06th, and June 25 2012. These trees were numbered sequentially on each trunk using white marking paint. The following table provides a reference to the actual tree numbers and their associated numbers on the Data Collection Form:

Data Collection Form #	Easting	Northing	Retainability
1	656542	4878387	R
2	656675	4878421	N

3	656808	4878425	N
4	672762	4872683	R
5	657135	4878741	N
6	655339	4879347	R
7	655318	4879285	R
8	655387	4879225	R
9	672661	4872683	N
10	672658	4872649	R
11	672627	4872775	R
12	655116	4879373	R
13	655206	4879344	R
14	655293	4879438	N
15	655208	4879251	R
16	672774	4872684	R
17	672631	4872794	R
18	672631	4872793	R
19	672632	4872784	R
20	672634	4872785	R
21	672661	4872624	R
22	672657	4872616	R
23	672660	4872603	R
24	672659	4872601	R
25	672662	4872602	N
26	672666	4872605	N
27	672667	4872604	N
28	672664	4872572	R
29	672668	4872566	R
30	672668	4872548	R
31	672678	4872515	R
32	672677	4872479	R
33	672689	4872643	R
34	672681	4872565	R
35	672682	4872558	N
36	672681	4872560	R
37	672676	4872546	R
38	672681	4872462	R
39	672637	4872647	R
40	655035	4879031	R
41	672645	4872715	N
42	672639	4872712	R
43	672644	4872711	R
44	672698	4872746	N

45	672676	4872661	R
46	672784	4872692	R

Non-retainable trees do not meet the retention guidelines based on the crown vigour assessment and the levels of cankers on the root flare and/or stem. These trees *can be removed upon approval of this BHA report by the OMNR district manager, or if 30 days have lapsed since OMNR received this report, and provided there are no municipal bylaws or other legislation prohibiting their removal.* Please note the Ontario Recovery Team encourages that all Butternut trees be conserved and removal of diseased trees is not an objective of the Recovery Strategy.

Various suspected **hybrid trees** were observed in the study area. Assessment of genetic purity was based on lenticel shape on new twigs, colour and width of pith, and leaf scars. No trees appeared to exhibit *all* characteristics of hybrid specimens, although many appeared to contain some characteristics. Bohdan Kowalyk of the MNR also agreed that many of these trees did exhibit varying characteristics and may require genetic testing for a conclusive determination. Mr. Kowalyk also noted that some of the trees had narrow splits down the main stem and indicated that hybrid trees are not as hardy as pure trees and can sometimes split when the temperature gets too low. While some of these trees did exhibit varying degrees of splitting along the main stem, the observation could not conclusively indicate hybrid specimens.

Hybrid Butternut trees and are not afforded protection under the Endangered Species Act, 2007. Hybrid trees can be removed if desired under the ESA, but as mentioned above might be subject to other legislation.

Retainable trees met the retention criteria and are ***protected from being killed or harmed or taken*** under the ESA 2007. A protective buffer of 25m radius from the bole of the Butternut is recommended to prevent root disturbance. In this buffer area, certain operations such as excavating or paving that would remove or significantly compact the roots and soil, and cause direct harm to the tree are not permitted. Removal of other vegetation and careful logging practices within this radius are permitted. Trimming of retainable trees is allowed as long as there is documentation provided by certified arborist or forester that indicates that this activity will not cause harm to (or result in killing of) the tree.

Other Butternut not located during this assessment:

Please be advised that Butternut trees other than noted here, that are discovered or naturally regenerate in the future on this property must also be assessed by a BHA if their removal is being considered.

Permits may be issued by the OMNR for the removal of retainable trees. In the event a permit is necessary, Stantec Consulting will contact the Aurora District OMNR Species at Risk Biologist to discuss this matter further. Permit applications can take 6 months or longer to process; therefore it is recommended you contact OMNR early if you wish to apply for a permit.

If no more than 10 retainable trees are concerned, a planting plan may be accepted instead of a permit. In the event a planting plan is the preferred option, a designated BHA from Stantec Consulting can assist in development of this plan.

Please retain this letter as proof of a Butternut Health Assessment performed on the above noted property and any other documentation you may receive from the OMNR should an audit of the assessment occur.

If you have any questions, please feel free to contact myself, or Melinda Thompson of the Aurora OMNR: (905) 713-7425. www.mnr.gov.on.ca

Sincerely,

James Leslie

Butternut retainable tree analysis

using data collected by a designated BHA (ESA 2007)

Contact the OMNR Provincial SAR Unit for a more detailed explanation of its derivation (June 2009).

ESA 2007 analysis method:

BHA #	145	Assessment Date(s)	5/30/2012; 06/06/2012; 06/25/2012	Total # trees	46
Landowner name	Hydro One Inc.				
Property Location	Corner of Winchester Road E and Concession Road 7, Clarington, ON				

input field data									automatic calculations from field data						Retainable R=yes or N=no			Final Call
Tree #	Live Crown %	tree dbh (cm)	# bole cankers				# root flare (RF) cankers	Circ. (cm) = Pi x dbh	total bole canker width (sooty x 2.5 + open x 5)	total root flare canker width (sooty x 2.5 + openx5)	bole canker % of circ.	root flare canker % of circ.	total bole & root canker % of 2xCirc	3 R scenarios			R/N	
			sooty (S) (will be assigned 2.5 cm per canker)	open (O) (will be assigned 5 cm per canker)	RF sooty	RF open								LC%>70 & BRC%<20,even if RC%>20 (or get exp. crown assess.)	LC%>0 & BRC%<20 even if BC% > 20	LC% > 70 & BC%<20,even if RC%>20 (or get exp. crown assess.)		
LC %	dbh (cm)	S <2 m	S >2m	O <2m	O >2m	RF sooty	RF open	Circ (cm)	BC (cm)	RC (cm)	BC%	RC%	BRC%	1	2	3	R/N	
1	100	7	2	0	0	0	0	21.98	5	0	23	0	11	n	r	n	R	
2	80	31	7	9	0	0	5	97.34	40	12.5	41	13	27	n	n	n	N	
3	75	33	8	6	1	0	2	103.6	40	5	39	5	22	n	n	n	N	
4	95	28	0	0	0	0	0	87.92	0	0	0	0	0	r	r	r	R	
5	50	21	16	17	0	0	5	65.94	82.5	12.5	125	19	72	n	n	n	N	
6	100	13	0	0	0	0	0	40.82	0	0	0	0	0	r	r	r	R	
7	100	11	1	0	0	0	0	34.54	2.5	0	7	0	4	n	r	r	R	
8	100	10	0	0	0	0	0	31.4	0	0	0	0	0	r	r	r	R	
9	90	5	7	0	0	0	1	15.7	17.5	2.5	111	16	64	n	n	n	N	
10	100	4	0	0	0	0	0	12.56	0	0	0	0	0	r	r	r	R	
11	100	2	0	0	0	0	0	6.28	0	0	0	0	0	r	r	r	R	
12	95	19	1	0	0	0	0	59.66	2.5	0	4	0	2	n	r	r	R	
13	95	19	1	0	0	0	0	59.66	2.5	0	4	0	2	n	r	r	R	
14	100	18	8	7	0	0	5	56.52	37.5	12.5	66	22	44	n	n	n	N	
15	100	12	0	0	0	0	2	37.68	0	5	0	13	7	r	r	r	R	
16	100	10	2	0	0	0	1	31.4	5	2.5	16	8	12	n	r	r	R	
17	100	3	0	0	0	0	0	9.42	0	0	0	0	0	r	r	r	R	
18	100	3	0	0	0	0	0	9.42	0	0	0	0	0	r	r	r	R	
19	100	8	2	0	0	0	4	25.12	5	10	20	40	30	n	n	r	R	
20	100	4	0	0	0	0	0	12.56	0	0	0	0	0	r	r	r	R	
21	100	2	0	0	0	0	0	6.28	0	0	0	0	0	r	r	r	R	
22	95	48	2	0	0	0	0	150.7	5	0	3	0	2	n	r	r	R	
23	100	26	0	0	0	0	3	81.64	0	7.5	0	9	5	r	r	r	R	
24	95	5	0	0	0	0	4	15.7	0	10	0	64	32	r	n	r	R	
25	100	11	5	0	0	0	5	34.54	12.5	12.5	36	36	36	n	n	n	N	
26	95	5	7	0	0	0	4	15.7	17.5	10	111	64	88	n	n	n	N	
27	95	8	6	0	0	0	2	25.12	15	5	60	20	40	n	n	n	N	
28	100	8	0	0	0	0	0	25.12	0	0	0	0	0	r	r	r	R	
29	100	6	1	0	0	0	0	18.84	2.5	0	13	0	7	n	r	r	R	
30	100	5	0	0	0	0	0	15.7	0	0	0	0	0	r	r	r	R	
31	100	8	0	0	0	0	0	25.12	0	0	0	0	0	r	r	r	R	
32	100	6	0	0	0	0	0	18.84	0	0	0	0	0	r	r	r	R	
33	100	7	0	0	0	0	0	21.98	0	0	0	0	0	r	r	r	R	
34	100	15	2	0	0	0	1	47.1	5	2.5	11	5	8	n	r	r	R	
35	100	10	15	0	0	0	4	31.4	37.5	10	119	32	76	n	n	n	N	
36	100	14	1	0	0	0	2	43.96	2.5	10	6	23	14	n	r	r	R	
37	100	25	0	0	0	0	0	78.5	0	0	0	0	0	r	r	r	R	
38	100	15	0	0	1	0	0	47.1	5	0	11	0	5	n	r	r	R	
39	100	9	0	0	0	0	0	28.26	0	0	0	0	0	r	r	r	R	
40	100	3	0	0	0	0	0	9.42	0	0	0	0	0	r	r	r	R	
41	100	9	4	0	1	0	0	28.26	15	0	53	0	27	n	n	n	N	
42	100	8	0	0	0	0	0	25.12	0	0	0	0	0	r	r	r	R	
43	100	6	0	0	0	0	0	18.84	0	0	0	0	0	r	r	r	R	
44	95	41	21	0	3	0	7	128.7	67.5	17.5	52	14	33	n	n	n	N	
45	100	1	0	0	0	0	0	3.14	0	0	0	0	0	r	r	r	R	
46	100	2	0	0	0	0	0	6.28	0	0	0	0	0	r	r	r	R	

Butternut Data Collection FORM 2 (2010 Edition)

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Shaded fields are mandatory for Butternut Health Assessments

Site Code (A,B,...Z, AA...)

Surveyor ID or BHA # 145

Date (dd/mm/yyyy) 30-05-2012

Surveyor Last Name LESLIE

Tree ID Numbering: 1,2,3,... Starting from 1 for each site

Tree # 001 Zone 17656542 Northing 4878387

1 Crown Class 100 Live Crown % 02 Main Stem Length(m) Below crown Seed Signs

Twig Dieback Branch Dieback Defoliation Discolouration

1 #Stems

007 DBH(cm)

Butternut Origin Natural Planted Unknown

Male Flowers Female Flowers Seed Set None

Assess below live crown

00 #Epic-Live 00 #Epic-Dead

#Open #Sooty

Root 00 00

Bark Type = < 2m 89 85

Callused Wounds > 2m 00 00

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

SUGCINE

VITRIPA

RHACATH

HEIGHT ~ 4m; PITH SUGGESTS HYBRID - PICS 2-3

Tree # 002 Zone 17656675 Northing 4878421

1 Crown Class 080 Live Crown % 08 Main Stem Length(m) Below crown Seed Signs

Twig Dieback Branch Dieback Defoliation Discolouration

1 #Stems

031 DBH(cm)

Butternut Origin Natural Planted Unknown

Male Flowers Female Flowers Seed Set None

Assess below live crown

01 #Epic-Live 00 #Epic-Dead

#Open #Sooty

Root 00 05

Bark Type = < 2m 00 07

Callused Wounds > 2m 00 09

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

SUGCINE

VITRIPA

HEIGHT ~ 12m; VITRIPA THROUGHOUT CROWN; PIC # 4

Tree # 003 Zone 17656808 Northing 4878425

1 Crown Class 075 Live Crown % 08 Main Stem Length(m) Below crown Seed Signs

Twig Dieback Branch Dieback Defoliation Discolouration

1 #Stems

033 DBH(cm)

Butternut Origin Natural Planted Unknown

Male Flowers Female Flowers Seed Set None

Assess below live crown

00 #Epic-Live 00 #Epic-Dead

#Open #Sooty

Root 00 02

Bark Type = < 2m 01 08

Callused Wounds > 2m 00 06

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

ACESASA

SUGCINE

FRAMER

HEIGHT ~ 13m; PIC # 5

Tree # 004 Zone 17672762 Northing 4872683

2 Crown Class 095 Live Crown % 10 Main Stem Length(m) Below crown Seed Signs

Twig Dieback Branch Dieback Defoliation Discolouration

1 #Stems

028 DBH(cm)

Butternut Origin Natural Planted Unknown

Male Flowers Female Flowers Seed Set None

Assess below live crown

01 #Epic-Live 00 #Epic-Dead

#Open #Sooty

Root 00 00

Bark Type = < 2m 00 00

Callused Wounds > 2m 03 00

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

ULMAMER

ACESASA

VITRIPA

CROWN OVERLAPS WITH ULMAMER, ALSO DENSE VITRIPA - DIFFICULT TO ASSESS

Tree # 005 Zone 17657135 Northing 4878741

2 Crown Class 050 Live Crown % 09 Main Stem Length(m) Below crown Seed Signs

Twig Dieback Branch Dieback Defoliation Discolouration

1 #Stems

021 DBH(cm)

Butternut Origin Natural Planted Unknown

Male Flowers Female Flowers Seed Set None

Assess below live crown

12 #Epic-Live 02 #Epic-Dead

#Open #Sooty

Root 00 05

Bark Type = < 2m 00 16

Callused Wounds > 2m 00 17

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

ACESASA

ULMAMER

PRUSERO

PICS 7-9

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Shaded fields are mandatory for Butternut Health Assessments

Site Code(A,B,...Z, AA...)

Surveyor ID
or BHA # 145

Date (dd/mm/yyyy)
30 - 05 - 2012

Surveyor Last Name LESLIE

Tree ID Numbering: 1,2,3,...Starting from 1 for each site

Tree # Zone Easting Northing
006 17655339 4879347

1 Crown Class 100 Live Crown % 04 Main Stem Length(m) Below crown Seed
Butternut Signs
Origin Male Flowers
 Natural Female Flowers
 Planted Seed Set
 Unknown None

Assess below live crown
#Epic-Live #Open #Sooty
#Epic-Dead Root
Bark Type =<2m
Callused Wounds >2m

Metres from badly cankered tree
 <40 >40 None Found

Competing Species
M A L V S
U L N R V B R

~12M HEIGHT; 2nd STEM ~1.5M UP FROM BASE (7cm DBH); PICS 23-24

Tree # Zone Easting Northing
007 17655318 4879285

2 Crown Class 100 Live Crown % 05 Main Stem Length(m) Below crown Seed
Butternut Signs
Origin Male Flowers
 Natural Female Flowers
 Planted Seed Set
 Unknown None

Assess below live crown
#Epic-Live #Open #Sooty
#Epic-Dead Root
Bark Type =<2m
Callused Wounds >2m

Metres from badly cankered tree
 <40 >40 None Found

Competing Species
F R A A M E R
J U G C I N E
M A L V S

HEIGHT ~ 11m; PIC 25

Tree # Zone Easting Northing
008 17655397 4879225

2 Crown Class 100 Live Crown % 04 Main Stem Length(m) Below crown Seed
Butternut Signs
Origin Male Flowers
 Natural Female Flowers
 Planted Seed Set
 Unknown None

Assess below live crown
#Epic-Live #Open #Sooty
#Epic-Dead Root
Bark Type =<2m
Callused Wounds >2m

Metres from badly cankered tree
 <40 >40 None Found

Competing Species
M A L V S
R H A C A T H
J U G C I N E

HEIGHT ~ 11m; PIC 26

Tree # Zone Easting Northing
009 17672661 4872683

2 Crown Class 090 Live Crown % 02 Main Stem Length(m) Below crown Seed
Butternut Signs
Origin Male Flowers
 Natural Female Flowers
 Planted Seed Set
 Unknown None

Assess below live crown
#Epic-Live #Open #Sooty
#Epic-Dead Root
Bark Type =<2m
Callused Wounds >2m

Metres from badly cankered tree
 <40 >40 None Found

Competing Species
A C E N E G V

HEIGHT ~ 5m; PICS 27-28

Tree # Zone Easting Northing
010 17672658 4872649

1 Crown Class 100 Live Crown % 01 Main Stem Length(m) Below crown Seed
Butternut Signs
Origin Male Flowers
 Natural Female Flowers
 Planted Seed Set
 Unknown None

Assess below live crown
#Epic-Live #Open #Sooty
#Epic-Dead Root
Bark Type =<2m
Callused Wounds >2m

Metres from badly cankered tree
 <40 >40 None Found

Competing Species
V I T R I P A
T I L A M E R

HEIGHT ~ 3m; 2nd STEM 3cm DBH; VINES THROUGHOUT CANOPY; PICS 29-31

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Butternut Data Collection FORM 2 (2010 Edition)

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Shaded fields are mandatory for Butternut Health Assessments

Site Code(A,B,...Z, AA...)

Surveyor ID or BHA # 1145

Date (dd/mm/yyyy) 30-05-2012

Surveyor Last Name LESLIE

Tree ID Numbering: 1,2,3,...Starting from 1 for each site

Tree # Zone Easting Northing
011 176726274872775

Crown Class 4 Live Crown % 100 Main Stem Length(m) 02
Below crown Seed
Butternut Signs
Origin Male Flowers
 Twig Dieback Branch Dieback Defoliation Discolouration
 Planted Unknown Natural Planted Unknown None

Assess below live crown
#Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 01
#Open #Sooty
Root =<2m >2m

Metres from badly cankered tree
 < 40 > 40 None Found
Competing Species
FRAAMER
MALUS

Deer browse at base; Pics #15-16

Tree # Zone Easting Northing
012 176551164879373

Crown Class 1 Live Crown % 095 Main Stem Length(m) 10
Below crown Seed
Butternut Signs
Origin Male Flowers
 Twig Dieback Branch Dieback Defoliation Discolouration
 Planted Unknown Natural Planted Unknown None

Assess below live crown
#Epic-Live 06 #Epic-Dead 00 Bark Type S # Callused Wounds 02
#Open #Sooty
Root =<2m >2m

Metres from badly cankered tree
 < 40 > 40 None Found
Competing Species
OSTVIRG
FRAAMER
UVGCINE

~ 14 m tall; Pics # 17 - 18

Tree # Zone Easting Northing
013 176552064879344

Crown Class 1 Live Crown % 095 Main Stem Length(m) 10
Below crown Seed
Butternut Signs
Origin Male Flowers
 Twig Dieback Branch Dieback Defoliation Discolouration
 Planted Unknown Natural Planted Unknown None

Assess below live crown
#Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 02
#Open #Sooty
Root =<2m >2m

Metres from badly cankered tree
 < 40 > 40 None Found
Competing Species
OSTVIRG
FRAAMER
UVGCINE

~ 14 m tall; Pics 19-20

Tree # Zone Easting Northing
014 176552934879438

Crown Class 1 Live Crown % 100 Main Stem Length(m) 07
Below crown Seed
Butternut Signs
Origin Male Flowers
 Twig Dieback Branch Dieback Defoliation Discolouration
 Planted Unknown Natural Planted Unknown None

Assess below live crown
#Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 01
#Open #Sooty
Root =<2m >2m

Metres from badly cankered tree
 < 40 > 40 None Found
Competing Species
UVGCINE
MALVS

~ 14 m tall; Pic 21

Tree # Zone Easting Northing
015 176552084879251

Crown Class 1 Live Crown % 100 Main Stem Length(m) 07
Below crown Seed
Butternut Signs
Origin Male Flowers
 Twig Dieback Branch Dieback Defoliation Discolouration
 Planted Unknown Natural Planted Unknown None

Assess below live crown
#Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
#Open #Sooty
Root =<2m >2m

Metres from badly cankered tree
 < 40 > 40 None Found
Competing Species
BETPAPY
MALVS

~ 12 m tall; Pic 22

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Butternut Data Collection FORM 2 (2010 Edition)

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Fill when Form 1 indicates canker is well established. The information on Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Shaded fields are mandatory for Butternut Health Assessments

Site Code(A,B,...Z, AA...)

Surveyor ID or BHA # 1145

Date (dd/mm/yyyy) 30-05-2012

Surveyor Last Name LESLIE

Tree ID Numbering: 1,2,3,... Starting from 1 for each site

Tree # Zone Easting Northing
021 17672661 4872624

1 Crown Class 100 Live Crown % 02 Main Stem Length(m) Below crown Seed
Butternut Origin Signs
 Twig Dieback Branch Dieback Defoliation Discolouration 1 #Stems
 Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
#Epic-Live 06 #Epic-Dead 00 Bark Type S # Callused Wounds 01
#Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species JUGCINE

~ 2m tall; Main stem broken off (mechanical - Lateral stem is now main damage)

Tree # Zone Easting Northing
022 17672657 4872616

1 Crown Class 095 Live Crown % 02 Main Stem Length(m) Below crown Seed
Butternut Origin Signs
 Twig Dieback Branch Dieback Defoliation Discolouration 2 #Stems
 Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
#Epic-Live #Epic-Dead Bark Type # Callused Wounds

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

~ 16m tall; 2nd stem 37cm DBH; PICS 34-35

Tree # Zone Easting Northing
023 17672660 4872603

2 Crown Class 100 Live Crown % 02 Main Stem Length(m) Below crown Seed
Butternut Origin Signs
 Twig Dieback Branch Dieback Defoliation Discolouration 1 #Stems
 Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
#Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 02
#Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species VITRIPA JUGCINE

~ 11m tall; PICS 36-37; possible hybrid.

Tree # Zone Easting Northing
024 17672659 4872601

2 Crown Class 095 Live Crown % 02 Main Stem Length(m) Below crown Seed
Butternut Origin Signs
 Twig Dieback Branch Dieback Defoliation Discolouration 1 #Stems
 Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
#Epic-Live 06 #Epic-Dead 00 Bark Type S # Callused Wounds 00
#Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species JUGCINE

~ 4m tall; PIC 38

Tree # Zone Easting Northing
025 17672662 4872602

2 Crown Class 100 Live Crown % 02 Main Stem Length(m) Below crown Seed
Butternut Origin Signs
 Twig Dieback Branch Dieback Defoliation Discolouration 1 #Stems
 Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
#Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 02
#Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species JUGCINE

~ 10m tall; PIC 39

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Butternut Data Collection FORM 2 (2010 Edition)

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Site Code(A,B,...Z, AA...)

Surveyor ID or BHA # 145

Date (dd/mm/yyyy) 30-05-2012

Surveyor Last Name LESLIE

Tree ID Numbering: 1,2,3,... Starting from 1 for each site

Tree # 026 Zone 176 Easting 72666 Northing 4872605

2 Crown Class 095 Live Crown % 02 Main Stem Length(m) Below crown Seed
 Twig Dieback Branch Dieback Defoliation Discolouration 1 #Stems
 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 01
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species JUGCINE

Height ~ 4.5m tall; Pics 40-41

Tree # 027 Zone 176 Easting 72667 Northing 4872604

2 Crown Class 095 Live Crown % 03 Main Stem Length(m) Below crown Seed
 Branch Dieback 1 #Stems
 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 01
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species VITRIPA JUGCINI

Height ~ 4.5m; Pics 42-43

Tree # 028 Zone 176 Easting 72664 Northing 4872572

2 Crown Class 100 Live Crown % 02 Main Stem Length(m) Below crown Seed
 Twig Dieback Branch Dieback 1 #Stems
 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species VITRIPA RHACATH

Height ~ 4.5m; Pic 44-45

Tree # 029 Zone 176 Easting 72668 Northing 4872566

2 Crown Class 100 Live Crown % 03 Main Stem Length(m) Below crown Seed
 Twig Dieback Branch Dieback 1 #Stems
 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species MALUS VITRIPA

Height ~ 4.5; Pic 46-47

Tree # 030 Zone 176 Easting 72668 Northing 4872548

2 Crown Class 100 Live Crown % 03 Main Stem Length(m) Below crown Seed
 Twig Dieback Branch Dieback 1 #Stems
 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species VITRIPA MALUS

Height ~ 5m; Pics 48-49

Please enter matching page link code on forms 1 and 2

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Butternut Data Collection FORM 2 (2010 Edition)

(PLEASE USE BLOCK LETTERS)

Fill when Form 1 indicates canker is well established. The information on Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Shaded fields are mandatory for Butternut Health Assessments

Site Code(A,B,...Z, AA...)

Surveyor ID or BHA # 145

Date (dd/mm/yyyy) 30-05-2012

Surveyor Last Name LESLIE

Tree ID Numbering: 1,2,3,...Starting from 1 for each site

Tree # Zone Easting Northing
031 17672678 4872515

2 Crown Class 100 Live Crown % 02 Main Stem Length(m) Below crown Seed
Butternut Origin Natural Planted Unknown None
Signs Male Flowers Female Flowers Seed Set None

Assess below live crown
#Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
#Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

Height ~ 6m; Pic 50

Tree # Zone Easting Northing
032 17672677 4872479

3 Crown Class 100 Live Crown % 01 Main Stem Length(m) Below crown Seed
Butternut Origin Natural Planted Unknown None
Signs Male Flowers Female Flowers Seed Set None

Assess below live crown
#Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
#Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species ACENEGU

Height ~ 4m; some minor deer browse; PICS 51-52

Tree # Zone Easting Northing
033 17672684 4872643

1 Crown Class 100 Live Crown % 01 Main Stem Length(m) Below crown Seed
Butternut Origin Natural Planted Unknown None
Signs Male Flowers Female Flowers Seed Set None

Assess below live crown
#Epic-Live 01 #Epic-Dead 00 Bark Type S # Callused Wounds 00
#Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species TILAMER

Height ~ 9m, Pic 55

Tree # Zone Easting Northing
034 17672681 4872565

1 Crown Class 100 Live Crown % 01 Main Stem Length(m) Below crown Seed
Butternut Origin Natural Planted Unknown None
Signs Male Flowers Female Flowers Seed Set None

Assess below live crown
#Epic-Live 02 #Epic-Dead 00 Bark Type S # Callused Wounds 00
#Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species JUGCINE

Height ~ 8m; Pic 55

Tree # Zone Easting Northing
035 17672682 4872558

1 Crown Class 100 Live Crown % 02 Main Stem Length(m) Below crown Seed
Butternut Origin Natural Planted Unknown None
Signs Male Flowers Female Flowers Seed Set None

Assess below live crown
#Epic-Live 02 #Epic-Dead 00 Bark Type S # Callused Wounds 00
#Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species JUGCINE YITRIPA

2nd + 3rd stems are 6cm + 7cm DBH; Pic 56

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Butternut Data Collection FORM 2 (2010 Edition)

(PLEASE USE BLOCK LETTERS)

Fill when Form 1 indicates canker is well established. The information on Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Shaded fields are mandatory for Butternut Health Assessments

Site Code(A,B,...Z, AA...)

Surveyor ID or BHA # 1145

Date (dd/mm/yyyy) 30-05-2012

Surveyor Last Name LESLIE

Tree ID Numbering: 1,2,3,... Starting from 1 for each site

Tree # 036 Zone 176 Easting 72681 Northing 4872560

1 Crown Class 100 Live Crown % 02 Main Stem Length(m) Below crown Seed
 1 #Stems Butternut Origin Natural Planted Unknown None
 Twig Dieback Branch Dieback Defoliation Discolouration 014 DBH(cm)

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root = < 2m > 2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species
 VITRIPA
 JUGCINE

Picture # 58 shows trees 36 + 35 together.

Tree # 037 Zone 176 Easting 72676 Northing 4872546

1 Crown Class 100 Live Crown % 02 Main Stem Length(m) Below crown Seed
 1 #Stems Butternut Origin Natural Planted Unknown None
 Twig Dieback Branch Dieback Defoliation Discolouration 025 DBH(cm)

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root = < 2m > 2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species
 VITRIPA
 FRAMER

Pic 58 + 59

Tree # 038 Zone 176 Easting 72681 Northing 4872482

1 Crown Class 100 Live Crown % 05 Main Stem Length(m) Below crown Seed
 1 #Stems Butternut Origin Natural Planted Unknown None
 Twig Dieback Branch Dieback Defoliation Discolouration 015 DBH(cm)

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root = < 2m > 2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species
 RHACATH
 VITRIPA
 ACENEGU

Adjacent to stream; - Assessed June 06, 2012

Tree # 039 Zone 176 Easting 72637 Northing 4872647

2 Crown Class 100 Live Crown % 02 Main Stem Length(m) Below crown Seed
 1 #Stems Butternut Origin Natural Planted Unknown None
 Twig Dieback Branch Dieback Defoliation Discolouration 009 DBH(cm)

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root = < 2m > 2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

On edge of Ag. field; Pic 55 - 57. Assessed June 6 - 12

Tree # 040 Zone 176 Easting 72636 Northing 4872706

2 Crown Class 100 Live Crown % 01 Main Stem Length(m) Below crown Seed
 1 #Stems Butternut Origin Natural Planted Unknown None
 Twig Dieback Branch Dieback Defoliation Discolouration 003 DBH(cm)

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root = < 2m > 2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species
 ULMAMER
 PRUSERO
 PRUVIRG

Lower branch (dead) extended out from root flare; Assessed June 6 - 12 PICS 53 + 54

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Butternut Data Collection FORM 2 (2010 Edition)

(PLEASE USE BLOCK LETTERS)

Fill when Form 1 indicates canker is well established. The information on Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Shaded fields are mandatory for Butternut Health Assessments

Site Code(A,B,...Z, AA...)

Surveyor ID or BHA # 145

Date (dd/mm/yyyy) 25 - 06 - 2012

Surveyor Last Name LESLIE

Tree ID Numbering: 1,2,3,...Starting from 1 for each site

Tree # Zone Easting Northing
041 17672645 4872715

Crown Class 3 Live Crown % 100 Main Stem Length(m) 03 Below crown Seed
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1
 Butternut Origin Natural Planted Unknown
 Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused 00 Wounds 00
 #Open #Sooty Root =<2m >2m
 00 00 00 00 00 00 00 00

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

- DEAD ELM TREE FALLEN ALONG BASE OF TRUNK PREVENTING ROOT ASSESSMENT

Tree # Zone Easting Northing
042 17672639 4872712

Crown Class 3 Live Crown % 100 Main Stem Length(m) 04 Below crown Seed
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1
 Butternut Origin Natural Planted Unknown
 Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused 00 Wounds 00
 #Open #Sooty Root =<2m >2m
 00 00 00 00 00 00 00 00

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

Tree # Zone Easting Northing
043 17672644 4872711

Crown Class 3 Live Crown % 100 Main Stem Length(m) 02 Below crown Seed
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1
 Butternut Origin Natural Planted Unknown
 Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused 00 Wounds 00
 #Open #Sooty Root =<2m >2m
 00 00 00 00 00 00 00 00

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

Tree # Zone Easting Northing
044 17672698 4872746

Crown Class 1 Live Crown % 095 Main Stem Length(m) 16 Below crown Seed
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1
 Butternut Origin Natural Planted Unknown
 Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused 01 Wounds 00
 #Open #Sooty Root =<2m >2m
 00 00 00 00 00 00 00 00

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

Tree # Zone Easting Northing
045 17672676 4872661

Crown Class 4 Live Crown % 100 Main Stem Length(m) 02 Below crown Seed
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1
 Butternut Origin Natural Planted Unknown
 Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused 00 Wounds 00
 #Open #Sooty Root =<2m >2m
 00 00 00 00 00 00 00 00

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

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Butternut Data Collection FORM 2 (2010 Edition)

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Fill when Form 1 indicates canker is well established. The information on Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Shaded fields are mandatory for Butternut Health Assessments

Site Code(A,B,...Z, AA...)

Surveyor ID or BHA # 145

Date (dd/mm/yyyy) 25 - 06 - 2012

Surveyor Last Name LESLIE

Tree ID Numbering: 1,2,3...Starting from 1 for each site

Tree # Zone Easting Northing
046 176727844872692

2 Crown Class 100 Live Crown % 02 Main Stem Length(m) Below crown Seed
 Twig Dieback Branch Dieback Defoliation Discolouration
 3 #Stems
 DBH(cm)
 Unknown

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type 5 # Callused Wounds 01
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree
 < 40 > 40 None Found

Competing Species

ORIGINALLY CUT DOWN - NOW CONSISTS OF THREE COMPETING SHOOTS

Tree # Zone Easting Northing
1

Crown Class Live Crown % Main Stem Length(m) Below crown Seed
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems
 DBH(cm)
 Unknown

Assess below live crown
 #Epic-Live #Epic-Dead Bark Type # Callused Wounds

Metres from badly cankered tree
 < 40 > 40 None Found

Competing Species

Tree # Zone Easting Northing
1

Crown Class Live Crown % Main Stem Length(m) Below crown Seed
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems
 DBH(cm)
 Unknown

Assess below live crown
 #Epic-Live #Epic-Dead Bark Type # Callused Wounds

Metres from badly cankered tree
 < 40 > 40 None Found

Competing Species

Tree # Zone Easting Northing
1

Crown Class Live Crown % Main Stem Length(m) Below crown Seed
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems
 DBH(cm)
 Unknown

Assess below live crown
 #Epic-Live #Epic-Dead Bark Type # Callused Wounds

Metres from badly cankered tree
 < 40 > 40 None Found

Competing Species

Tree # Zone Easting Northing
1

Crown Class Live Crown % Main Stem Length(m) Below crown Seed
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems
 DBH(cm)
 Unknown

Assess below live crown
 #Epic-Live #Epic-Dead Bark Type # Callused Wounds

Metres from badly cankered tree
 < 40 > 40 None Found

Competing Species

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James Leslie, BHA #145
Stantec Consulting
70 Southgate Drive, Suite 1
Guelph ON N1G 4P5
519-836-6050

Paul Dalmazzi
Hydro-One
483 Bay Street South Tower
Toronto ON M5G 2P5

January 8, 2014

RE: 2013 Butternut health assessment, Corner of Winchester Road E and Concession Road 7, Clarington ON

Dear Paul Dalmazzi,

This letter is in regard to my re-assessment of the Butternut trees on your property. The original assessment was completed in 2012; this re-assessment was completed specifically for trees within or near the project footprint to accurately account for changes made under Ontario Regulation 242/08. Please read this letter carefully as it contains important information about the Endangered Species Act, 2007 (ESA).

Butternut is listed as an endangered species on the Species at Risk in Ontario List, and as such, it is protected under the ESA from being killed, harmed, or removed. If you are planning to undertake an activity that may affect Butternut, you may be eligible to follow the requirements set out in section 23.7 of Ontario Regulation 242/08 under the ESA, or you may need to seek an authorization under the ESA (e.g., a permit).

Please visit e-laws at the link provided below for the full legal requirements about activities eligible under section 23.7 of Ontario Regulation 242/08 and conditions that must be fulfilled. Information about butternut is also available at <http://www.ontario.ca/environment-and-energy/butternut-trees-your-property>. If you are not eligible to follow this regulation, please contact the local Ministry of Natural Resources (MNR) to determine whether you will need to seek a permit. A link to the directory of MNR offices is also provided below.

If you are eligible to follow the rules in regulation, your first step is to submit this BHA Report and the original data forms which are enclosed in this package (photocopies won't scan properly) to the local MNR District Manager. The BHA Report must be submitted at least 30 days prior to registering to kill, harm, or remove a Butternut tree. During this 30 day period, no Butternut trees (of any category) may be killed, harmed, or removed. During this time period, MNR may

Web-links:

Endangered Species Act, 2007

http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_07e06_e.htm

Ontario Regulation 242/08 (refer to section 23.7)

http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_080242_e.htm

Summary of changes related to Butternut

<http://www.ontario.ca/environment-and-energy/butternut-trees-your-property>

MNR office locations

http://www.mnr.gov.on.ca/en/ContactUs/2ColumnSubPage/STEL02_179002.html

contact you for an opportunity to examine the trees that were assessed.

If MNR elects to audit the health assessment, a representative of the MNR will contact you using the information you supplied when you submitted the BHA Report. Following any audit, MNR will advise if there are any problems with the BHA that impact your eligibility for the regulation.

If you are eligible to follow section 23.7 of Ontario Regulation 242/08 and MNR does not contact you regarding an audit during the 30 day period, you may register your activity using the “Notice of Butternut Impact” form on the MNR Registry (link provided) and then proceed with your activity.

The designated Butternut Health Assessor has provided the following assessment of the Butternut trees located and assessed at the above noted property during the site visit on October 8, 2013. Please be advised that Butternut trees other than those identified in this BHA Report must also be assessed by a BHA if a proposed activity may cause them to be killed, harmed or removed.

Please retain this letter and the following BHA Report for your records, along with any other documentation you may receive from the MNR should an audit of the assessment occur.

If you have any questions, please do not hesitate to contact me or the Species at Risk Biologist in the local MNR district office.

Sincerely,

James Leslie

Enclosures:

1. BHA Report
2. Original data forms
3. Electronic and printed copies of the Excel data analysis spreadsheet

Explanation of Butternut Categories.

Category 1: Butternut assessed as Category 1 (also referred to as “non-retainable”) are affected by butternut canker to such an advanced degree that retaining the tree would not support the protection or recovery of butternut trees in the area in which the tree is located.

Category 2: Butternut assessed as Category 2 (also referred to as “retainable”) are not affected by butternut canker of the degree to which it is affected by butternut is not too advanced and retaining the tree could support the protection and recovery of butternut trees in the area the tree is located.

Category 3: Butternut assessed as Category 3 (also referred to as “archivable” or “putatively resistant”) are trees that may be useful in determining resistance to butternut canker. Please note, that these trees are not eligible under section 23.7 of Ontario Regulation 242/08.

Hybrids: Trees assessed as hybrid Butternut trees are not protected under the ESA.

Note: Municipal by-laws and other legislation may be applicable.

Butternut Health Assessment Report

James Leslie, BHA #145
Stantec Consulting
70 Southgate Drive, Suite 1
Guelph ON N1G 4P5
519-836-6050

Paul Dalmazzi
Hydro-One
483 Bay Street South Tower
Toronto ON M5G 2P5

RE: 2013 Butternut health assessment, Corner of Winchester Road E and Concession Road 7, Clarington ON

Date of assessment: October 8, 2013

Total number of trees assessed:12

Stantec Consulting Ltd. was retained by Hydro One Networks Inc. (Hydro One) to complete a Natural Heritage Existing Conditions report to support the preparation of a Class EA for the construction of a 500-230 kV auto-transformer Station in the Municipality of Clarington. During site investigations, 46 butternut trees were identified and assessed by a certified Butternut Health Assessor. The original assessment was completed in 2012; this re-assessment was completed specifically for trees within or near the project footprint to accurately account for changes made under Ontario Regulation 242/08.

All butternut trees within the Study Area were numbered on site in 2012 using white paint. The select trees that were re-assessed in 2013 had new numbers assigned to them due to the nature of the data collection forms. These new numbers were only applied to the data collection forms; the trees were not physically re-numbered with white paint. The corresponding numbering system is outlined in the Tables below.

Changes from the 2012 survey are as follows (based on the 2012 numbering system):

- Tree #1, previously categorized as retainable, was genetically tested and determined to be a hybrid (initiative undertaken by Hydro One)
- Tree #16, previously categorized as retainable, was re-assessed as category 1
- Tree #21, previously categorized as retainable, was re-assessed as category 1
- Tree #23, previously categorized as retainable, was re-assessed as a hybrid
- Tree #24, previously categorized as retainable, was re-assessed as category 1

Category 1 trees do not meet the retention criteria in the Butternut Assessment Guidelines based on crown vigour and the degree of cankers on the root flare and/or stem. The following trees can be killed, harmed or removed after the 30 day period that follows submission of this BHA Report to the MNR District Manager without any additional requirements under the ESA but their removal may be subject to municipal by-laws and other legislation.

Please note: The Ontario Recovery Team encourages that all Butternut trees be conserved, whether they meet the retention criteria or not. Removal of cankered trees is not an objective of the Recovery Strategy for Butternut.

The following tree(s) have been assessed as Category 1 : (non-retainable)			
Category	2012 Tree Number	2013 Tree Number	UTM Coordinates
1	16	3	17, 672774, 4872684
1	21	4	17, 672661, 4872624
1	24	6	17, 672659, 4872601
Total number of Category 1 trees:			3

Category 2 trees satisfy the retention criteria in the Butternut Assessment Guidelines. Activities that may affect up to ten (10) Category 2 trees may be eligible under section 23.7 of Ontario Regulation 242/08 in accordance with the conditions set out in the Regulation.

The following tree(s) have been assessed as Category 2 : (retainable)			
Category	2012 Tree Number	2013 Tree Number	UTM Coordinates
2	10	2	17, 672658, 4872649
2	22	5	17, 672657, 4872616
2	28	7	17, 672664, 4872572
2	29	8	17, 672668, 4872566
2	33	9	17, 672692, 4872642
2	34	10	17, 672681, 4872565
2	36	11	17, 672681, 4872560
2	46	12	17, 672780, 4872692
Total number of Category 2 trees:			8

Category 3 trees are not eligible to be killed, harmed or removed under section 23.7 Ontario Regulation 242/08. MNR should be contacted for an application for an authorization issued under the ESA.

The following tree(s) have been assessed as Category 3 : (achievable)			
Category	2012 Tree Number	2013 Tree Number	UTM Coordinates
3	4	1	17, 672762, 4872683
Total number of Category 3 trees:			1

Hybrid Butternut trees are not protected under the ESA, but their removal may be subject to municipal by-laws and other legislation.

The following tree(s) have been assessed as hybrid trees :		
	2012 Tree Number	UTM Coordinates
Hybrid	23	17, 672660, 4872603
Total number of hybrid trees:		1

We understand that Hydro One has taken considerable measures to avoid the Butternut trees at the site, and most recently, Hydro One has been able to minimize the removal and impact to trees 2, 3, 5, 9, 46, and potentially 34, 35, and 36 (based on 2012 tree numbering). Based on the information provided by Hydro One no other trees will be affected by proposed Clarington Transformer development.

Please note that Hydro One will be completing the online registration of Butternut following the 30 day review period as per Section 23(4) 4 of the Regulation.

NOTE: This concludes summary of the BHA Report. A complete BHA Report must include the original (hard copy) data forms (all completed sets of Form 1 and Form 2), an electronic copy of the Excel data analysis spreadsheet, plus one printed copy of the spreadsheet.

2013 ESA 2007 Butternut retainable tree analysis

Contact the OMNR Provincial SAR Branch for a more detailed explanation of its derivation (June 2009/2013).

BHA #		145		Assessment Date(s)		8-Oct-13		Total # trees		12											
Landowner name		Hydro One Inc.																			
Property Location		Corner of Winchester Road E and Concession Road 7, Clarington, ON																			
		input field data						automatic calculations from field data						Categories: 1=non retainable (NR), 2=retainable (R), 3= Archivable (A)							
2013 Tree #	2012 Tree #	Live Crown %	tree dbh (cm)	# bole cankers				# root flare (RF) cankers		< 40 m from cankered tree	Circ. (cm) = Pi x dbh	total bole canker width (sooty x 2.5 + open x 5)	total RF canker width (sooty x 2.5 + open x 5)	bole canker % of circ.	RF canker % of circ.	total bole & root canker % of 2x Circ	"2" cases			"3" cases	
				sooty (S) (will be assigned 2.5 cm per canker)	(will be assigned 5 cm per canker)	open (O) (will be assigned 5 cm per canker)	(will be assigned 5 cm per canker)	RF S	RF O								LC% \leq 50 and BC%=0	LC% \leq 70 & BRC% \leq 20	LC% \leq 70 & BC% \leq 20		
		LC %	dbh (cm)	S <2m	S >2m	O <2m	O >2m	RF S	RF O	y or n	Circ (cm)	BC (cm)	RC (cm)	BC%	RC%	BRC%				Final R Tree Call	FINAL TREE CALL R ₁ dbh>20cm <40m from NR
1	4	95	30	0	0	0	0	1	0	y	94.2	0	2.5	0	3	1	2	2	2	2	3
2	10	100	7	0	0	0	0	0	0	n	21.98	0	0	0	0	0	2	2	2	2	2
3	16	100	11	3	0	0	0	3	0	y	34.54	7.5	7.5	22	22	22	1	1	1	1	1
4	21	25	1	0	0	0	0	0	0	n	3.14	0	0	0	0	0	1	1	1	1	1
5	22	95	48	3	1	0	0	3	0	n	150.72	10	7.5	7	5	6	1	2	2	2	2
6	24	95	7	1	1	1	0	4	0	n	21.98	10	10	45	45	45	1	1	1	1	1
7	28	100	9	0	0	0	0	0	0	y	28.26	0	0	0	0	0	2	2	2	2	2
8	29	100	7	1	0	0	0	0	0	y	21.98	2.5	0	11	0	6	1	2	2	2	2
9	33	95	8	3	1	0	0	0	0	n	25.12	10	0	40	0	20	1	2	1	2	2
10	34	100	19	2	0	0	0	1	0	y	59.66	5	2.5	8	4	6	1	2	2	2	2
11	36	100	17	0	0	0	0	1	0	y	53.38	0	2.5	0	5	2	2	2	2	2	2
12	46	100	3	0	0	0	0	0	0	y	9.42	0	0	0	0	0	2	2	2	2	2

Butternut Data Collection FORM 2 (2010 Edition)

(PLEASE USE BLOCK LETTERS)

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Shaded fields are mandatory for Butternut Health Assessments

Site Code(A,B,...Z, AA...)

Surveyor ID or BHA # 145

Date (dd/mm/yyyy) 08-10-2013

Surveyor Last Name LESLIE

Tree ID Numbering: 1,2,3,... Starting from 1 for each site

Tree # 006 Zone 17 Easting 672659 Northing 4872691

Crown Class 2 Live Crown % 095 Main Stem Length(m) 01 Below crown Seed Signs
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species JUGLONE

MARKED AS "24" HEIGHT ~ 4.1m

Tree # 007 Zone 17 Easting 672664 Northing 4872572

Crown Class 100 Live Crown % 02 Main Stem Length(m) 02 Below crown Seed Signs
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species VITRIPA RHACATH

MARKED AS "28" HEIGHT ~ 4.5m

Tree # 008 Zone 17 Easting 672668 Northing 4872562

Crown Class 2 Live Crown % 03 Main Stem Length(m) 03 Below crown Seed Signs
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species MALUS VITRIPA

MARKED AS "29" HEIGHT ~ 4.5m

Tree # 009 Zone 17 Easting 672692 Northing 4872642

Crown Class 2 Live Crown % 05 Main Stem Length(m) 05 Below crown Seed Signs
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 01 Bark Type S # Callused Wounds 00
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species TILAMEL

MARKED AS "33"

Tree # 009 Zone 17 Easting 672681 Northing 4872565

Crown Class 1 Live Crown % 00 Main Stem Length(m) 01 Below crown Seed Signs
 Twig Dieback Branch Dieback Defoliation Discolouration
 #Stems 1 Butternut Origin Natural Planted Unknown Male Flowers Female Flowers Seed Set None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root =<2m >2m

Metres from badly cankered tree < 40 > 40 None Found
 Competing Species JUGLONE

MARKED AS "34" HEIGHT ~ 8m

Please enter matching page link code on forms 1 and 2

Page Link

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 Suite 233, 266 Charlotte St.
 Peterborough, ON, K9J 2V4
 www.fgca.net

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Fill when Form 1 indicates canker is well established. The information on Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Shaded fields are mandatory for Butternut Health Assessments

Site Code(A,B,...Z, AA...)

Surveyor ID or BHA # 1145

Date (dd/mm/yyyy) 08 - 10 - 2013

Surveyor Last Name LESLIE

Tree ID Numbering: 1,2,3,...Starting from 1 for each site

Tree # 010 Zone 17 Easting 672681 Northing 4872560

Crown Class 1 Live Crown % 100 Main Stem Length(m) 22 Below crown Seed Signs
 Twig Dieback #Stems Butternut Origin Male Flowers
 Branch Dieback Defoliation Discolouration 017 DBH(cm) Natural Planted Unknown None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 00
 #Open #Sooty Root = <2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species
 V I F L I P A
 S U C C I N E

MARVED AS "36"

Tree # 011 Zone 17 Easting 672790 Northing 4872692

Crown Class 1 Live Crown % 100 Main Stem Length(m) 22 Below crown Seed Signs
 Twig Dieback #Stems Butternut Origin Male Flowers
 Branch Dieback Defoliation Discolouration 003 DBH(cm) Natural Planted Unknown None

Assess below live crown
 #Epic-Live 00 #Epic-Dead 00 Bark Type S # Callused Wounds 01
 #Open #Sooty Root = <2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

MARVED AS "46" - ALL 3 STEMS SHOW VIBROT, BUT ALL DAMAGED FROM DEER - 2.3M TALL BROWS

Tree # Zone Easting Northing

Crown Class Live Crown % Main Stem Length(m) Below crown Seed Signs
 Twig Dieback #Stems Butternut Origin Male Flowers
 Branch Dieback Defoliation Discolouration DBH(cm) Natural Planted Unknown None

Assess below live crown
 #Epic-Live #Epic-Dead Bark Type # Callused Wounds
 #Open #Sooty Root = <2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

Tree # Zone Easting Northing

Crown Class Live Crown % Main Stem Length(m) Below crown Seed Signs
 Twig Dieback #Stems Butternut Origin Male Flowers
 Branch Dieback Defoliation Discolouration DBH(cm) Natural Planted Unknown None

Assess below live crown
 #Epic-Live #Epic-Dead Bark Type # Callused Wounds
 #Open #Sooty Root = <2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

Tree # Zone Easting Northing

Crown Class Live Crown % Main Stem Length(m) Below crown Seed Signs
 Twig Dieback #Stems Butternut Origin Male Flowers
 Branch Dieback Defoliation Discolouration DBH(cm) Natural Planted Unknown None

Assess below live crown
 #Epic-Live #Epic-Dead Bark Type # Callused Wounds
 #Open #Sooty Root = <2m >2m

Metres from badly cankered tree < 40 > 40 None Found

Competing Species

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