B3. Species of Conservation Concern (SOCC) Vascular Plant Surveys


BLW1347
FOD
SWD
555
BLW1346
BLW1328
BLW1329
ROE=yes
FODS-5
555
Centennial Road
FODS-5
ROE=yes
BLW1330
556
CUM1-1
BLW1345
FODS-5
CUM1-1
Legend
Property Boundary
GE Turbine
Natural Feature and ID
ELC Polygon Boundaries
Area of Disturbance, plus 10m Disturbance Area
ANSI
Evaluated Wetlands - PSW
ABCA Watercourse
SOCC Vascular Plant Survey
SCP-01
0.5 ha
Basemapping from Ontario Ministry of Natural Resources Orthophotography 2010
Metres
0
25
50
100
1:2,000
UTM Zone 17N, NAD 83
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Bluewater ELC Surveys
~~510_BLW1079~~
555_BLW1329
& 556-BLW1330
April 2012
Project 60155032
AECOM
Figure 1

SCP-01

Plant Species List
2012

Trees & Shrubs	1	2	3	4	5
Conifers					
Balsam Fir *(Abies balsamea)*					
Common Juniper *(Juniperus communis)*					
Eastern Red Cedar *(Juniperus virginiana)*					
Tamarack *(Larix laricina)*					
Norway Spruce (Picea abies)					
White Spruce *(Picea glauca)*					
Black Spruce *(Picea mariana)*					
Jack Pine *(Pinus banksiana)*					
Red Pine *(Pinus resinosa)*					
Eastern White Pine *(Pinus strobus)*					
Scotch Pine *(Pinus sylvestris)*					
Canada Yew *(Taxus canadensis)*					
Eastern White Cedar *(Thuja occidentalis)*					
Eastern Hemlock *(Tsuga canadensis)*					
Deciduous					
Manitoba Maple *(Acer negundo)*					
Black Maple *(Acer nigrum)*					
Norway Maple *(Acer platanoides)*					
Red Maple *(Acer rubrum)*					
Silver Maple *(Acer saccharinum)*					
Freeman's Maple *(Acer X freemanii)*					
Sugar Maple *(Acer saccharum)*	F				
Mountain Maple *(Acer spicatum)*					
Speckled Alder *(Alnus incana)*					
Downy Serviceberry *(Amelanchier arborea)*					
Serviceberry *(Amelanchier sanguinea)*					
Yellow Birch *(Betula alleghaniensis)*					
White Birch *(Betula papyrifera)*					
European Birch *(Betula pendula)*					
Blue Beech *(Carpinus caroliniana)*	U				
Bitternut hickory *(Carya cordiformis*	D				
Shagbark Hickory *(Carya ovata)*					
Climbing Bittersweet *(Celastrus scandens)*					
Common Hackberry *(Celtis occidentalis)*					
Buttonbush *(Cephalanthus occidentalis)*					
Alt.-leaved Dogwood *(Cornus alternifolia)*	U				
Silky Dogwood *(Cornus amomum)*					
Bunchberry *(Cornus canadensis)*					
Gray dogwood *(Cornus racemosa)*					
Round-leaved Dogwood *(Cornus rugosa)*					
Red-osier Dogwood *(Cornus sericea)*					
American Hazel *(Corylus americana)*					
Beaked Hazel *(Corylus cornuta)*					
Cockspur Thorn *(Crataegus crus-galli)*					
English Hawthorn *(Crataegus monogyna)*					
Large-fruited Thorn *(Crataegus punctata)*	U				
Crataegus					
Crataegus					
Bush Honeysuckle *(Diervilla lonicera)*					
Russian Olive *(Elaeagnus angustifolia)*					
Autumn Olive *(Elaeagnus umbellata)*					
Run. Strawberry-bush *(Euonymus obovata)*					
American Beech *(Fagus grandifolia)*	U				
Glossy Buckthorn *(Frangula alnus)*					
White Ash *(Fraxinus americana)*	F				
Black Ash *(Fraxinus nigra)*					
Green Ash *(Fraxinus pennsylvanica)*	U				
Witch-hazel *(Hamamelis virginiana)*					
Winterberry *(Ilex verticilata)*					
Butternut *(Juglans cinerea)*					
Black Walnut *(Juglans nigra)*					
Common Privet *(Ligustrum vulgare)*					
Spicebush *(Lindera benzoin)*					
Fly Honeysuckle *(Lonicera canadensis)*					
Glaucous Honeysuckle *(Lonicera dioica)*					
Morrow's Honeysuckle *(Lonicera morrowii)*					
Tartarian Honeysuckle *(Lonicera tatarica)*					
Common Apple *(Malus pumila)*					
White Mulberry *(Morus alba)*					
Sweet Gale *(Myrica gale)*					
Ironwood *(Ostrya virginiana)*	U				
Thicket-creeper *(Parthenocissus inserta)*					
Ninebark *(Physocarpus opulifolius)*					
Balsam Poplar *(Populus balsamifera)*					
Eastern Cottonwood *(Populus deltoides)*					
Large-tooth Aspen *(Populus grandidentata)*					
Trembling Aspen *(Populus tremuloides)*					
Sweet Cherry *(Prunus avium)*					
Pin Cherry *(Prunus pensylvanica)*					
Black Cherry *(Prunus serotina)*	R				
Choke Cherry *(Prunus virginiana)*	F				
Prunus					

Trees & Shrubs	1	2	3	4	5
Deciduous					
White Oak *(Quercus alba)*					
Bur Oak *(Quercus macrocarpa)*					
Red Oak *(Quercus rubra)*	R				
Alder Buckthorn *(Rhamnus alnifolia)*					
Common Buckthorn *(Rhamnus cathartica)*	F				
Smooth Sumac *(Rhus glabra)*					
Staghorn Sumac *(Rhus hirta)*					
Wild Black Currant *(Ribes americanum)*	U				
Prickly Gooseberry *(Ribes cynosbati)*					
Swamp Black Currant *(Ribes lacustre)*					
Red Currant *(Ribes rubrum)*					
Ribes					
Black Locust *(Robinia pseudo-acacia)*					
Prickly Rose *(Rosa acicularis)*					
Smooth Rose *(Rosa blanda)*					
Multiflora Rose *(Rosa multiflora)*					
Rosa					
Com. Blackberry *(Rubus allegheniensis)*					
Wild Red Raspberry *(Rubus idaeus)*	F				
Black Raspberry *(Rubus occidentalis)*					
Purple-fl. Raspberry *(Rubus odoratus)*	U				
Dwarf Raspberry *(Rubus pubescens)*					
Rubus					
Peach-leaved Willow *(Salix amygdaloides)*					
Bebb's Willow *(Salix bebbiana)*					
Pussy Willow *(Salix discolor)*					
Missouri Willow *(Salix eriocephala)*					
Sandbar Willow *(Salix exigua)*					
Shining Willow *(Salix lucida)*					
Black Willow *(Salix nigra)*					
Slender Willow *(Salix petiolaris)*					
Salix					
Hybrid Crack Willow *(Salix X rubens)*					
Black-berried Elder *(Sambucus nigra)*					
Red-berried Elder *(Sambucus racemosa)*					
Buffaloberry *(Shepherdia canadensis)*					
Eur. Mountain Ash *(Sorbus aucuparia)*					
Narrow Meadow-sweet *(Spiraea alba)*					
Common Lilac *(Syringa vulgaris)*					
Poison-ivy *(Toxicodendron rydbergii)*	F				
Climbing Poison-ivy *(Toxicodendron radicans)*					
White Elm *(Ulmus americana)*	U				
Siberian Elm *(Ulmus pumila)*					
Slippery Elm *(Ulmus rubra)*					
Low Blueberry *(Vaccinium angustifolium)*					
Maple-leaf Viburnum *(Viburnum acerifolium)*					
Hobblebush *(Viburnum lantanoides)*					
Nannyberry *(Viburnum lentago)*					
Guelder-Rose *(Viburnum opulus)*					
Downy Arrow-wood *(Vib. rafinesquianum)*					
Riverbank Grape *(Vitis riparia)*					
Am. Prickly-ash *(Zanthoxylum americanum)*					
Frog Veg	F				
Ferns & Allies					
Lady Fern *(Athyrium filix-femina)*					
Rattlesnake Fern *(Botrychium virginianum)*					
Bulbet Bladder Fern *(Cystopteris bulbifera)*					
Spin. Wood Fern *(Dryopteris carthusiana)*					
Crested Wood Fern *(Dryopteris cristata)*					
Marginal Wood Fern *(Dryopteris marginalis)*					
Dryopteris					
Ostrich Fern *(Matteuccia struthiopteris)*					
Sensitive Fern *(Onoclea sensibilis)*					
Cinnamon Fern *(Osmunda cinnamomea)*					
Interrupted Fern *(Osmunda claytoniana)*					
Royal Fern *(Osmunda regalis)*					
Christmas Fern *(Polystichum acrostichoides)*					
Eastern Bracken-fern *(Pteridium aquilinum)*					
Marsh Fern *(Thelypteris palustris)*					
Field Horsetail *(Equisetum arvense)*					
Scouring-rush *(Equisetum hyemale)*					
Variegated Horsetail *(Equisetum variegatum)*					
Equisetum					
Ground-cedar*(Lycopodium digitatum)*					
Shining Clubmoss *(Lycopodium lucidulum)*					
Ground-pine *(Lycopodium obscurum)*					

Graminoids	1	2	3	4	5
Grasses					
Giant Redtop *(Agrostis gigantea)*					
Redtop *(Agrostis stolonifera)*					
Awnless Brome *(Bromus inermis)*					
Bromus					
Blue-joint Grass *(Calamagrostis canadensis)*					
Orchard Grass *(Dactylis glomerata)*					
Poverty Oat Grass *(Danthonia spicata)*					
Quack Grass *(Elymus repens)*					
Virginia Wild Rye *(Elymus virginicus)*					
Elymus					
Fowl Manna Grass *(Glyceria striata)*	R				
Glyceria					
Rice Cut Grass *(Leersia oryzoides)*					
Tall Fescue *(Lolium arundinaceum)*					
Muhlenbergia					
Witch-grass *(Panicum capillare)*					
Panicum					
Reed Canary Grass *(Phalaris arundinacea)*					
Timothy *(Phleum pratense)*					
Common Reed *(Phragmites australis)*					
Canada Blue Grass *(Poa compressa)*					
Fowl Meadow Grass *(Poa palustris)*					
Kentucky Bluegrass *(Poa pratensis)*					
Yellow Foxtail *(Setaria pumila)*					
Green Foxtail *(Setaria viridis)*					
Sedges					
Drooping Wood Sedge *(Carex arctata)*					
Golden-fruited Sedge *(Carex aurea)*					
Graceful Sedge *(Carex gracillima)*					
Inland Sedge *(Carex interior)*					
Bladder Sedge *(Carex intumescens)*					
Lake-bank Sedge *(Carex lacustris)*					
Hop Sedge *(Carex lupulina)*					
Pennsylvania Sedge *(Carex pensylvanica)*					
Awl-fruited Sedge *(Carex stipata)*					
Fox Sedge *(Carex vulpinoidea)*					
Carex					
Carex					
Carex					
Carex					
Carex					
Carex					
Carex					
Carex					
Cyperus					
Redroot Spike-rush *(Eleocharis erythropoda)*					
Eleocharis					
Hard-stem Bulrush *(Schoenoplectus acutus)*					
Three-square Bulrush *(Sch. pungens)*					
Soft-stem Bulrush *(Sch. tabernaemontani)*					
Dark-green Bulrush *(Scirpus atrovirens)*					
Wool-grass *(Scirpus cyperinus)*					
Other Graminoids					
Broad Bur-reed *(Sparganium eurycarpum)*					
Narrow-leaved Cattail *(Typha angustifolia)*					
Broad-leaved Cattail *(Typha latifolia)*					
Broad-leaved Cattail *(Typha X glauca)*					
Articulated Rush *(Juncus articulatus)*					
Soft Rush *(Juncus effusus)*					
Path Rush *(Juncus tenuis)*					
Juncus					
Juncus					

D - Dominant: represented by large numbers; generally forming >10% ground cover or >25% vegetation cover in any one stratum

F - Fairly common (=Abundant in ELC): generally widespread represented by fairly large numbers of individual clumps; usually forming >10% ground cover

U - Uncommon (=Occasional in ELC): present as widespread scattered individuals or represented by one or more clumps of many individuals (most species will fall into this catergory)

R - Rare: represented in the polygon by less than about five individuals or small clumps

Map Number: 555 BlW 1329	1		4
Date: 06/19/2012	2		5
Surveyors: Tom Shorey	3		
Sara Gilbert			

Plant Species List
2012

Dicot Herbs - Asteraceae	1	2	3	4	5
Common Yarrow (*Achillea millefolium*)					
White Snakeroot (*Ageratina altissima*)					
Com. Ragweed (*Ambrosia artemisiifolia*)					
Giant Ragweed (*Ambrosia trifida*)					
Field Pussytoes (*Antennaria neglecta*)					
Artemisia					
Common Burdock (*Arctium minus*)					
Nodding Beggar-ticks (*Bidens cernua*)					
Devil's Beggar-ticks (*Bidens frondosa*)					
Spotted Knapweed (*Centaurea biebersteinii*)					
Brown Knapweed (*Centaurea jacea*)					
Chicory (*Cichorium intybus*)					
Canada Thistle (*Cirsium arvesnse*)					
Bull Thistle (*Cirsium vulgare*)					
Horseweed (*Conyza canadensis*)					
Daisy Fleabane (*Erigeron annus*)					
Philadelphia Fleabane (*Erig. philadelphicus*)					
Erigeron					
Joe-pye-weed (*Eupatorium maculatum*)					
Boneset (*Eupatorium perfoliatum*)					
Large-leaved Aster (*Eurybia macrophylla*)					
Flat-top Goldenrod (*Euthamia graminifolia*)					
Orange Hawkweed (*Hieracium aurantiacum*)					
Field Hawkweed (*Hieracium caespitosum*)					
Hieracium					
Elecampane (*Inula helenium*)					
Prickly Lettuce (*Lactuca serriola*)					
Lactuca					
Ox-eye Daisy (*Leucanthemum vulgare*)					
Pineapple-weed (*Matricaria discoidea*)					
Tall White Lettuce (*Prenanthes altissima*)					
Black-eyed Susan (*Rudbeckia hirta*)					
Tall Goldenrod (*Solidago altissima*)					
Blue-stem Goldenrod (*Solidago caesia*)					
Canada Goldenrod (*Solidago canadensis*)					
Zig-zag Goldenrod (*Solidago flexicaulis*)	U				
Giant Goldenrod (*Solidago gigantea*)					
Early Goldenrod (*Solidago juncea*)					
Gray Goldenrod (*Solidago nemoralis*)					
Solidago					
Field Sow-thistle (*Sonchus arvensis*)					
Sonchus					
Heart-leaf Aster (*Symph. cordifolium*)					
Heath Aster (*Symphyotrichum ericoides*)					
Tall White Aster (*Symph. lanceolatum*)					
Calico Aster (*Symphyotrichum lateriflorum*)	U				
New England Aster (*Symph. novae-angliae*)					
Purple-stem Aster (*Symph. puniceus*)					
Common Tansy (*Tanacetum vulgare*)					
Common Dandelion (*Taraxacum officinale*)					
Com. Goatsbeard (*Tragopogon pratensis*)					
Coltsfoot (*Tussilago farfara*)					

Other Dicot Herbs	1	2	3	4	5
White Baneberry (*Actaea pachypoda*)					
Red Baneberry (*Actaea rubra*)					
Tall Agrimony (*Agrimonia gryposepala*)					
Garlic Mustard (*Alliaria petiolata*)					
Green Amaranth (*Amaranthus retroflexus*)					
Hog-peanut (*Amphicarpa bracteata*)					
Pearly Everlasting (*Anaphalis margaritacea*)					
Canada Anemone (*Anemone canadensis*)					
Ivy Hepatica (*Anemone acutiloba*)					
Thimbleweed (*Anemone virginiana*)					
Purple Angelica (*Angelica atropurpurea*)					
Indian Hemp (*Apocynum cannabinum*)					
Wild Sarsaparilla (*Aralia nudicaulis*)					
Spikenard (*Aralia racemosa*)					
Wild Ginger (*Asarum canadense*)					
Swamp Milkweed (*Asclepias incarnata*)					
Common Milkweed (*Asclepias syriaca*)					
Yellow Rocket (*Barbarea vulgaris*)					
False Nettle (*Boehmeria cylindrica*)					
Black Mustard (*Brassica nigra*)					
Marsh-marigold (*Caltha palustris*)					
Creeping Bellflower (*Campanula rapunculoides*)					

Dicot Herbs	1	2	3	4	5
Shepherd's Purse (*Capsella bursa-pastoris*)					
Cutleaf Toothwort (*Cardamine concatenata*)					
Toothwort (*Cardamine diphylla*)					
Penn. Bitter-cress (*Cardamine pensylvanica*)					
Cardamine					
Blue Cohosh (*Caulophyllum thalictroides*)					
Mouse-ear Chickweed (*Cerastium fontanum*)					
Turtlehead (*Chelone glabra*)					
Spotted Water-hemlock (*Cicuta maculata*)					
Water-hemlock (*Cicuta virosa*)					
Enchanter's Nightshade (*Circaea lutetiana*)	U				
Carolina Spring Beauty (*Claytonia caroliniana*)					
Virginia Spring Beauty (*Claytonia virginica*)					
Virgin's-bower (*Clematis virginiana*)					
Field Bindweed (*Convolvulus arvensis*)					
Dog-strangling Vine (*Cynanchum rossicum*)					
Wild Carrot (*Daucus carota*)					
Deptford Pink (*Dianthus armeria*)					
Squirrel-corn (*Dicentra canadensis*)					
Dutchman's-breeches (*Dicentra cucullaria*)					
Wild Teasel (*Dipsacus fullonum*)					
Wild Cucumber (*Echinocystis lobata*)					
Viper's Bugloss (*Echium vulgare*)					
Northern Willow-herb (*Epilobium ciliatum*)					
Hairy Willow-herb (*Epilobium hirsutum*)					
Small-fl. Willow-herb (*Epilobium parviflorum*)					
Epilobium					
Worm Mustard (*Erysimum cheiranthoides*)					
Euphorbia					
Hemp Nettle (*Galeopsis tetrahit*)					
Wild Madder (*Galium mollugo*)					
Marsh Bedstraw (*Galium palustre*)					
Sweet-scented Bedstraw (*Galium triflorum*)					
Galium					
Spotted Geranium (*Geranium maculatum*)					
Herb-robert (*Geranium robertianum*)					
Yellow Avens (*Geum aleppicum*)	U				
White Avens (*Geum canadense*)					
Urban Avens (*Geum urbanum*)					
Dame's Rocket (*Hesperis matronalis*)					
Virg. Water-leaf (*Hydrophyllum virginianum*)					
Com. St. John's-wort (*Hypericum perforatum*)					
Spotted Jewelweed (*Impatiens capensis*)					
Wood Nettle (*Laportea canadensis*)					
Motherwort (*Leonurus cardiaca*)					
Field Peppergrass (*Lepidium campestre*)					
Eur. Gromwell (*Lithospermum officinale*)					
Butter & Eggs (*Linaria vulgaris*)					
Great Lobelia (*Lobelia siphilitica*)					
Lobelia					
Cut-leaf Bugleweed (*Lycopus americanus*)					
Northern Bugleweed (*Lycopus uniflorus*)					
Fringed Loosestrife (*Lysimachia ciliata*)					
Moneywort (*Lysimachia nummularia*)					
Lysimachia					
Purple Loosestrife (*Lythrum salicaria*)					
Black Medick (*Medicago lupulina*)					
Alfalfa (*Medicago sativa*)					
White Sweet-clover (*Melilotus alba*)					
Yellow Sweet-clover (*Melilotus officinalis*)					
Wild Mint (*Mentha arvensis*)					
Wild Bergamot (*Monarda fistulosa*)					
Small Forget-me-not (*Myosotis laxa*)					
Forget-me-not (*Myosotis scorpioides*)					
Water-cress (*Nasturtium officinale*)					
Com. Evening-primrose (*Oenothera biennis*)					
Sweet-cicely (*Osmorhiza berterii*)					
Yellow Wood-sorrel (*Oxalis stricta*)					
Wild Parsnip (*Pastinaca sativa*)					
English Plantain (*Plantago lanceolata*)					
Common Plantain (*Plantago major*)					
Rugel's Plantain (*Plantago rugelii*)					
May-apple (*Podophyllum peltatum*)					
Pale Smartweed (*Polygonum lapathifolium*)					
Lady's-thumb (*Polygonum persicaria*)					
Virginia Knotweed (*Polygonum virginianum*)					
Polygonum					
Polygonum					
Rough Cinquefoil (*Potentilla norvegica*)					
Rough-fruited Cinquefoil (*Potentilla recta*)					
Common Cinquefoil (*Potentilla simplex*)					
Potentilla					
Heal-all (*Prunella vulgaris*)					
Shinleaf (*Pyrola elliptica*)					

Dicot Herbs	1	2	3	4	5
Kidney-leaf Buttercup (*Ranunculus abortivus*)					
Tall Buttercup (*Ranunculus acris*)					
Hooked Buttercup (*Ranunculus recurvatus*)					
Ranunculus					
Sheep Sorrel (*Rumex acetosella*)					
Curly-leaf Dock (*Rumex crispus*)					
Bitter Dock (*Rumex obtusifolius*)					
Bloodroot (*Sanginaria canadense*)		U			
Black Snakeroot (*Sanicula marilandica*)					
Bouncing Bet (*Saponaria officinalis*)					
Marsh Skullcap (*Scutellaria galericulata*)					
Mad Dog Skullcap (*Scutellaria lateriflora*)					
White Campion (*Silene latifolia*)					
Bladder Campion (*Silene vulgaris*)					
Hemlock Water-parsnip (*Sium suave*)					
Bitter Nightshade (*Solanum dulcamara*)					
Black Nightshade (*Solanum ptychanthum*)					
Grassleaf Stitchwort (*Stellaria graminea*)					
Common Chickweed (*Stellaria media*)					
Early Meadow-rue (*Thalictrum dioicum*)					
Tall Meadow-rue (*Thalictrum pubescens*)					
Field Penny-cress (*Thlaspi arvense*)					
Foamflower (*Tiarella cordifolia*)					
Star-flower (*Trientalis borealis*)					
Red Clover (*Trifolium pratense*)					
White Clover (*Trifolium repens*)					
Trifolium					
Stinging Nettle (*Urtica dioica*)					
Greater Bladderwort (*Utricularia vulgaris*)					
Common Mullein (*Verbascum thapsus*)					
Blue Vervain (*Verbena hastata*)					
White Vervain (*Verbena urticifolia*)					
Water Speedwell (*Veron. anagallis-aquatica*)					
Common Speedwell (*Veronica officinalis*)					
Veronica					
Cow Vetch (*Vicia cracca*)					
Vicia					
Periwinkle (*Vinca minor*)					
Dog Violet (*Viola conspersa*)					
Yellow Violet (*Viola pubescens*)					
Com. Blue Violet (*Viola sororia*)					
Viola					
Satureja Vulgaris		R			

Monocot Herbs	1	2	3	4	5
Water-plantain (*Alisma plantago-aquatica*)					
Wild Leek (*Allium tricoccum*)					
Jack-in-the-pulpit (*Arisaema triphyllum*)		U			
Asparagus (*Asparagus officinalis*)					
Wild Calla (*Calla palustris*)					
Bluebead-lily (*Clintonia borealis*)					
Garden Lily-of-valley (*Convallaria majalis*)					
Yel. Lady's Slipper (*Cypripedium parviflora*)					
Canada Waterweed (*Elodea canadensis*)					
Helleborine (*Epipactis helleborine*)		U			
Yellow Trout Lily (*Erythronium americanum*)					
Blue-flag Iris (*Iris versicolor*)					
Orange Day Lily (*Hemerocallus fulva*)					
Lesser Duckweed (*Lemna minor*)					
Starry Duckweed (*Lemna trisulca*)					
Wild Lily-of-valley (*Maianthemum canadense*)					
False Solom Seal (*Maianthemum racemosum*)		U			
Star False Solomon (*Maianthemum stellatum*)					
True Solomon Seal (*Polygonatum pubescens*)					
Pickerel-weed (*Pontederia cordata*)					
Curly-leaf Pondweed (*Potamogeton crispus*)					
Sago Pondweed (*Potamogeton pectinatus*)					
Potamogeton					
Potamogeton					
Broad-leaved Arrowhead (*Sagittaria latifolia*)					
Blue-eyed-grass (*Sisyrinchium montanum*)					
Herb. Carrion Flower (*Smilax herbacea*)					
Bristly Greenbrier (*Smilax hispida*)					
Nodding Ladies' Tresses (*Spiranthes cernua*)					
Rose Twisted-stalk (*Streptopus lanceolatus*)					
Skunk-cabbage (*Symplocarpus foetidus*)					
Purple Trillium (*Trillium erectum*)					
White Trillium (*Trillium grandiflorum*)					
Large-flowered Beliwort (*Uvularia grandiflora*)					

D - Dominant: represented by large numbers; generally forming >10% ground cover or >25% vegetation cover in any one stralum

F - Fairly common (=Abundant in ELC): generally widespread represented by fairly large numbers of individual clumps; usually forming >10% ground cover

U - Uncommon (=Occasional in ELC): present as widespread scattered individuals or represented by one or more clumps ofmany individuals (most species will fall into this catergory)

R - Rare: represented in the polygon by less than about five individuals or small clumps

Map Number:	1		4
Date:	2		5
Surveyors:	3		

B4. Snake Hibernaculum Surveys

Legend

Project Location

- GE Turbine
- Disturbance Area
- Property Boundary
- Transmission Line Buffer (180 m)
- ELC Polygon Boundaries

COPY

Basemapping from Ontario Ministry of Natural Resources Orthophotography 2006

N W E S

Metres
0 7.5 15 30 45 60

1:2,000

UTM Zone 17N NAD 83

EOS - Reptile Hibernaculum Study

551 - BLW1358/551 - BLW1371

RH-05

March 2012

Project 60155032

AECOM

Figure 1

Path: N:\projects\0-aecom\60155032\2010Final\GIS\Spatial\MXDs\FieldMapMXDs\Bluewater\BLU_Amphib\60155032_BLU_AmphibSurveySites_TL551.mxd

Snake Hibernacula Survey Data Form

AECOM

Study Area:	(Bluewater)	Goshen	Jericho	RH-05
Map #:	SSI-BLW1358/1371		Feature # :	SSI-BLW1371-S1
GPS:	17T 0459480, 4817536 Wp 39.			

Date(yyyy-mm-dd):	2012-04-19	Visit No:	1
Field Staff (full name):	Rob Aitken, Sam Gildner		
Weather:	Sunny - 15°C		
Cloud Cover %:	0	Temperature Celcius: 15	Wind: 0
Time Started:	9:00 am	Time Finished:	10:00 am

Fill out on first visit only:

Rock/debris pile length(m):	10	width(m):	3
height (m):	0.5-1m		
Potential for rocks/access below frost line:	YES ✓	NO	
Material description[1]:	various sized rocks. 10 centimeter to 30cm diameter, some covered in soil and grass		
Surrounding Veg. Descrip. (ELC type, dominants):	Black walnut, Basswood, riverbank grape. CUP and Field + Ash forest transition, next to watercourse.		
Canopy Cover %:	70%	Slope (degrees):	0
Distance to nearest tree/shrub (m):	30cm	Aspect direction:	0
Surrounding land use:	ags., plantation, forest.		

Snake Species	Est. Length-cm	Sex	Distance[2]	Comments[3]
NO				

Photo #	Location/or Subject	Photo #	Location/or Subject
1, 2-5	rock pile		

Comments

[1] Type of material/composition/dimensions

[2] Distance of snake from observer

[3] Observed behaviour, distinguishing marks, cover etc.

Snake Hibernacula Survey Data Form

AECOM

Study Area:	Bluewater Goshen Jericho
Map #:	551 - BLW 1358/1371 Feature # : RH-05
GPS:	17T

Date(yyyy-mm-dd):	2013 may 8 Visit No: 2
Field Staff (full name):	Rob Aitken, Sam Gardiner
Weather:	Sunny
Cloud Cover %:	10% Temperature Celcius: 16°C Wind: 0
Time Started:	330 pm Time Finished: 350 pm

Fill out on first visit only:

Rock/debris pile length(m):	width(m):
height (m):	
Potential for rocks/access below frost line:	YES ☐ NO ☐
Material description[1]:	
Surrounding Veg. Descrip. (ELC type, dominants):	
Canopy Cover %:	Slope (degrees):
Distance to nearest tree/shrub (m):	Aspect direction:
Surrounding land use:	

Snake Species	Est. Length-cm	Sex	Distance[2]	Comments[3]

Photo #	Location/or Subject	Photo #	Location/or Subject
740	Rocks		

Comments: NO Snakes observed.

[1] Type of material/composition/dimensions

[2] Distance of snake from observer

[3] Observed behaviour, distinguishing marks, cover etc.

Legend

Project Location

GE Turbine

Disturbance Area

Property Boundary

Transmission Line Buffer (180 m)

ELC Polygon Boundaries

Basemapping from Ontario Ministry of Natural Resources
Orthophotography: 2006

N
W E
S

Metres
0 7.5 15 30 45 60

1:2,000

UTM Zone 17N, NAD 83

RH-05

551 - BLW1358/551 - BLW1371

March 2012
Project 60155032

AECOM

Figure 1

Path: N:\projects\0-aecom\60155032\2010\Final\GIS\Spatial\MXD\stBluewater\BLU_Amphib\60155032_BLU_AmphibSurveySites_TL551.mxd

Snake Hibernacula Survey Data Form

AECOM

Study Area:	Bluewater	Goshen	Jericho
Natural Area #:	SST-BLW 1358/551-BLW1371	Feature # :	RH-05
GPS:	17T see original sheet.		

Date(yyyy-mm-dd):	2012, may 17	Visit No:	3
Field Staff (full name):	Gildiver, Aitken		
Weather:	(see below)		
Cloud Cover %:	0%	Temperature Celcius:	10°C
Wind:	none		
Time Started:	11:00 am	Time Finished:	11:20 a.m

Fill out on first visit only:

Rock/debris pile length(m):		width(m):	
height (m):			
Potential for rocks/access below frost line:	YES ☐	NO ☐	
Material description[1]:			
Surrounding Veg. Descrip. (ELC type, dominants):	not needed		
Canopy Cover %:		Slope (degrees):	
Distance to nearest tree/shrub (m):		Aspect direction:	
Surrounding land use:			

Snake Species	Est. Length-cm	Sex	Distance[2]	Comments[3]
	observed.			
none				

Photo #	Location/or Subject	Photo #	Location/or Subject

Comments

[1] Type of material/composition/dimensions

[2] Distance of snake from observer

[3] Observed behaviour, distinguishing marks, cover etc.

B5. Ontario Wetland Evaluation System (OWES) Field Notes


BLW1608
BLW1607
BLW1606
BLW1605
BLW1603
BLW1604
BLW1656
BLW1657
BLW1658
BLW1588
BLW1587
BLW1588
BLW1589
BLW1590
BLW1591
BLW1436
Centennial Road
Farm Line
Legend
Turbine Layout
Access Road
Collection Line
Transmission Line
Property Boundary
ANSI
Evaluated Wetlands - PSW
Watercourse
Natural Feature and ID
ELC Polygon Boundary
Not wetland
Habitat
Basemapping from Ontario Ministry of Natural Resources
Orthophotography: 2010
Turbine Layout: April 9, 2012
UTM Zone 17N, NAD 83
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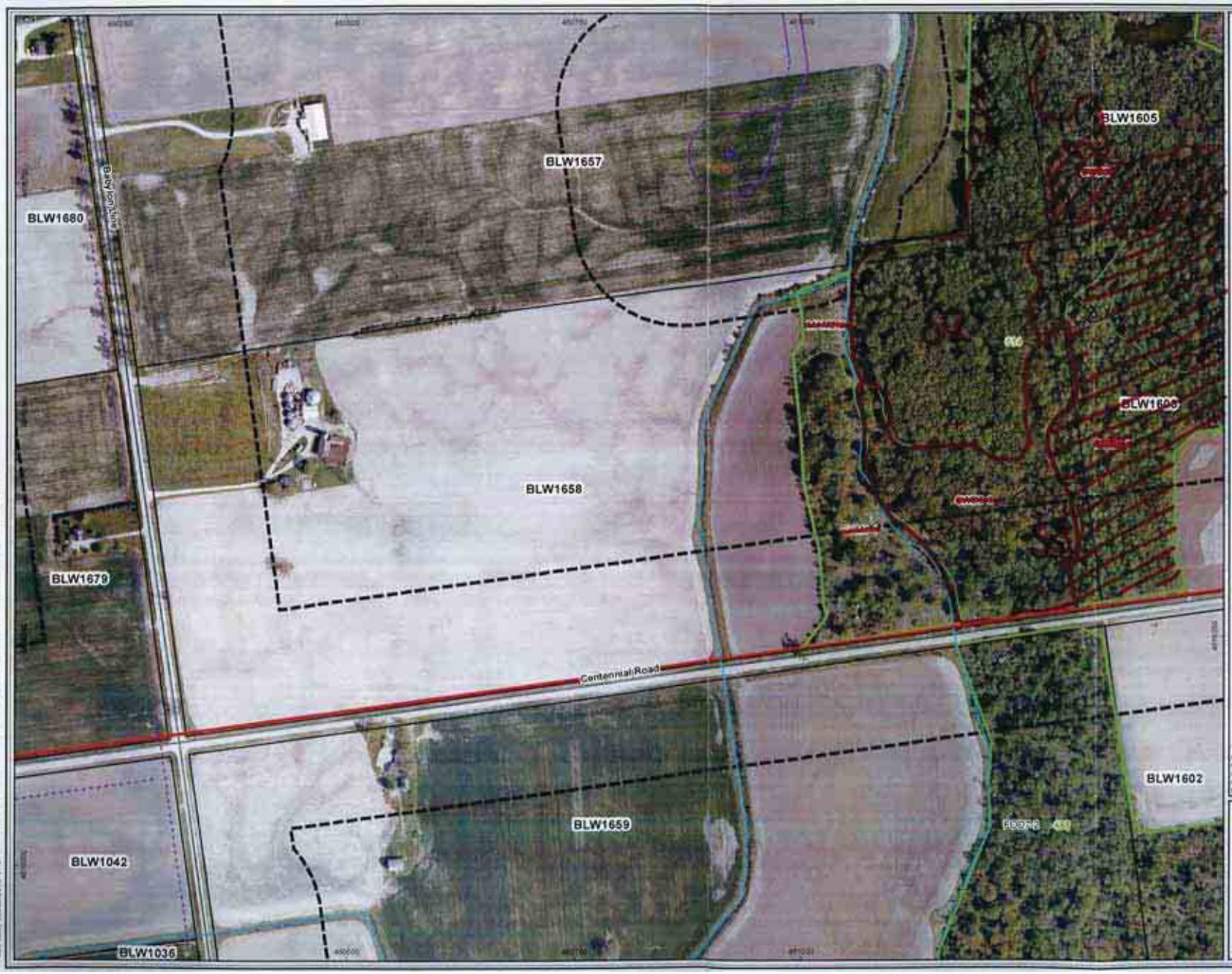
Bluewater ELC Survey
BLW1605
June 2012
Project 60139032
AECOM
Figure 1



Legend

- Turbine Layout
- Access Road
- Collection Line
- Transmission Line
- Property Boundary
- ANSI
- Evaluated Wetlands - PSW
- Watercourse
- Natural Feature and ID
- ELC Polygon Boundary

TTS – Not wetland Habitat

Basemapping from Ontario Ministry of Natural Resources
Orthophotography: 2010
Turbine Layout: April 9, 2012

N
W
E
S

Metres
0 25 50 100

1:3,840

UTM Zone 17N, NAD 83

Bluewater ELC Survey

BLW1658

June 2012
Project 60155032

AECOM

Figure 1

Wetland Data Collection Sheet

AECOM

Study area: Bluewater	Map No: BLW1605/BLW1658/BLW1603/BLW1657
Date (yyyy-mm-dd): 2012-06-26	Time Started: 10:30am
Field Staff: Jess Cliette + Tom Shanney	Time Finished: 5:30pm

Presence of Groundwater No ☒ Yes ☐

☐ bank seepage ☐ iron staining ☐ groundwater indicator

Site Type

Lacustrine ☐ (associated with lakes) Isolated ☒

Riverine ☐ (associated with rivers)

Palustrine ☒ absent or intermittnet inflow and either intermittnet or permanent outflow

what are the water inputs and outputs? surface water inputs

Soils refer to ELC card for soils information Mineral CS (M1) Mineral with 36cm organics

% open Water

Type 1 - <5% ☐

Type 2 - 5-25% ☐ (water occuring in one central location)

Type 3 - 5-25% ☒ (water occuring in ponds of various sizes)

Type 4 - 26-75% ☐ (water occuring in a central location)

Type 5 - 26-75% ☐ (water occuring in a small patern)

Type 6 - 76-95% ☐ (occuring in a central location, vegeation is peripehral)

Type 7 - 76-95% ☐ (vegetation occurs inpatches or diffuse, open stands)

Type 8 - >95% ☐ (water occupies over 95% of the area)

Community Descriptions

Vegetation forms

h (deciduous trees)	ne (narrow leaved emergents)	ts (tall shrubs 1-6m)	f (aquatic with floating leaf)
c (coniferous trees)	be (broad leaved emergents)	ls (low shrubs up to 1m)	ff (free floating)
dh (dead deciduous trees)	gc (ground cover)	ds (dead shrubs)	su (all under water)
dc (dead coniferous trees)	m (mosses)	re (robust emergents)	u (unvegetated)

Map Code/ ELC Code	Community Description - list at least four dominant species for each form
M1	ne*: juncuscana, juncus species, carlupi ls: Frapenn, corseri, salnigr gc: ascinca, sympuni
M2	Re*: Pharrun, scivali ne*: juncana, eleocharis sp. ls: Frapenn
S1	h*: Frapen, poptrem, saleric ne: juncana, carlupi, scivali gc: ascinca, sympuni
S2	h*: Ace free, Frapenn, ulmamer ls: lenbenz, Frapenn, coralte TS: lenbenz gc: onosens, impcapen, Boecylin, viola sp.

Wetland Data Collection Sheet

AECOM

53	h*: Acefree, Frapenn, UlmAmer IS: lerhene, Frapenn TS: Frapenn, Cocalte, UlmAmer gc: ostrichfern, thapube, aritrip, impcapen

Notes on Ecological Functions or features
should include notes on: furbearer, cranberries, wild rice, baitfish, bullfrogs, winter cover for wildlife, suitablility for waterfowl breeding staging, moulting, evidence of recreational activities, disturbance, sourrounding topography (flat, rolling, hilly, steep), and surrounding habitat diversity

* Potential turtle habitat within ponds located within M1/M2
* Waterfowl habitat within ponds patched with buss
* Recreational trails found through patch

Wetland Data Collection Sheet

AECOM

Notes on Ecological Functions or features

should include notes on: furbearer, cranberries, wild rice, baitfish, bullfrogs, winter cover for wildlife, suitablility for waterfowl breeding staging, moulting, evidence of recreational activities, disturbance, sourrounding topography (flat, rolling, hilly, steep), and surrounding habitat diversity

- Monarch Butterfly
- cabbage white
- catbird
- Tree swallow
- house wren
- red-wing blackbird
- common yellowthroat
- Eastern kingbird
- Killdeer
- Balt. oriole
- orange Sulphur
- Eastern wood peewee
- Ruby-throated hummingbird
- Am. Goldfinch
- Whitefaced meadowhawk
- Flicker
- great crested flycatcher
- Red-eyed Vireo
- wood thrush
- Ebony jewelwing
- Black-capped chickadee
- crawling

Plant Species List
2012

Trees & Shrubs	1	2	3	4	5
Conifers					
Balsam Fir *(Abies balsamea)*					
Common Juniper *(Juniperus communis)*					
Eastern Red Cedar *(Juniperus virginiana)*					
Tamarack *(Larix laricina)*					
Norway Spruce (Picea abies)					
White Spruce *(Picea glauca)*					
Black Spruce *(Picea mariana)*					
Jack Pine *(Pinus banksiana)*					
Red Pine *(Pinus resinosa)*					
Eastern White Pine *(Pinus strobus)*					
Scotch Pine *(Pinus sylvestris)*					
Canada Yew *(Taxus canadensis)*					
Eastern White Cedar *(Thuja occidentalis)*				U	
Eastern Hemlock *(Tsuga canadensis)*				U	R
Deciduous					
Manitoba Maple *(Acer negundo)*					
Black Maple *(Acer nigrum)*					
Norway Maple *(Acer platanoides)*					
Red Maple *(Acer rubrum)*				R	
Silver Maple *(Acer saccharinum)*					
Freeman's Maple *(Acer X freemanii)*				D	D
Sugar Maple *(Acer saccharum)*					
Mountain Maple *(Acer spicatum)*					
Speckled Alder *(Alnus incana)*					
Downy Serviceberry *(Amelanchier arborea)*					
Serviceberry *(Amelanchier sanguinea)*					
Yellow Birch *(Betula alleghaniensis)*				U	R
White Birch *(Betula papyrifera)*					
European Birch *(Betula pendula)*					
Blue Beech *(Carpinus caroliniana)*					
Bitternut hickory *(Carya cordiformis*					
Shagbark Hickory *(Carya ovata)*					
Climbing Bittersweet *(Celastrus scandens)*					
Common Hackberry *(Celtis occidentalis)*					R
Buttonbush *(Cephalanthus occidentalis)*					
Alt.-leaved Dogwood *(Cornus alternifolia)*				U	U
Silky Dogwood *(Cornus amomum)*					
Bunchberry *(Cornus canadensis)*					
Gray dogwood *(Cornus racemosa)*					
Round-leaved Dogwood *(Cornus rugosa)*					
Red-osier Dogwood *(Cornus sericea)*	R				
American Hazel *(Corylus americana)*					
Beaked Hazel *(Corylus cornuta)*					
Cockspur Thorn *(Crataegus crus-galli)*					
English Hawthorn *(Crataegus monogyna)*					
Large-fruited Thorn *(Crataegus punctata)*					
Crataegus					
Crataegus					
Bush Honeysuckle *(Diervilla lonicera)*					
Russian Olive *(Elaeagnus angustifolia)*					
Autumn Olive *(Elaeagnus umbellata)*					
Run. Strawberry-bush *(Euonymus obovata)*					
American Beech *(Fagus grandifolia)*					
Glossy Buckthorn *(Frangula alnus)*					
White Ash *(Fraxinus americana)*					
Black Ash *(Fraxinus nigra)*					
Green Ash *(Fraxinus pennsylvanica)*	R	D		U	U
Witch-hazel *(Hamamelis virginiana)*					
Winterberry *(Ilex verticilata)*					
Butternut *(Juglans cinerea)*					
Black Walnut *(Juglans nigra)*					
Common Privet *(Ligustrum vulgare)*					
Spicebush *(Lindera benzoin)*				F	
Fly Honeysuckle *(Lonicera canadensis)*					
Glaucous Honeysuckle *(Lonicera dioica)*					
Morrow's Honeysuckle *(Lonicera morrowii)*					
Tartarian Honeysuckle *(Lonicera tatarica)*					
Common Apple *(Malus pumila)*					
White Mulberry *(Morus alba)*					
Sweet Gale *(Myrica gale)*					
Ironwood *(Ostrya virginiana)*					
Thicket-creeper *(Parthenocissus inserta)*			U	U	U
Ninebark *(Physocarpus opulifolius)*					
Balsam Poplar *(Populus balsamifera)*					
Eastern Cottonwood *(Populus deltoides)*					
Large-tooth Aspen *(Populus grandidentata)*					
Trembling Aspen *(Populus tremuloides)*		R			
Sweet Cherry *(Prunus avium)*					
Pin Cherry *(Prunus pensylvanica)*					
Black Cherry *(Prunus serotina)*					
Choke Cherry *(Prunus virginiana)*					
Prunus					

Tree & Shrubs	1	2	3	4	5
Deciduous					
White Oak *(Quercus alba)*					
Bur Oak *(Quercus macrocarpa)*					
Red Oak *(Quercus rubra)*					
Alder Buckthorn *(Rhamnus alnifolia)*					
Common Buckthorn *(Rhamnus cathartica)*					
Smooth Sumac *(Rhus glabra)*					
Staghorn Sumac *(Rhus hirta)*					
Wild Black Currant *(Ribes americanum)*					
Prickly Gooseberry *(Ribes cynosbati)*					
Swamp Black Currant *(Ribes lacustre)*					
Red Currant *(Ribes rubrum)*					
Ribes					
Black Locust *(Robinia pseudo-acacia)*					
Prickly Rose *(Rosa acicularis)*					
Smooth Rose *(Rosa blanda)*					
Multiflora Rose *(Rosa multiflora)*					
Rosa					
Com. Blackberry *(Rubus allegheniensis)*					
Wild Red Raspberry *(Rubus idaeus)*					
Black Raspberry *(Rubus occidentalis)*					
Purple-fl. Raspberry *(Rubus odoratus)*					
Dwarf Raspberry *(Rubus pubescens)*					
Rubus					
Peach-leaved Willow *(Salix amygdaloides)*					
Bebb's Willow *(Salix bebbiana)*					
Pussy Willow *(Salix discolor)*					
Missouri Willow *(Salix eriocephala)*		R			
Sandbar Willow *(Salix exigua)*					
Shining Willow *(Salix lucida)*					
Black Willow *(Salix nigra)*					
Slender Willow *(Salix petiolaris)*					
Salix					
Hybrid Crack Willow *(Salix X rubens)*					
Black-berried Elder *(Sambucus nigra)*					
Red-berried Elder *(Sambucus racemosa)*					
Buffaloberry *(Shepherdia canadensis)*					
Eur. Mountain Ash *(Sorbus aucuparia)*					
Narrow Meadow-sweet *(Spiraea alba)*					
Common Lilac *(Syringa vulgaris)*					
Poison-ivy *(Toxicodendron rydbergii)*					
Climbing Poison-ivy *(Toxicodendron radicans)*			U	U	U
White Elm *(Ulmus americana)*				U	U
Siberian Elm *(Ulmus pumila)*					
Slippery Elm *(Ulmus rubra)*					
Low Blueberry *(Vaccinium angustifolium)*					
Maple-leaf Viburnum *(Viburnum acerifolium)*					
Hobblebush *(Viburnum lantanoides)*					
Nannyberry *(Viburnum lentago)*					
Guelder-Rose *(Viburnum opulus)*					
Downy Arrow-wood *(Vib. rafinesquianum)*					
Riverbank Grape *(Vitis riparia)*				R	
Am. Prickly-ash *(Zanthoxylum americanum)*					
T. lia americana				R	R
Ferns & Allies					
Lady Fern *(Athyrium filix-femina)*					
Rattlesnake Fern *(Botrychium virginianum)*					
Bulbet Bladder Fern *(Cystopteris bulbifera)*					
Spin. Wood Fern *(Dryopteris carthusiana)*					
Crested Wood Fern *(Dryopteris cristata)*					
Marginal Wood Fern *(Dryopteris marginalis)*					
Dryopteris					
Ostrich Fern *(Matteuccia struthiopteris)*					F
Sensitive Fern *(Onoclea sensibilis)*				U	
Cinnamon Fern *(Osmunda cinnamomea)*					
Interrupted Fern *(Osmunda claytoniana)*					
Royal Fern *(Osmunda regalis)*					
Christmas Fern *(Polystichum acrostichoides)*					
Eastern Bracken-fern *(Pteridium aquilinum)*					
Marsh Fern *(Thelypteris palustris)*					
Field Horsetail *(Equisetum arvense)*					
Scouring-rush *(Equisetum hyemale)*					
Variegated Horsetail *(Equisetum variegatum)*					
Equisetum					
Ground-cedar(*Lycopodium digitatum*)					
Shining Clubmoss *(Lycopodium lucidulum)*					
Ground-pine *(Lycopodium obscurum)*					

Graminoids	1	2	3	4	5
Grasses					
Giant Redtop *(Agrostis gigantea)*					
Redtop *(Agrostis stolonifera)*					
Awnless Brome *(Bromus inermis)*					
Bromus					
Blue-joint Grass *(Calamagrostis canadensis)*					
Orchard Grass *(Dactylis glomerata)*					
Poverty Oat Grass *(Danthonia spicata)*					
Quack Grass *(Elymus repens)*					
Virginia Wild Rye *(Elymus virginicus)*					
Elymus					
Fowl Manna Grass *(Glyceria striata)*			R	R	R
Glyceria					
Rice Cut Grass *(Leersia oryzoides)*					
Tall Fescue *(Lolium arundinaceum)*					
Muhlenbergia					
Witch-grass *(Panicum capillare)*					
Panicum					
Reed Canary Grass *(Phalaris arundinacea)*		D			
Timothy *(Phleum pratense)*					
Common Reed *(Phragmites australis)*					
Canada Blue Grass *(Poa compressa)*					
Fowl Meadow Grass *(Poa palustris)*					
Kentucky Bluegrass *(Poa pratensis)*					
Yellow Foxtail *(Setaria pumila)*					
Green Foxtail *(Setaria viridis)*					
Sedges					
Drooping Wood Sedge *(Carex arctata)*					
Golden-fruited Sedge *(Carex aurea)*					
Graceful Sedge *(Carex gracillima)*					
Inland Sedge *(Carex interior)*					
Bladder Sedge *(Carex intumescens)*					
Lake-bank Sedge *(Carex lacustris)*					
Hop Sedge *(Carex lupulina)*	F		R		
Pennsylvania Sedge *(Carex pensylvanica)*					
Awl-fruited Sedge *(Carex stipata)*					
Fox Sedge *(Carex vulpinoidea)*					
Carex bebbii				R	
Carex					
Carex					
Carex					
Carex					
Carex					
Carex					
Carex					
Carex					
Carex					
Carex					
Cyperus					
Redroot Spike-rush *(Eleocharis erythropoda)*					
Eleocharis					
Hard-stem Bulrush *(Schoenoplectus acutus)*					
Three-square Bulrush *(Sch. pungens)*					
Soft-stem Bulrush *(Sch. tabernaemontani)*	R	R	R		R
Dark-green Bulrush *(Scirpus atrovirens)*					
Wool-grass *(Scirpus cyperinus)*					
Other Graminoids					
Broad Bur-reed *(Sparganium eurycarpum)*					
Narrow-leaved Cattail *(Typha angustifolia)*					
Broad-leaved Cattail *(Typha latifolia)*	R				
Broad-leaved Cattail *(Typha X glauca)*					
Articulated Rush *(Juncus articulatus)*					
Soft Rush *(Juncus effusus)*					
Path Rush *(Juncus tenuis)*					
Juncus canadensis	D	R	R		
Juncus sp.	U				

D - Dominant : represented by large numbers; generally forming >10% ground cover or >25% vegetation cover in any one stratum

F - Fairly common (=Abundant in ELC) : generally widespread represented by fairly large numbers of individual clumps; usually forming >10% ground cover

U - Uncommon (=Occasional in ELC) : present as widespread scattered individuals or represented by one or more clumps of many individuals (most species will fall into this catergory)

R - Rare : represented in the polygon by less than about five individuals or small clumps

Map Number: B1W1605/1658/1603/1657	1	M1	4	S2	
Date: 2012-06-26	2	M2	5	S3	
Surveyors: JP+TS	3	S1			

Plant Species List
2012

Dicot Herbs - Asteraceae	1	2	3	4	5
Common Yarrow (*Achillea millefolium*)					
White Snakeroot (*Ageratina altissima*)					
Com. Ragweed (*Ambrosia artemisiifolia*)					
Giant Ragweed (*Ambrosia trifida*)					
Field Pussytoes (*Antennaria neglecta*)					
Artemisia					
Common Burdock (*Arctium minus*)					
Nodding Beggar-ticks (*Bidens cernua*)					
Devil's Beggar-ticks (*Bidens frondosa*)					
Spotted Knapweed (*Centaurea biebersteinii*)					
Brown Knapweed (*Centaurea jacea*)					
Chicory (*Cichorium intybus*)					
Canada Thistle (*Cirsium arvesnse*)					
Bull Thistle (*Cirsium vulgare*)					
Horseweed (*Conyza canadensis*)					
Daisy Fleabane (*Erigeron annus*)					
Philadelphia Fleabane (*Erig. philadelphicus*)					
Erigeron					
Joe-pye-weed (*Eupatorium maculatum*)					
Boneset (*Eupatorium perfoliatum*)					
Large-leaved Aster (*Eurybia macrophylla*)					
Flat-top Goldenrod (*Euthamia graminifolia*)					
Orange Hawkweed (*Hieracium aurantiacum*)					
Field Hawkweed (*Hieracium caespitosum*)					
Hieracium					
Elecampane (*Inula helenium*)					
Prickly Lettuce (*Lactuca serriola*)					
Lactuca					
Ox-eye Daisy (*Leucanthemum vulgare*)					
Pineapple-weed (*Matricaria discoidea*)					
Tall White Lettuce (*Prenanthes altissima*)					
Black-eyed Susan (*Rudbeckia hirta*)					
Tall Goldenrod (*Solidago altissima*)					
Blue-stem Goldenrod (*Solidago caesia*)					
Canada Goldenrod (*Solidago canadensis*)					
Zig-zag Goldenrod (*Solidago flexicaulis*)					
Giant Goldenrod (*Solidago gigantea*)					
Early Goldenrod (*Solidago juncea*)					
Gray Goldenrod (*Solidago nemoralis*)					
Solidago					
Field Sow-thistle (*Sonchus arvensis*)					
Sonchus					
Heart-leaf Aster (*Symph. cordifolium*)					
Heath Aster (*Symphyotrichum ericoides*)					
Tall White Aster (*Symph. lanceolatum*)					R
Calico Aster (*Symphyotrichum lateriflorum*)					
New England Aster (*Symph. novae-angliae*)					
Purple-stem Aster (*Symph. puniceus*)	F		U		
Common Tansy (*Tanacetum vulgare*)					
Common Dandelion (*Taraxacum officinale*)					
Com. Goatsbeard (*Tragopogon pratensis*)					
Coltsfoot (*Tussilago farfara*)					

Other Dicot Herbs	1	2	3	4	5
White Baneberry (*Actaea pachypoda*)					
Red Baneberry (*Actaea rubra*)					R
Tall Agrimony (*Agrimonia gryposepala*)					
Garlic Mustard (*Alliaria petiolata*)					U
Green Amaranth (*Amaranthus retroflexus*)					
Hog-peanut (*Amphicarpa bracteata*)					
Pearly Everlasting (*Anaphalis margaritacea*)					
Canada Anemone (*Anemone canadensis*)					
Ivy Hepatica (*Anemone acutiloba*)					
Thimbleweed (*Anemone virginiana*)					
Purple Angelica (*Angelica atropurpurea*)					
Indian Hemp (*Apocynum cannabinum*)					
Wild Sarsaparilla (*Aralia nudicaulis*)					
Spikenard (*Aralia racemosa*)					
Wild Ginger (*Asarum canadense*)					
Swamp Milkweed (*Asclepias incarnata*)	F		U		
Common Milkweed (*Asclepias syriaca*)					
Yellow Rocket (*Barbarea vulgaris*)					
False Nettle (*Boehmeria cylindrica*)				U	R
Black Mustard (*Brassica nigra*)					
Marsh-marigold (*Caltha palustris*)					
Creeping Bellflower (*Campanula rapunculoides*)					

Dicot Herbs	1	2	3	4	5
Shepherd's Purse (*Capsella bursa-pastoris*)					
Cutleaf Toothwort (*Cardamine concatenata*)					
Toothwort (*Cardamine diphylla*)					
Penn. Bitter-cress (*Cardamine pensylvanica*)					
Cardamine					
Blue Cohosh (*Caulophyllum thalictroides*)				U	U
Mouse-ear Chickweed (*Cerastium fontanum*)					
Turtlehead (*Chelone glabra*)					
Spotted Water-hemlock (*Cicuta maculata*)					
Water-hemlock (*Cicuta virosa*)					
Enchanter's Nightshade (*Circaea lutetiana*)				U	U
Carolina Spring Beauty (*Claytonia caroliniana*)					
Virginia Spring Beauty (*Claytonia virginica*)					
Virgin's-bower (*Clematis virginiana*)					
Field Bindweed (*Convolvulus arvensis*)					
Dog-strangling Vine (*Cynanchum rossicum*)					
Wild Carrot (*Daucus carota*)					
Deptford Pink (*Dianthus armeria*)					
Squirrel-corn (*Dicentra canadensis*)					
Dutchman's-breeches (*Dicentra cucullaria*)					
Wild Teasel (*Dipsacus fullonum*)					
Wild Cucumber (*Echinocystis lobata*)					
Viper's Bugloss (*Echium vulgare*)					
Northern Willow-herb (*Epilobium ciliatum*)					
Hairy Willow-herb (*Epilobium hirsutum*)					
Small-fl. Willow-herb (*Epilobium parviflorum*)					
Epilobium					
Worm Mustard (*Erysimum cheiranthoides*)					
Euphorbia					
Hemp Nettle (*Galeopsis tetrahit*)					
Wild Madder (*Galium mollugo*)					
Marsh Bedstraw (*Galium palustre*)					
Sweet-scented Bedstraw (*Galium triflorum*)					
Galium					
Spotted Geranium (*Geranium maculatum*)					
Herb-robert (*Geranium robertianum*)				U	R
Yellow Avens (*Geum aleppicum*)					
White Avens (*Geum canadense*)				U	U
Urban Avens (*Geum urbanum*)					
Dame's Rocket (*Hesperis matronalis*)					
Virg. Water-leaf (*Hydrophyllum virginianum*)					
Com. St. John's-wort (*Hypericum perforatum*)					
Spotted Jewelweed (*Impatiens capensis*)			U	F	U
Wood Nettle (*Laportea canadensis*)					R
Motherwort (*Leonurus cardiaca*)					
Field Peppergrass (*Lepidium campestre*)					
Eur. Gromwell (*Lithospermum officinale*)					
Butter & Eggs (*Linaria vulgaris*)					
Great Lobelia (*Lobelia siphilitica*)					
Lobelia					
Cut-leaf Bugleweed (*Lycopus americanus*)					
Northern Bugleweed (*Lycopus uniflorus*)					
Fringed Loosestrife (*Lysimachia ciliata*)					
Moneywort (*Lysimachia nummularia*)					
Lysimachia					
Purple Loosestrife (*Lythrum salicaria*)					
Black Medick (*Medicago lupulina*)					
Alfalfa (*Medicago sativa*)					
White Sweet-clover (*Melilotus alba*)					
Yellow Sweet-clover (*Melilotus officinalis*)					
Wild Mint (*Mentha arvensis*)					
Wild Bergamot (*Monarda fistulosa*)					
Small Forget-me-not (*Myosotis laxa*)					
Forget-me-not (*Myosotis scorpioides*)					
Water-cress (*Nasturtium officinale*)					
Com. Evening-primrose (*Oenothera biennis*)					
Sweet-cicely (*Osmorhiza berterii*)					
Yellow Wood-sorrel (*Oxalis stricta*)					
Wild Parsnip (*Pastinaca sativa*)					
English Plantain (*Plantago lanceolata*)					
Common Plantain (*Plantago major*)					
Rugel's Plantain (*Plantago rugelii*)					
May-apple (*Podophyllum peltatum*)					
Pale Smartweed (*Polygonum lapathifolium*)					
Lady's-thumb (*Polygonum persicaria*)					
Virginia Knotweed (*Polygonum virginianum*)					
Polygonum					
Polygonum					
Rough Cinquefoil (*Potentilla norvegica*)					
Rough-fruited Cinquefoil (*Potentilla recta*)					
Common Cinquefoil (*Potentilla simplex*)					
Potentilla					
Heal-all (*Prunella vulgaris*)					
Shinleaf (*Pyrola elliptica*)					
Hepatica acutiloba				R	

Dicot Herbs	1	2	3	4	5
Kidney-leaf Buttercup (*Ranunculus abortivus*)					
Tall Buttercup (*Ranunculus acris*)					R
Hooked Buttercup (*Ranunculus recurvatus*)					
Ranunculus penn					R
Sheep Sorrel (*Rumex acetosella*)					
Curly-leaf Dock (*Rumex crispus*)					
Bitter Dock (*Rumex obtusifolius*)					
Bloodroot (*Sanginaria canadense*)					
Black Snakeroot (*Sanicula marilandica*)					
Bouncing Bet (*Saponaria officinalis*)					
Marsh Skullcap (*Scutellaria galericulata*)					
Mad Dog Skullcap (*Scutellaria lateriflora*)					
White Campion (*Silene latifolia*)					
Bladder Campion (*Silene vulgaris*)					
Hemlock Water-parsnip (*Sium suave*)					
Bitter Nightshade (*Solanum dulcamara*)					U
Black Nightshade (*Solanum ptychanthum*)					
Grassleaf Stitchwort (*Stellaria graminea*)					
Common Chickweed (*Stellaria media*)					
Early Meadow-rue (*Thalictrum dioicum*)					
Tall Meadow-rue (*Thalictrum pubescens*)					F
Field Penny-cress (*Thlaspi arvense*)					
Foamflower (*Tiarella cordifolia*)					
Star-flower (*Trientalis borealis*)					
Red Clover (*Trifolium pratense*)					
White Clover (*Trifolium repens*)					
Trifolium					
Stinging Nettle (*Urtica dioica*)					U R
Greater Bladderwort (*Utricularia vulgaris*)					
Common Mullein (*Verbascum thapsus*)					
Blue Vervain (*Verbena hastata*)					
White Vervain (*Verbena urticifolia*)					
Water Speedwell (*Veron. anagallis-aquatica*)					
Common Speedwell (*Veronica officinalis*)					
Veronica					
Cow Vetch (*Vicia cracca*)					
Vicia					
Periwinkle (*Vinca minor*)					
Dog Violet (*Viola conspersa*)					
Yellow Violet (*Viola pubescens*)					
Com. Blue Violet (*Viola sororia*)					
Viola spp.					U U
Trillium michiganense					R

Monocot Herbs	1	2	3	4	5
Water-plantain (*Alisma plantago-aquatica*)					
Wild Leek (*Allium tricoccum*)					
Jack-in-the-pulpit (*Arisaema triphyllum*)					U U
Asparagus (*Asparagus officinalis*)					
Wild Calla (*Calla palustris*)					
Bluebead-lily (*Clintonia borealis*)					
Garden Lily-of-valley (*Convallaria majalis*)					
Yel. Lady's Slipper (*Cypripedium parviflora*)					
Canada Waterweed (*Elodea canadensis*)					
Helleborine (*Epipactis helleborine*)					R
Yellow Trout Lily (*Erythronium americanum*)					
Blue-flag Iris (*Iris versicolor*)					
Orange Day Lily (*Hemerocallus fulva*)					
Lesser Duckweed (*Lemna minor*)					
Starry Duckweed (*Lemna trisulca*)					
Wild Lily-of-valley (*Maianthemum canadense*)					
False Solom Seal (*Maianthemum racemosum*)					
Star False Solomon (*Maianthemum stellatum*)					U
True Solomon Seal (*Polygonatum pubescens*)					
Pickerel-weed (*Pontederia cordata*)					
Curly-leaf Pondweed (*Potamogeton crispus*)					
Sago Pondweed (*Potamogeton pectinatus*)					
Potamogeton					
Potamogeton					
Broad-leaved Arrowhead (*Sagittaria latifolia*)					
Blue-eyed-grass (*Sisyrinchium montanum*)					
Herb. Carrion Flower (*Smilax herbacea*)					
Bristly Greenbrier (*Smilax hispida*)					
Nodding Ladies' Tresses (*Spiranthes cernua*)					
Rose Twisted-stalk (*Streptopus lanceolatus*)					
Skunk-cabbage (*Symplocarpus foetidus*)					
Purple Trillium (*Trillium erectum*)					
White Trillium (*Trillium grandiflorum*)					
Large-flowered Bellwort (*Uvularia grandiflora*)					
Iris sp.				R	R

D - Dominant: represented by large numbers; generally forming >10% ground cover or >25% vegetation cover in any one stratum

F - Fairly common (=Abundant in ELC) : generally widespread represented by fairly large numbers of individual clumps; usually forming >10% ground cover

U - Uncommon (=Occasional in ELC) : present as widespread scattered individuals or represented by one or more clumps of many individuals (most species will fall into this catergory)

R - Rare: represented in the polygon by less than about five individuals or small clumps

Map Number: 8|W1605/1657/1658/1603

Date: 2012-06-26

Surveyors: JP TS

1: M1

2: M2

3: [illegible] SJ

4: 52

5: 53

Appendix C

Project Team CVs

Rob Aitken *B. Sc.*

Ecologist
Curriculum Vitae



Through the completion of environmental programs at Trent University and Sir Sandford Fleming College Mr. Aitken has developed a sound understanding of the natural environment and the tools that are used to evaluate it. He has continued to build on this foundation through the application of these skills while working for organizations in the private and public sector completing inventories and assessments of aquatic and terrestrial ecosystems.

As a member of the Aboud & Associates team, Mr. Aitken is responsible for botanical and wildlife inventories, ELC/vegetation community assessments and GIS Mapping on a wide range of projects.

EDUCATION

- Bachelor of Biology & Environmental Resources Sciences (Honours), Trent University, 2008.
- Environmental Technologist, Sir Sandford Fleming College 2006.
- Natural Resources Law Enforcement Post Graduate Certification, Sir Sandford Fleming College, 2004.
- Ecosystem Management Technician, Sir Sandford Fleming College 2003.

Continuing Education & Certification:

- Ontario Stream Assessment Protocol, OMNR/TRCA (2011)
- Class 2 Backpack Electro fishing Certificate, TRCA (2011)
- MTO/DFO/OMNR Environmental Guide for Fish and Fish Habitat Workshop (2011)
- Asters and Goldenrods Workshop, Royal Botanical Gardens (2010)
- Ecological Land Classification, OMNR (2010)
- Ontario Wetland Evaluation System, OMNR (2009)
- Ontario Stream Assessment Protocol Level 1 Fish Identification (2009)

CAREER EXPERIENCE

Prior to joining Aboud & Associates in 2010, Mr. Aitken worked with the following organizations:

Environmental Scientist
***Conestoga Rovers & Associates* (2008-2010)**

- Hydraulic stream flow monitoring
- Ground and surface water quality monitoring
- Sediment Sampling
- Wetland delineations
- Fish collection and identification
- Collection of aquatic invertebrates using OBBN protocols
- Stream flow, ground water level and precipitation data management and interpretation
- Permits to Take Water and Certificates of Approval

Shell Conservation Intern
The Nature Conservancy of Canada (2007)

- Flora and Fauna inventories
- Classifying ecological communities using the Ecological Land Classification for Southern Ontario
- Monitoring ongoing rehabilitation projects
- Completing site monitoring and management reports

Field Technician
***The Watershed Science Centre* (2006)**

- Hydraulic stream flow monitoring
- Collection of aquatic invertebrates
- Suspended sediment collection
- Stream flow data and precipitation management and interpretation

Greening Co-op Student
***The Regional Municipality of York* (2005)**

- Assisted in implementing the Region's greening strategy
- Invasive species removal
- Mapping natural features using Arcview GIS
- Street tree planting, mulching, pruning and inventories

Rob Aitken *B. Sc.*

Ecologist
Curriculum Vitae



CAREER EXPERIENCE (CONTINUED)

Environmental Technician
***Conservation Halton* (2004)**
- Collection and identification of aquatic invertebrates
- Collection and identification of fish
- Hydraulic stream flow monitoring
- Classifying ecological communities and performing flora inventories
- Assisted in completing the North Shore Watershed Study Report

Resources Management Technician
***Pinery Provincial Park* (2001)**
- Wild lupine seed collection, preparation and planting
- Preparation work for prescribed burns and Deer Counts
- Invasive species removal
- Native species plantings
- Educating public about rare natural features and species

AREAS OF EXPERTISE

- Identification of flora and fauna
- ELC / Vegetation Community Assessment
- Vegetation Monitoring
- GIS Mapping

SELECTED PROJECT EXPERIENCE

Tree Inventory/Management Plan:
- Lotco II Landscape Plan Street Tree Inventory (Cambridge)
- Street Tree Inventory for Infrastructure Improvement Projects (Cambridge)
- Jefferson Forest Edge Management &Tree Preservation Plans (Richmond Hill)
- 10606 Milton Road Tree Inventory (Pickering)
- Block 12 Phase 3 Trail Tree Inventory (Vaughan)
- Lackner Boulevard Tree Management Plan (Kitchener)

Tree Inventory/Management Plan (Continued):
- 699 Speedvale Avenue Tree Inventory (Guelph)
- Kleinburg Tree Preservation Plan & Relocation Strategy (Vaughan)
- Klienburg Edge Management Plan (Vaughan)

Botanical Inventory / Vegetation Community Assessment:
- Rare species surveys for 407 extension (Durham)
- Windsor Essex Parkway – Species at Risk (SAR) surveys & Botanical Inventories of remnant prairie communities
- Block 12 Large Restore Buffer Vegetation Monitoring (Vaughan)
- ENS Poultry Renewable Energy Application Natural Heritage Assessment (Elora)
- Gordon Street Property Scoped Environmental Impact Study (Guelph)
- Block 5 Woodlot Management Plan (Brampton)
- Mill Pond Park Botanical Inventory & ELC Assessment (Richmond Hill)
- Block 11 Wetland Vegetation Monitoring (Vaughan)

Wildlife Inventory/Assessments:
- Heffernan Street Shoreline Rehabilitation Fish Habitat Assessment (Guelph)
- Breeding Bird Surveys for Quarry Expansion (Waterloo Region)
- Breeding Bird Surveys for Proposed Subdivision (Guelph)
- Arkell Dam Restoration Fish Habitat/Natural Heritage Assessment (Guelph)
- Subwatershed Study Snake and Snake Hibernacula Surveys (Fergus)
- Breeding Bird/Snake and Snake Hibernacula Surveys Summit Park (Hamilton)
- Mill Pond Park Breeding Bird Survey (Richmond Hill)

Rob Aitken *B. Sc.*

Ecologist
Curriculum Vitae



In addition, Mr. Aitken also provides assistance with:

- Data Collection and Entry
- Report Writing
- Peer Reviews

VOLUNTEER EXPERIENCE

- Botanical inventory/Bird Surveys for the Escarpment Biosphere Conservancy (2011)
- Amphibian Call Surveys for the Marsh Monitoring Program (2011)
- Volunteer Backpack Electro fishing Crewmember Credit Valley Conservation Authority (2009)
- Deer Check Station Flynns Turn (2004)
- Pinery Provincial Park Pine Removal Program (1998, 1999)

PROFESSIONAL AFFILIATIONS

- Field Botanists of Ontario
- Ontario Field Ornithologist

Sam Gildiner

Ecologist

Education

MEM, Forestry, University of New Brunswick, 2011

BSc, Forest Management, University of New Brunswick, 2009

Diploma, Forest Technology, Maritime College of Forest Technology, 2007

Licenses/Registrations

Certified Arborist, Ontario, #ON-1579A, Issued 06/29/2012, Exp. 06/29/2015

Years of Experience

With AECOM: 1

With Other Firms: 7

Professional Associations

International Society of Arboriculture, Active Member

Association of Registered Professional Foresters of Ontario, Active Member

Association of Registered Professional Foresters of New Brunswick, Active Member

New Brunswick Wetland Delineators Association, Executive Committee, 2010 - 2012

Training and Certifications

Bear Awareness Training

CPR and First Aid Training

Fire Extinguisher Training

Mr. Gildiner is a terrestrial ecologist with more than 7 years of experience in the natural resource and environmental consulting field. He has worked throughout eastern and western Canada as a forester, and has worked in central and eastern Canada as an ecological consultant. Mr. Gildiner has experience in wetland science, forest science, habitat management, forest management, soil science, and arboriculture.

Project Experience

Other Category

J.D. Irving Limited, Federal Flood Relief Bridge and Culvert Replacement, Fredericton, New Brunswick. Coordinated assessments of watercrossing affected by storms on crown land. Performed field work with surveyors, engineers, and biologists to determine compensation to forest company. Prepared reports detailing required infrastructure damage and replacement objectives. [04/01/2011-11/10/2011]

Matt Harris and Sons Ltd., Water Source and Supply Assessment - Johnston Estates, Fredericton, New Brunswick. Coordinated well driller, location of wells, and field technicians to assess the potential for groundwater supply to well systems in a proposed residential subdivision. Managed long term safe yield calculations, water quality testing, and reporting for suitability of an aquifer for proposed development. [10/05/2011-10/31/2011]

Matt Harris and Sons Ltd., Water Source and Supply Assessment - Richardson Estates, Fredericton, New Brunswick. Coordinated well driller, location of wells, and field technicians to assess the potential for groundwater supply to well systems in a proposed residential subdivision. Managed long term safe yield calculations, water quality testing, and reporting for suitability of an aquifer for proposed development. [06/29/2011-08/22/2011]

Willow Homes, Water Source and Supply Assessment - Willow Estates, Fredericton, New Brunswick. Coordinated well driller, location of wells, and field technicians to assess the potential for groundwater supply to well systems in a proposed residential subdivision. Managed long term safe yield calculations, water quality testing, and reporting for suitability of an aquifer for proposed development. [07/27/2011-09/01/2011]

Peterson Mini Home Park, Peterson Mini Home Park - Environmental Impact Assessment, Fredericton, New Brunswick. Coordinated all field work and reporting associated with provincial EIA requirements including wildlife habitat, rare species, wetlands, groundwater, archaeology, and social considerations. [04/08/2011-09/22/2011]

Matt Harris and Sons Ltd., Harris Estates - Environmental Impact Assessment, Fredericton, New Brunswick. Coordinated all field work and reporting associated with provincial EIA requirements including wildlife habitat, rare species, wetlands, groundwater, archaeology, and social considerations. [04/14/2011-08/18/2011]

Kria Resources, Nesting Bird Survey, New Brunswick. Conducted field work and reporting for bird nest surveys in northern New Brunswick for a mining project. [06/15/2011-06/22/2011]

Chippin Real Estate, Trail Design and Layout, Fredericton, New Brunswick. Designed and implemented on-the-ground a trail system that highlighted natural features of a significant woodland/wetland complex to increase natural capital of a residential subdivision. [08/02/2011-08/24/2011]

Department of Transportation - New Brunswick, Route 8 Suspended Solids Monitoring, Southern New Brunswick. Conducted total suspended solids monitoring, data management, reporting, and lab testing for water quality monitoring for a new highway alignment. [04/01/2011-11/23/2011]

Department of Transportation - New Brunswick, Route 8 Species at Risk and Nest Surveys, Fredericton, New Brunswick. Conducted field work, mapping, and reporting for habitat descriptions, rare plant surveys, and nesting bird surveys for several borrow pit locations along a highway construction path. [05/17/2011-07/05/2011]

Wassis Estates, Wassis Estates - Environmental Impact Assessment, Wassis, New Brunswick. Coordinated all field work and reporting associated with provincial EIA requirements including wildlife habitat, rare species, wetlands, groundwater, archaeology, and social considerations. [04/06/2011-07/20/2011]

City of New Maryland, New Maryland Water Supply Investigation - Environmental Impact Assessment, New Maryland, New Brunswick. Conducted field work and reporting duties for wildlife habitat assessment and wetland delineation for an area surrounding a proposed well location. [08/03/2011-08/23/2011]

Sunbury Developments, Noonan Estates, Noonan, New Brunswick. Performed field work, data compilation, and mapping duties for vegetation community description and wetland delineations. [08/10/2011-08/24/2011]

Wolastoqiyik Sacred Land Trust, Ecological Forest Management Plan, Burton, New Brunswick. Conducted field work, mapping, data compilation, public presentations, community teaching, and team management for forest management plan prescribing silvicultural interventions to meet community goals. [02/17/2010-11/15/2011]

Hill Developments, Hill Developments - Wetland Delineation, Fredericton, New Brunswick. Performed wetland delineation, mapping, data compilation, and reporting duties for residential subdivision wetland delineations. [07/01/2010-08/10/2010]

OVAC Ltd., Route 11 Wetland Delineations, Northern New Brunswick.

Performed wetland delineations, functional assessments, mapping, and data compilation for a linear highways alignment as part of a provincial environmental impact assessment. [06/09/2010-08/04/2010]

Sundbury Developments, Noonan Developments, Noonan, New Brunswick. Performed wetland delineation, mapping, data compilation, and reporting for a residential subdivision. [08/12/2010-09/07/2010]

Department of Transportation - New Brunswick, Lorneville Barge Terminal - Environmental Impact Assessment, Lorneville, New Brunswick. Assisted with rare plant surveys, habitat assessments, electrofishing, and shoreline assessment of a proposed barge terminal as part of an EIA. [08/17/2011-09/14/2011]

Chippin Real Estate, Wetland Delineation, Fredericton, New Brunswick. Performed wetland delineation field work, mapping, data compilation, and reporting duties for a residential development. [07/29/2010-08/18/2010]

Port of Belledune, Port Expansion, Belledune, New Brunswick. Performed suspended solids monitoring in ocean waters during a dredging operation. [05/03/2011-07/05/2011]

Jessica Piette H. B.ES

Terrestrial Ecologist

Education

Bachelor's Degree, Environment and Resources Studies, University of Waterloo

Diploma, Environmental Assessment – University of Waterloo

Years of Experience

With AECOM: 5

Training and Certifications

Ecological Land Classification for Southern Ontario Training Course, Ministry of Natural Resources, 2007

Ontario Wetland Evaluation Training Course, Ministry of Natural Resources, 2008

First Aid Certification, St. John's Ambulance, 2007

Environmental Impact Assessment Diploma, University of Waterloo, 2004

Ms. Piette is a terrestrial ecologist with AECOM's Ecological Services Group working in Kitchener, Ontario. Her technical skills include wetland boundary delineation, and evaluations, soils identification, air-photo interpretation, vegetation inventories, community descriptions, amphibian surveys, and woodland evaluations. She is trained and has experience in the application of Ecological Land Classification (ELC) of Southern Ontario, and the Ministry of Natural Resources Wetland Evaluation guidelines. These skills facilitate in the preparation and data collection to complete environmental impact studies, constraints and opportunity reports, subject land status reports, tree preservation reports, environmental assessment evaluations, and natural heritage studies.

Project Experience

Environmental Impact Studies

Orfus Realty, King Township Property – Natural Heritage Constraints & Opportunities Report, King Township, Region of York. Completed terrestrial field investigations including aerial photography interpretation, the delineation of vegetation into Ecological Land Classification (ELC) units, the collection of a comprehensive floral species list and the delineation of on-site wetland communities following the Ministry of Natural Resources Wetland Evaluation Protocol for insertion into the final Natural Heritage C&O document. Completed a Species at Risk (SAR) Screening to identify any potential SAR as well as their associated habitat located within the study area.

City of London, Southcrest Storm Sewer and Outfall Replacement – Environmental Impact Study, London, Ontario. Completed terrestrial field investigations to determine existing site conditions. This included the delineation of vegetation communities into Ecological Land Classification Units, as well as a tree inventory along the proposed storm sewer alignment and outfall location. Completed a Species at Risk (SAR) Screening to identify any potential SAR as well as their associated habitat located within the study area. Following data collection completed the corresponding sections within the EIS report.

City of London, South West Area Plan – Natural Heritage Report, London Ontario. Completed terrestrial investigations for 24 unevaluated vegetation patches within the City of London in order to determine their significance within the Natural Heritage System. Investigations included aerial photography interpretation as well as site specific investigations. Following data collection the City of London's woodland evaluation guidelines, and/or wetland evaluation guidelines were applied accordingly.

City of London, Meadowlily Area Plan – Natural Heritage Study, London Ontario – Conducted terrestrial field investigations, including aerial photography interpretation, the application of Ecological Land Classification and the collection of a comprehensive floral species list for insertion into the Meadowlily Area Plan – Natural Heritage Study Report.

City of Kitchener, Blockline Road Extension, Kitchener, Ontario – Conducted terrestrial field investigations, including aerial photography interpretation, the application of Ecological Land Classification, the collection of a comprehensive floral species list and the delineation of on-site wetland communities following the Ministry of Natural Resources Wetland Evaluation Protocol for insertion into the final Environmental Impact Study document.

Regional Municipality of Waterloo, Rapid Transit Initiative, Transit Project Assessment Process, Environmental Impact Assessment. – Carried out terrestrial field investigations, including aerial photography interpretation, the application of Ecological Land Classification and the collection of a comprehensive floral species list along the proposed Light Rail Transit (LRT) Route. This was completed in order to assess the significance of the existing natural heritage features, to present potential development constraints, as well as, provide direction for specific design considerations of the LRT.

GMS Mortgage, Huron Shores – Environmental Impact Study, Lampton County. Assisted in the delineation of wetland communities, plant identification and the completion of necessary report updates.

St. Joseph's Health Care, St. Thomas Regional Mental Health Care Centre - Scoped Environmental Impact Study. Completed terrestrial field investigations for existing site conditions for the development of a Regional Mental Health Care Centre facility on lands located adjacent to Hepburn Drain and lands designated as Significant Woodland and Significant Valleyland. This included the delineation of vegetation communities into Ecological Land Classification (ELC) units, as well as a tree inventory for the subject lands for insertion into the final document.

Sifton Properties, Wilton Grove Road Environmental Impact Study, London, Ontario. Assisted in the completion of vegetation inventories to determine existing conditions. Completed the description of vegetation communities using proper Ecological Land Classification units according to the Ministry of Natural Resources: Ecological Land Classification System (Lee et al, 1998), created corresponding vegetation profiles, as well as assisted in the preparation of the final report. Completed salamander monitoring using cover boards as described by EMAN-Parks Canada National Monitoring Protocol for Terrestrial Salamanders.

Sydney Tar Ponds Agency, Sydney Tar Ponds Baseline Avifauna Environmental Effects Monitoring Report, Sydney, Nova Scotia. Assisted in the collection of background information as well as in the completion of the Avifauna baseline report.

Sifton Properties, Hardy Road Environmental Impact Study, Brantford, Ontario. Aided in the completion of vegetation inventories to determine existing conditions, completed background research on native prairie species for Brant County and created a detailed plant list. Participated in restoration efforts in association with the Ministry of Natural Resources regarding on-site tufa and a remnant prairie community.

Sifton Properties, Fanshawe Ridge – Environmental Impact Study, London, Ontario. Helped in the data collection to determine existing site conditions and constraints to development to be inserted in the final EIS document. This included aerial photography interpretation, vegetation community delineation into Ecological Land (ELC) Classification units, and the collection of a detailed floral species list. The onsite Fanshawe Ridge Provincially Significant Wetland boundaries were refined using the protocols set out in the Ministry o Natural Resources Wetland Evaluation Guide.

GMS Mortgage, Huron Shores Environmental Impact Study, Lampton County, Ontario. Aided in the delineation of a wetland community.

Labrador Iron Mines, Labrador Iron Mines Environmental Impact Study, Schefferville, Quebec. Aided in the completion of the baseline breeding birds report.

Sifton Properties, Wickerson Road Environmental Impact Study, London, Ontario. Created corresponding vegetation profiles for Ecological Land Classification communities. Assisted in the completion of the final report. Completed amphibian surveys, using the “point-count” techniques as described in the Great Lakes Marsh Monitoring Program, as well as completed salamander monitoring using cover boards as described by EMAN-Parks Canada National Monitoring Protocol for Terrestrial Salamanders.

Valente & Theocharis, 14873 Medway Road Constraints and Opportunities Report, London, Ontario. Aided in the completion of vegetation inventories to determine existing site conditions. Contacted local and provincial authorities requesting background information on the subject lands. Assisted in the description of vegetation communities using proper Ecological Land Classification units according to the Ministry of Natural Resources: Ecological Land Classification System (Lee et al, 1998), and assisted in the completion of the final report.

City of Woodstock, Woodstock Woodlands Environmental Impact Study, Woodstock, Ontario. Assisted in the completion of vegetation inventories, the description of vegetation communities using proper Ecological Land Classification units, according to the Ministry of Natural Resources: Ecological Land Classification System (Lee et al, 1998), and in the completion of the final report. Completed a wetland evaluation for two of the patches using the Ministry of Natural Resources Southern Ontario Wetland Evaluation System.

Sifton Properties, Denfield Property DAR, London, Ontario. Aided in the completion of vegetation inventories to determine existing site conditions. Contacted local and provincial authorities requesting background information on the subject lands. Assisted in the description of vegetation communities using proper ELC units and assisted in the completion of the final report.

Sifton Properties, Fratscko Lands Advisory and Environmental Impact Statement, London, Ontario. Aided in completion of field investigations to determine existing site conditions. Completed vegetation inventories and helped complete preliminary amphibian surveys, using the “point-count” techniques as described in the Great Lakes Marsh Monitoring Program.

Downham, Downham Property Environmental Impact Statement, London, Ontario. Assisted in completion of vegetation inventories for the subject property. Prepared community descriptions and profiles using ELC units.

City of Woodstock, BB2D Wetland Environmental Impact Statement, Woodstock, Ontario. Assisted in collection of vegetation inventories and prepared a detailed list with all common and Latin floral names. Contacted local and provincial authorities requesting background information.

Sifton Properties, Old Victoria Road Environmental Impact Statement, London, Ontario. Aided in gathering of vegetation inventories according to Ecological Land Classification units (ELC) and delineation of wetland boundaries. Contacted local and provincial authorities to obtain necessary background information.

Kenmore Home, Bierens Property, London, Ontario. Assisted in description of vegetation communities by creating vegetation profiles and detailed plant lists. Contacted local and provincial authorities obtaining necessary background information.

Renewable Energy

NextEra Energy Canada, Bluewater Wind Energy Centres and Transmission Line Renewable Energy Project, Grand Bend, Ontario. Completed terrestrial site investigations, including delineations of vegetation communities into Ecological Land Classification (ELC) units, amphibian surveys following the Marsh Monitoring Protocol. Completed the woodland evaluations following the protocols set out in the Natural Heritage Assessment Guide for Renewable Energy Project Table 8: Significant Woodland Evaluation Criteria and Standards.

Wetland Restoration

ORE Development, Highbury Business Park Wetland Creation, London, Ontario. Aided with the vegetation inventory and monitoring of the area.

Wetland Monitoring

City of London, Uplands North Storm Water Management – Wetland Monitoring Program – Baseline Data, London, Ontario. Completed baseline data collection for a 3 year monitoring program within a wetland located adjacent to a storm water management pond. This included the selection and establishment of 5 permanent monitoring quadrats within the study area as well as a tree health assessment for existing trees within the wetland. Conducted amphibian surveys following the Marsh Monitoring Protocol for inclusion into the baseline report. Following data collection completed Baseline Wetland Monitoring Report.

City of London, Forest City Wetland Forest City Stormwater Management Facility Westminster Wetland Complex Assessment of Reported Die-back. Conducted wetland assessment of Westminster Wetland complex including boundary delineation and a detailed floral species list for insertion into the final document.

City of London, Uplands North Storm Water Management – Wetland Monitoring Program – Year 1 Monitoring, London, Ontario. Completed Year 1 data collection for a 3 year monitoring program within a wetland located adjacent to a storm water management pond. This included vegetation monitoring within the 5 permanent monitoring quadrats within the study area as well as a tree health assessment for existing trees within the wetland.

Class Environmental Assessments

Regional Municipality of York, Upper York Sewage Solutions Environmental Assessment – Natural Environment Baseline Conditions Report. Completed terrestrial field investigations using a combination of Rapid Ecological Land Classification (ELC), and a comprehensive floral species list for the entire study area. This was completed in order to determine existing conditions as well as provide constraints to the overall selection of the preferred alternative.

Township of Woolwich, Municipal Class Environmental Assessment for the Proposed Replacement of Floradale Road Structure # 050106 – Collected necessary background documentation from local agencies. Completed terrestrial field investigations using a combination of Ecological Land Classification (ELC), and a comprehensive floral species list, and conducted impact assessment for insertion into the final EA document.

Niagara Region, Municipal Class Environmental Assessment for the Proposed Reece Bridge Replacement – Collected necessary background documentation from local agencies. Completed terrestrial field investigations using a combination of Ecological Land Classification (ELC), and a comprehensive floral species list, and conducted impact assessment for insertion into the final EA document.

Go Transit, Expansion of Rail Service from Oshawa to Bowmanville on the Lakeshore East Corridor: Natural Environmental Conditions Report. – Completed terrestrial field investigations using a combination of Rapid Ecological Land Classification (ELC), and a comprehensive floral species list for 14 land parcels within the study area. This was completed in order to determine existing conditions as well as in the prevention and reduction of potential negative effects associated with the overall design, construction implementation and long-term operation of the rail expansion to natural heritage features.

San Gold Corporation, Bissett Gold Mine Tailings Pond Expansion, Bissett, Manitoba. Aided in the completion of vegetation inventories to determine existing conditions.

City of Toronto, Toronto Island Water Main Extension EA, Toronto Ontario. Aided in the completion of vegetation inventories.

City of London, Sunningdale Stormwater Management Pond EA, London, Ontario. Aided in the collection of vegetation inventories and background information.

City of Woodstock, Water-Wastewater EA, Woodstock, Ontario. Assisted in the collection of existing conditions to aid in selection of a preferred alternative, and in the completion of a memo reporting these findings.

City of Grimsby, Russ Road Extension EA, Grimsby, Ontario. Aided in the collection of field data, including vegetation inventories. Assisted in the completion of the memo reporting the investigation results.

City of London, Bradley Avenue Trunk Water Main Class EA, London, Ontario. Collected vegetation inventory for the section of Bradley Avenue from Jackson Road to Airport Road, by identifying tree species, calculating its DBH, dripline, and assessing its health. Also assisted in writing the methods, findings, and significance sections of the initial report.

City of London, Western Road Widening, London, Ontario. Aided in the compilation of field data to determine existing site conditions. Completed vegetation inventories and finalized initial memo to the client.

City of Milton, Alternate Water Supply Class EA, Milton, Ontario. Helped refined preferred route by taking notes and photographs then compiling the data into report form.

Manitoulin Island, Islandwide Waste Management Plan, Manitoulin, Ontario. Aided in collection of background information by contacting Manitoulin's landfill and transfer station representatives and asking a series of predetermined questions pertaining to their waste practices. Also contacted were the marinas and aquaculture farms of the area.

City of London, Old Oak SWM Pond, London, Ontario. Aided in gathering of field data by completing vegetation inventories and community descriptions, as well as, completing a detailed floral list for the study area.

City of Guelph, Burke Well, Guelph, Ontario. Aided with compilation of vegetation inventories and community descriptions.

Mining

Labrador Iron Mines, Labrador Iron Mines, Environmental Impact Study, Schefferville, Quebec. Assisted in the completion of vegetation community delineations by aerial photography interpretation followed by ground truthing using the Canadian Vegetation Classification System. Compiled a detailed plant species list for each of the three specific areas of interest. Helped in the completion of the baseline breeding birds report.

San Gold Corporation, Bissett Gold Mine Tailings Pond Expansion, Bissett, Manitoba. Helped in the completion of vegetation inventories to determine existing conditions for the expansion of the tailings ponds.

Bancroft Uranium, Bancroft, Ontario. Completed the delineation of vegetation communities using aerial photography interpretation followed by field investigations.

Sydney Tar Ponds Agency, Sydney Tar Ponds – Baseline Avifauna

Environmental Effects Monitoring Report, Sydney, Nova Scotia. Assisted in the collection of background information as well as in the completion of the Avifauna baseline report.

Subject Land Status Reports

City of London, Highbury and Highway 401 Expansion, London, Ontario. Completed vegetation inventories to determine existing conditions. Completed the description of vegetation communities using proper Ecological Land Classification units according to the Ministry of Natural Resources: Ecological Land Classification System (Lee et al, 1998), and completed the final report.

Sifton Properties, Fanshawe Ridge Wetland Subject Land Status Report, London Ontario. Aided in the completion of field investigations, including vegetation inventories, community delineation into proper Ecological Land Classification units according to the Ministry of Natural Resources: Ecological Land Classification System (Lee et al, 1998), the delineation and staking of the wetland boundary, and in the completion of the final report.

City of Woodstock, Parkinson SWM Pond Cleanout, Woodstock, Ontario. Participated in the initial amphibian's survey for the study area. Assisted in field investigations by collecting vegetation samples and prepared detailed community descriptions for the final report.

Tree Preservation Plans

City of Mississauga, Hanlan Feedermain Environmental Assessment, Mississauga Ontario. Completed a tree inventory along each proposed feedermain route in order to assist in the identification in the preferred route. This included noting trees species within proximity to alternative alignments, potential impacts from proposed works. As well detailed tree data was collected including identification of dominant species, measuring diameter at breast height, assessing health, calculating height, and measuring the dripline along alternative routes as well as a description of existing riparian vegetation along various watercourse crossings.

Sifton Properties, Hopedale Tree Preservation Plan, London Ontario. Collected tree inventory data by identifying individual species, measuring diameter at breast height, assessing health, calculating height, and measuring the dripline in order to complete a Tree Preservation Plan.

Toronto Island Watermain extension – EA, Toronto Ontario. Aided in the collection of tree data. This included the identification of tree species, measuring the diameter at breast height, calculating height, assessing health and measuring the dripline. This information was then used to complete a Tree Preservation Plan.

City of London, Innovation Park Phase 4, London Ontario. Completed significant woodland/wetland boundary staking using the dripline of edge trees. Completed vegetation inventories and tree inventory noting species, diameter at breast height, health and height. This information was used to determine the existing conditions of the subject property in order to complete a Tree Preservation Plan.

Environmental Monitoring

Bancroft Uranium, Bancroft, Ontario. Completed the delineation of vegetation conditions using aerial photography interpretation followed by field investigations.

Woodland Assessments

Pen Equity Corporation and Goal Ventures Inc., Subject Land Status Report. London Ontario. Conducted necessary site investigations to complete a woodland evaluation following criteria set out by the City of London.

Sifton Properties, Van Horik Woodland Assessment, London, Ontario. Assisted in the completion of field investigations, which included the collection of detailed plant lists and the delineation of different communities within the woodland using the Ministry's Ecological Land Classification System.

Pete Read-Faunal Related Resume to 2011

Education: Hons. B.Sc. Zoology / Ecology. (University of Western Ontario)

Experience:

Projects marked with ** indicate I was working as part of Dave Martin's Environmental Consulting team of faunal surveyors

2012

Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2011

- Avian studies for Wind Turbine Projects on Amherst Island.
- Avian studies for rail and storage yard development in Sept Isle, Quebec.
- Various avian studies for AECOM in London and area, and for 404 extension.
- **Observations at Eagle nests in South-western Ontario for post wind turbine construction (Chatham-Kent)
- Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2010

- **Faunal studies at sites for wind turbine projects (Haldimand and Norfolk)
- Designing and Constructing Enclosures and Consulting for Loggerhead Shrike Recovery Program employed by Toronto Metropolitan Zoo. (continuing program).
- Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2009

- **Faunal surveys at sites for wind turbines (Middlesex, Bruce, Grey, Norfolk and Haldimand)
- **Faunal surveys in 37 woodlots in Tecumseh, Essex County.
- Designing and Constructing Enclosures and Consulting for Loggerhead Shrike Recovery Program employed by Wildlife Preservation Canada and Canadian Wildlife Service. (continuing program).
- Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2008

- **Field studies, mostly road surveys of avifauna for wind turbine projects**(**Chatham-Kent, Middlesex, Lampton)
- Designing and Constructing Enclosures and Consulting for Loggerhead Shrike Recovery Program employed by Wildlife Preservation Canada and Canadian Wildlife Service. (continuing program).
- Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2007

- **Field studies of avifauna for wind turbine projects (Chatham-Kent, Middlesex)
- **took part in surveys and habitat assessments for Acadian Flycatchers and Hooded Warblers at various sites in Elgin, Middlesex, Oxford and Lambton Counties
- Designing and Constructing Enclosures and Consulting for Loggerhead Shrike Recovery Program employed by Wildlife Preservation Canada and Canadian Wildlife Service. (continuing program).
- Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2006

- **Field studies of avifauna for wind turbine projects (locations, migration watches) in Dover Township and near Amherstburg.
- Designing and Constructing Enclosures and Consulting for Loggerhead Shrike Recovery Program employed by Wildlife Preservation Canada and Canadian Wildlife Service (continuing program).
- Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2005

- Crew Leader for Boreal inventories of birds (locations, habitats, point counts) and wildlife in different regions of North Western Ontario employed by Federation of Ontario Naturalists (Ontario Nature), Boreal Initiative, and Atlas of Breeding Birds for a joint study. In charge of program, transportation, accommodations, communications with First Nations People on trip, final reports, etc.
- Bird survey work (locations, habitats, point counts) as one of the summer field work crew leaders in area near Algonquin Park, hired by Atlas of Breeding Birds for Ontario.
- Designing and Constructing Enclosures and Consulting for Loggerhead Shrike Recovery Program employed by Wildlife Preservation Canada and Canadian Wildlife Service(continuing program)
- Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2004

- Crew member for Boreal Forest inventories of birds (locations, habitats, point counts) and other wildlife during summer field season, in North Western Ontario, employed by Federation of Ontario Naturalists (Ontario Nature), Boreal Initiative, and Atlas of Breeding Birds for a joint study.
- Collection of nest records, habitat studies, banding, blood sampling of Acadian Flycatchers for the Acadian Flycatcher research program in South Western Ontario run by Dr. Bonnie Wolfenden, York University.
- Designing and Constructing Enclosures and Consulting for Loggerhead Shrike Recovery Program employed by Wildlife Preservation Canada and Canadian Wildlife Service.
- Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2003

- Breeding bird survey work (locations, habitats, point counts) studying in area near Temagami, North Bay, Sudbury regions for Atlas of Breeding Birds and Federation of Ontario Naturalists (Ontario Nature)**.**
- Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2002

- ** Faunal surveys at Clear Creek, Chatham-Kent, for the Nature Conservancy of Canada
- ** Faunal surveys for the Fort Erie Natural Areas Inventory for Dougan and Associates
- ** Faunal surveys at Bickford Oak Woods, Lambton, for Ontario Ministry of Natural Resources
- ** Amphibian surveys at Komoka PP Reserve, Middlesex,
- ** Surveys for Acadian Flycatcher and Hooded Warblers at southwestern Ontario Core sites for Canadian Wildlife Service
- Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2001

- ** Faunal Surveys for Komoka Provincial Park
- ** Habitat assessment and nest productivity of Acadian Flycatcher in southwestern Ontario for Canadian Wildlife Service and Ontario Ministry of Natural Resources
- Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2000

- ** Surveys for Acadian Flycatcher and Hooded Warblers at southwestern Ontario Core sites for Canadian Wildlife Service

1999

- ** Searched for Acadian Flycatchers at ravine and upland forest sites in Elgin, Middlesex and Lambton Counties for Bird Studies Canada.

1998

- ** Searched for breeding Acadian Flycatchers, Hooded Warblers and other VTE species at known sites in southwestern Ontario and noted habitat features at breeding territories. Bird Studies Canada, Canadian Wildlife Service, World Wildlife Fund Canada

1997

- ** Searched for breeding Acadian Flycatchers, Hooded Warblers and Prothonotary Warblers and other VTE species at known sites in southwestern Ontario and noted habitat features at breeding territories. Bird Studies Canada, Canadian Wildlife Service, World Wildlife Fund Canada

Additional…

1975+ Organizer or co-ordinator for the following projects:

- * London Peregrine Project (1995-2005) MNR advisor and co-ordinator of volunteers for monitoring nest site
- * Ontario Breeding Bird Atlas (2001-2005) member of Atlas Co-ordinators team, Region 4
- * London Audubon Christmas Bird Count (since 1983) co-ordinate and compile, as well as participate
- * Audubon Field Notes (since 1983) contributor/editor for Middlesex County
- *Middlesex Bird Records Compiler and Committee Chair –recording and compiling bird records for Middlesex County and chairing the evaluations of record committee (1983+)
- * Compiled Bird Checklist for Komoka Provincial Park for Ontario Parks (1985)

1975+ Participated as a volunteer in the following data collection/monitoring programs

- * Audubon Christmas Bird Counts (40+ counts since 1975)
- * Atlas of the Mammals of Ontario for Middlesex (1990-1992)
- * Atlas of the Breeding Birds of Ontario (1985-1987)
- * CWS Breeding Bird Surveys (10+ years, 3 routes)
- * CWS Forest Bird Monitoring (Skunk's Misery Forest 1990 to 2001)
- * CWS Species at Risk Studies (1990s)
- * CWS Endangered Species Studies (2001)
- * McIlwraith Field Naturalists of London Thames River Breeding Bird Census (1985 - 90)
- * McIlwraith Field Naturalists of London Life Science Inventories (Skunk's Misery, Komoka P.P. Reserve)

Related Natural History Experiences

- 2005 Member of interpretive staff for Akademik Ioffe, cruise ship to Antarctica for Peregrine Tours
- 1995-1997 Teacher at Outdoor Education Facilities in London, Ontario (JK-OAC)
- 2001+ Trip Leader for Worldwide Quest Nature Tours (Cuba, Costa Rica, Iceland, Amazon).
- 2001+ Trip Leader for Friends of Point Pelee
- 1980+ Numerous hikes for various nature clubs such as the Ontario Field Ornithologists, Ontario Nature / Federation of Ontario Naturalists, Nature London / McIlwraith Field Naturalists, and Canadian Nature Federation.
- 1980 -1990 Teacher of birding interest courses with associated field trips for Fanshawe College and University of Western Ontario

Recent Publications.

Read, P. *McCowan's Longspur:New to Ontario*. In Ontario Birds, August 2006, Volume 24, number 2. Ontario Field Ornithologists.

Domm, J. 2002. *Guide to London Birds*. (selected and wrote London Birding Hot Spots). Lorimer Publ.

Read, Peter. 2000 *American Anhinga, Anhinga anhinga summers at Delaware Sportsman's Conservation Pond.* In Ontario Birds, December 2000, Volume 18 number 3. Ontario Field Ornithologists.

Read, P. and David Martin. *Bird Checklist for Middlesex County*. compiled 1990, revised 1996, 2003, 2009. Nature London aka McIlwraith Field Naturalists of London

J.C. Findlay. 1984, revised 1990s. *A Bird-finding Guide to Canada (* selected, wrote and revised section on London, St. Thomas and Sarnia) Hurtig Publ

Read, Peter. From 1983+ *Annual Summary of Birds Reports for Middlesex County.* In: The Cardinal. Nature London / The McIlwraith Field Naturalists of London.

Read, Peter. From 1983+ *Seasonal Bird Reports*. In: The Cardinal, 4 times a year. Nature London / The McIlwraith Field Naturalists of London.

Read, Peter. From 1983+ *many articles including trip reports, news items, but also birding articles such as… Osprey Nesting in Middlesex , Sharp-shinned Hawk Rescue, Peregrine Falcon Nesting, etc.* In: The Cardinal. Nature London / The McIlwraith Field Naturalists of London.

Awards

The Conservation Award in recognition of outstanding contributions to conservation from The McIlwraith Field Naturalists of London, 1996

Ministry of Natural Resources Great Lakes Raptor Recovery Program in recognition of outstanding contributions to the restoration, recovery and conservation of raptor populations in the great lakes basin, London Project Peregrine, 1996

Ontario Field Ornithologists certificate of appreciation, Sept 2000

Federation of Ontario Naturalists (Ontario Nature) for outstanding commitment to nature as teacher, volunteer, birder and researcher, May 2002

The W. E. Saunders Award of Merit in recognition of outstanding contributions to The McIlwraith Field Naturalists of London, November 2004

Nature London Special Recognition Award in recognition of 26 years on the Board of Directors for Nature London/McIlwraith Field Naturalists of London, November 2009

Related Affiliations/Memberships/Positions:

American Birding Association member
Canadian Nature Federation member
Ontario Nature / Federation of Ontario Naturalists member
Friends of Point Pelee member
Long Point Bird Observatory/Bird Studies Canada member
Nature London / McIlwraith Field Naturalists of London-former Chairperson Birding Wing 1985-2009
-Vice president 2010-2011
-President as of Sept. 2011
Ontario Field Ornithologists-Life/charter member
Woodland Advisory Committee for the County of Middlesex-member since 2007
Komoka Provincial Park Advisory Committee (completed 2005)

References (others as needed)

1. Quest Nature Tours- 1-800-387-1483
2. Dave Martin- 1-519-269-3262
3. Ian Platt- 1- 519- 438-3330

Tom Shorney
Ecologist

Professional History

07/25/2011 - present, AECOM, Ecologist
03/20/2011 – 07/22/2011, Quiet Nature, Restoration technician
06/2008 – 12/17, 2010, Natural Resources Canada, Great Lakes Forestry Centre, Ecological Technician

Education

Diploma, Ecosystems Management Technology, Sir Sandford Fleming College

Years of Experience

With AECOM: 4 months

Training and Certifications

Ecological Land Classification Certification 2012

First Aid Certification, St. John's Ambulance 2012

Diploma, Ecosystems Management Technology, Sir Sandford Fleming College

WHIMIS training

Canadian Pleasure Craft Operator

Tom Shorney is a Terrestrial Ecologist with 4 years of field experience, with a keen interest in Birds and Amphibians. Since having joined the AECOM team in the summer of 2011, Tom has participated in both small and large scale projects. The majority of Tom's experience in the consulting industry has involved assisting in Ecological Land Classification field work, as well as general stream measurements. He has had a major role in preparing Environmental Impact studies, and utilizing the Natural Heritage Information Centre for background species research.

Experience

Renewable Energy

NextEra Energy Canada
Along with a team of ecologists, several terrestrial investigations were conducted over a large spatial area for the purpose of wind energy. Specific investigations involved Ecological Land Classification (ELC) surveys, Significant Wildlife Habitat surveys, and wetland investigations. During the breeding season for amphibians, day searches and night call surveys were conducted. Monitored the distance of turbine locations to natural features during the micrositing process.

Class Environmental Assessments

Huron Bridge, City of Kitchener
Performed terrestrial field investigations including the characterization of the surrounding vegetative communities along Schneider creek and prepared a photographic log.

Cooksville Creek Erosion Control Study, EA
Assisted in characterizing the terrestrial environment using Ecological Land Classification (ELC) techniques. Compiled a complete floral species list of plants in the area. Performed aquatic field investigations including stream depth, stream width, mineral composition of stream bottom, bank stabilization, and photo log. Contacted area officials regarding Species at Risk, and prepared the existing conditions portion of the report.

Reece Bridge Restoration Project, EA
Assisted in field investigations such as classifying the terrestrial environment using Ecological Land Classification guidelines; and gathered specific background information using Natural Heritage Information Centre (NHIC).

Forest City, City of London
Performed field investigations pertaining to Stormwater Management Facility. Project required Aerial Photograph interpretation, NHIC search for background information, and the close contact with city and conservation authorities. Played key role in preparing the report.

Cedar Creek, City of Woodstock
Conducted a complete tree survey within study area including components such as: species, Diameter at breast height (DBH), tree condition, distances from stream, and GPS waypoints. Conducted background search and was in contact with provincial authorities.

Monitoring

Uplands North Storm Water Management – Wetland Monitoring Program, City of London
Assisted in the preparation of a 3 year monitoring program which track the potential affects that development of a Storm Water Management Pond may have on the surrounding wetland. 5 plots were constructed in randomly selected areas, where vegetation communities will be closely monitored as well as, Water depth, water quality and tree health.

Upper York Sewage Solutions, The Regional Municipality of York, EA
Played a role in the completion of terrestrial investigations such as classifying vegetative communities and preparing a photographic log.

Kitchener Waste Water Treatment Plant
Assisted in the completion of terrestrial investigations which included photo interpretation, vegetation inventories which included using the ELC protocol, identified and measured trees and photographic log.

Highway 2 Rapid Bus, Regional Municipality of Durham, Existing Environmental Conditions
Performed terrestrial investigations along entire study which included classification of vegetative communities using ELC units, roadside tree inventory, photographic log and general notes. Supplied background information using the Natural Heritage Information Centre's (NHIC) Biodiversity explorer, and assisted in the preparation of the report.

Barrie-Oliver, Class Environmental Assessment
Performed Background information research using the Natural Heritage Information Centre's (NHIC) Biodiversity explorer, as well as prepared a Species at Risk (SAR) table which outlines the species, their preferred habitat and when the species was last spotted.

Species at Risk Assessment for Highway 81
Developed an information card for area citizens pertaining to the identification features of the Chimney Swift, which is listed as a Species at Risk.

Appendix D

Weather Conditions during Site Investigations

Appendix D

Weather Conditions during Bluewater Amendment Site Investigation Surveys – 2012

Weather Station: .....Goderich
Climate Identifier: 6122847

Field Date	Max. Temp. (°C)	Min. Temp. (°C)	Total Precip. (mm)	Speed of Max. Gust (km/h)	Average Wind Speed (km/hr)[1]
4/17/2012	4.9	-1.4	0	39	14.5
4/19/2012	11.3	6.9	0	41	17.7
4/23/2012	7.4	3.3	0	67	29.9
5/16/2012	12.4	4.6	2.9	44	19.9

Note: 1. At the time of this report, Environment Canada's National Climate Data and Information Archive did not have the wind speed from 12 p.m. to 2 p.m. The average wind speed, therefore, was calculated using the wind speed data available.

Appendix E

Vascular Plant Species List

Appendix H. Plant Species List

Nextera - Bluewater Study Area

AECOM

BOTANICAL NAME		COMMON NAME	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status	OMNR Status	COSEWIC Status	Global Status	Local Status Huron County	514 BLW1603&1658 April 17, 2012	514 BLW1603&1658 April 17, 2012	514 BLW1603&1658 April 17, 2012	551 BLW1358&1371 April 19, 2012	551 BLW1358&1371 April 19, 2012	555 BLW1329 April 23, 2012	555 BLW1329 June 19, 2012	582 BLW1315 May 16, 2012
											514			551		555 (SCP-01)		582
			Oldham et al	Oldham et al	Oldham et al	Newmaster			Newmaster	Oldham 1993	SWD6-3	FOD5-1	CUM1	FOD 5-2 CUM 1-1	CUP3-2	FOD9-5	SOCC Vascular Plant Survey FOD9-5	CUM1-1
PTERIDOPHYTES		**FERNS & ALLIES**																
Dryopteridaceae		**Wood Fern Family**																
Matteuccia	*struthiopteris*	Ostrich Fern	5	-3		S5			G5	X	U							
Onoclea	*sensibilis*	Sensitive Fern	4	-3		S5			G5	X	U							
GYMNOSPERMS		**CONIFERS**																
Pinaceae		**Pine Family**																
Picea	*abies*	Norway Spruce		5	-1	SE3			G?									U
Pinus	*strobus*	Eastern White Pine	4	3		S5			G5	X				U	D			
Pinus	*sylvestris*	Scotch Pine		5	-3	SE5			G?	I					R			
Tsuga	*canadensis*	Eastern Hemlock	7	3		S5			G5	X	R							
Cupressaceae		**Cedar Family**																
Thuja	*occidentalis*	Eastern White Cedar	4	-3		S5			G5	X	U		U					
DICOTYLEDONS		**DICOTS**																
Aceraceae		**Maple Family**																
Acer	*plantanoides*	Norway Maple		5	-3	SE5			G?									U
Acer	*saccharum*	Sugar Maple	4	3		S5			G5T?	X		A	U	D	F		F	
Acer	*negundo*	Manitoba Maple	0	-2		S5			G5				U	R				
Acer X	*freemanii*	Freeman's Maple				S5					D		U					
Anacardiaceae		**Sumac or Cashew Family**																
Toxicodendron	*radicans ssp. negundo*	Poison-ivy (Climbing)	5	-1		S5			G5T	X	U				R			
Toxicodendron	*rydbergii*	Poison-ivy	0	0		S5			G5								F	
Apiaceae		**Carrot or Parsley Family**																
Daucus	*carota*	Wild Carrot		5	-2	SE5			G?	I								U
Aquifoliaceae		**Holly Family**																
Ilex	*verticilata*	winterberry	5	-4		S5			G5	X	U							
Aristolochiaceae		**Duchman's-pipe Family**																
Asarum	*canadense*	Wild Ginger	6	5		S5			G5	X	U							
Asclepiadaceae		**Milkweed Family**																
Asclepias	*syriaca*	Common Milkweed	0	5		S5			G5	X								R
Asteraceae		**Composite or Aster Family**																
Arctium	*minus*	Common Burdock		5	-2	SE5			G?T?	I	R		D	R				U
Centaurea	*biebersteinii*	Spotted Knapweed		5	-3	SE5			G?									U
Solidago	*altissima*	Tall Goldenrod	1	3		S5				X								U
Solidago	*flexicaulis*	Zig-zag Goldenrod	6	3		S5			G5	X						U	D	
Solidago	*species*	Goldenrod species									U		F					
Symphyotrichum	*lateriflorum*	Calico Aster	3	-2		S5			G5T5					R			U	
Taraxacum	*officinale*	Common Dandelion		3	-2	SE5			G5	I				R	R	R		U
Balsaminaceae		**Touch-me-not Family**																
Impatiens	*capensis*	Spotted Jewelweed	4	-3		S5			G5	X	U							
Berberidaceae		**Barberry Family**																
Caulophyllum	*thalictroides*	Blue Cohosh	6	5		S5			G	X		U	U	U		R		
Podophyllum	*peltatum*	May-apple	5	3		S5			G5	X		U		U				
Betulaceae		**Birch Family**																
Betula	*alleghaniensis*	Yellow Birch	6	0		S5			G5	X	U							
Betula	*papyrifera*	White Birch		2		S5			G5	X						R		
Carpinus	*caroliniana*	Blue Beech	6	0		S5			G5T	X						R	U	
Ostrya	*virginiana*	Ironwood	4	4		S5			G5	X				R		U	U	
Brassicaceae		**Mustard Family**																
Alliaria	*petiolata*	Garlic Mustard		0	-3	SE5			G5	I	F		U	R	U			F
Caprifoliaceae		**Honeysuckle Family**																
Lonicera	*tatarica*	Tartarian Honeysuckle		3	-3	SE5			G?	I								U
Sambucus	*nigra*	European Black Elderberry				S5			G5		U							
Viburnum	*acerifolium*	Maple-leaved Viburnum	6	5		S5			G5	X								R
Viburnum	*lentago*	Nannyberry	4	-1		S5			G5	X	F		U			R		
Cornaceae		**Dogwood Family**																
Cornus	*alternifolia*	Alternate-leaved Dogwood	6	5		S5			G5	X	U						U	
Cornus	*racemosa*	Red Panicled Dogwood/Gray dogwo	2	-2		S5			G5?	X								U
Cornus	*rugosa*	Round-leaved Dogwood	6	5		S5			G5	X			U					
Cornus	*sericea*	Red-osier Dogwood	2	-3		S5			G5	X			U					D
Fagaceae		**Beech Family**																
Fagus	*grandifolia*	American Beech	6	3		S5			G5	X	U			F		U	U	
Quercus	*rubra*	Red Oak	6	3		S5			G5	X							R	
Geraniaceae		**Geranium Family**																
Geranium	*robertianum*	Herb-robert		5	-2	SE5			G5	I	U							

Appendix H. Plant Species List

Nextera - Bluewater Study Area

AECOM

BOTANICAL NAME		COMMON NAME	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status	OMNR Status	COSEWIC Status	Global Status	Local Status Huron County	514 BLW1603&1658 April 17, 2012	514 BLW1603&1658 April 17, 2012	514 BLW1603&1658 April 17, 2012	551 BLW1358&1371 April 19, 2012	551 BLW1358&1371 April 19, 2012	555 BLW1329 April 23, 2012	555 BLW1329 June 19, 2012	582 BLW1315 May 16, 2012
											514			551		555 (SCP-01)		582
			Oldham et al	Oldham et al	Oldham et al	Newmaster			Newmaster	Oldham 1993	SWD6-3	FOD5-1	CUM1	FOD 5-2 CUM 1-1	CUP3-2	FOD9-5	SOCC Vascular Plant Survey FOD9-5	CUM1-1
Grossulariaceae		**Currant Family**																
Ribes	*americanum*	Wild Black Currant	4	-3		S5			G5	X	F				U	U		U
Ribes	*cynosbati*	Prickly Gooseberry	4	5		S5			G5	X								U
Ribes	*lacustre*	Swamp Black Currant	7	-3		S5			G5		F	U		U		R		
Juglandaceae		**Walnut Family**																
Carya	*cordiformis*	Bitternut hickory	6	0		S5			G5	X				U		F	D	
Juglans	*nigra*	Black Walnut	5	3		S4			G5	X				R	R			
Lamiaceae		**Mint Family**																
Clinopodium	*vulgaris*	Wild basil	4	5		S5				X							R	
Oleaceae		**Olive Family**																
Fraxinus	*americana*	White Ash	4	3		S5			G5	X		F		F	R	F	F	
Fraxinus	*nigra*	Black Ash	7	-4		S5			G5	X	F							
Fraxinus	*pennsylvanica*	Green ash	3	-3		S5			G5	X	U						U	U
Onagraceae		**Evening-primrose Family**																
Circaea	*lutetiana*	Enchanter's Nightshade	3	3		S5			G5T5								U	
Papaveraceae		**Poppy Family**																
Sanguinaria	*canadensis*	Bloodroot	5	4		S5			G5	X		U		F	U	U	U	
Plantaginaceae		**Plantain Family**																
Plantago	*major*	Common Plantain		-1	-1	SE5			G5	I								U
Polemoniaceae		**Phlox Family**																
Phlox	*species*																	U
Ranunculaceae		**Buttercup Family**																
Anemone	*canadensis*	Canada Anemone	3	-3		S5			G5	X								U
Caltha	*palustris*	Marsh-marigold	5	-5		S5			G5	X	U							
Thalictrum	*pubescens*	Tall Meadow-rue				S5			G5	X	U			F				
Rhamnaceae		**Buckthorn Family**																
Rhamnus	*cathartica*	Common Buckthorn		3	-3	SE5			G?	I			U	R		R	U	
Rosaceae		**Rose Family**																
Crataegus	*punctata*	Large-fruited Thorn	4	5		S5			G5	X						R	U	F
Crataegus	*species*	Hawthorn species									U							
Fragaria	*virginiana*	Virginia Strawberry	2	1		SU			G5T?	X	U			U		R	F	
Geum	*aleppicum*	Yellow Avens	2	-1		S5			G5	X							U	
Malus	*pumila*	Common apple		5	-1	SE5			G5	I								R
Prunus	*serotina*	Black Cherry	3	3		S5			G5	X		R		R		U	R	
Prunus	*virginiana ssp. virginiana*	Choke Cherry	2	1		S5			G5T?	X	F	F		F	F	F	F	
Pyrus	*species*	Pear species												R				
Rubus	*idaeus*	Red Raspberry				SE1			G5T5				U	F			F	U
Rubus	*odoratus*	Purple-flowered Raspberry	3	5		S5			G5								U	
Sorbus	*aucuparia*	European Mountain-ash		5	-2	SE4			G5	I								U
Salicaceae		**Willow Family**																
Populus	*deltoides ssp. deltoides*	Eastern Cottonwood	4	-1		SU			G5T?	X				R				
Salix	*species*	Willow species											D					
Tiliaceae		**Linden Family**																
Tilia	*americana*	American Basswood	4	3		S5			G5	X	U		U	R				
Ulmaceae		**Elm Family**																
Ulmus	*americana*	White Elm	3	-2		S5			G5?	X	R	U		U		U	U	R
Urticaceae		**Nettle Family**																
Urtica	*dioica ssp. dioica*	European Stinging Nettle		-1	-1	SE2			G5T?				U					
Violaceae		**Violet Family**																
Viola	*conspersa*	Dog Violet	4	-2		S5			G5	X		F				R		
Viola	*pubescens*	Downy Yellow Violet	5	4		S5			G5	X				R				
Viola	*species*	Violet species									F							
MONOCOTYLEDONS		**MONOCOTS**																
Araceae		**Arum Family**																
Arisaema	*triphyllum*	Small Jack-in-the-pulpit	5	-2		S5			G5T5	X	U			R		R	U	
Cyperaceae		**Sedge Family**																
Carex	*pedunculata*	Long-stalked Sedge	5	5		S5			G5	X				R		R		
Liliaceae		**Lily Family**																
Allium	*tricoccum*	Wild Leek	7	2		S5			G5			R		F		F		
Erythronium	*americanum ssp. americanu*	Yellow Trout Lily	5	5		S5			G5T5	X	F	U	U	F	F	F		
Maianthemum	*canadense*	Wild Lily-of-the-valley	5	0		S5			G5	X		U						
Maianthemum	*racemosum*	False Solomon's Seal	4	3		S5			G5T	X		F	F			U	U	
Polygonatum	*pubescens*	Hairy Solomon's Seal	5	5		S5			G5		F							
Streptopus	*lanceolatus*	Rose Twisted-stalk	10	-1		S5			G5							R		
Trillium	*grandiflorum*	White Trillium	5	5		S5			G5	X	U	U	U	F		U		

Appendix H. Plant Species List

Nextera - Bluewater Study Area

AECOM

BOTANICAL NAME		COMMON NAME	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status	OMNR Status	COSEWIC Status	Global Status	Local Status Huron County	514 BLW1603&1658 April 17, 2012	514 BLW1603&1658 April 17, 2012	514 BLW1603&1658 April 17, 2012	551 BLW1358&1371 April 19, 2012	551 BLW1358&1371 April 19, 2012	555 BLW1329 April 23, 2012	555 BLW1329 June 19, 2012	582 BLW1315 May 16, 2012
											514			551		555 (SCP-01)		582
			Oldham et al	Oldham et al	Oldham et al	Newmaster			Newmaster	Oldham 1993	SWD6-3	FOD5-1	CUM1	FOD 5-2 CUM 1-1	CUP3-2	FOD9-5	SOCC Vascular Plant Survey FOD9-5	CUM1-1
Orchidaceae		**Orchid Family**																
Epipactis	*helleborine*	Common Helleborine		5	-2	SE5			G?	I							U	
Poaceae		**Grass Family**																
Dactylis	*glomerata*	Orchard Grass		3	-1	SE5			G?	I								F
Glyceria	*striata*	Fowl Manna Grass	3	-5		S5			G5	X							R	
Phalaris	*arundinacea*	Reed Canary Grass	0	-4		S5			G5	X			U					D
Poa	*pratensis ssp. pratensis*	Kentucky Bluegrass	0	1		S5			G5T	X								F

FLORISTIC SUMMARY & ASSESSMENT

Species Diversity			
Total Species:		**82**	
Native Species:		**65**	79.27%
Exotic Species		**17**	20.73%
Total Taxa in Region (List Region, Source)		10000	
% Regional Taxa Recorded		0.82%	
Regionally Significant Species		0	
S1-S3 Species		0	
S4 Species		1	
S5 Species		66	
Co-efficient of Conservatism and Floral Quality Index			
Co-efficient of Conservatism (CC) (average)		**4.20**	
CC 0 to 3	*lowest sensitivity*	19	29.23%
CC 4 to 6	*moderate sensitivity*	41	63.08%
CC 7 to 8	*high sensitivity*	4	6.15%
CC 9 to 10	*highest sensitivity*	1	1.54%
Floral Quality Index (FQI)		**33.86**	
Presence of Weedy & Invasive Species			
mean weediness		**-2.06**	
weediness = -1	*low potential invasiveness*	5	29.41%
weediness = -2	*moderate potential invasiveness*	6	35.29%
weediness = -3	*high potential invasiveness*	6	35.29%
Presence of Wetland Species			
average wetness value		**1.51**	
upland		24	29.27%
facultative upland		20	24.39%
facultative		14	17.07%
facultative wetland		18	21.95%
obligate wetland		2	2.44%

EXPLANATION OF TERMINOLOGY
Botanical and Common Name: From Integrated Taxonomic Information System (IT IS). 2012.
Co-efficient of Conservatism: This value, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to a specific habitat integrity.
Wetness Index: This value, ranging from -5 (obligate wetland) to 5 (upland) provides the probability of a species occurring in wetland or upland habitats.
Weediness Index: This value, ranging from -1 (low) to -3 (high) quantifies the potential invasiveness of non-native plants. In combination with the percentage of non-native plants, it can be used as an indicator of disturbance.
Provincial Status: Provincial ranks are used by the NHIC to set protection priorities for rare species and natural communities. These ranks are not legal designations. S4 and S5 species are generally uncommon to common in the province. Species ranked S1-S3 are consid
Local Status:
VU: native and very uncommon
X: native and not rare or very uncommon
C: native and common
R: native and rare
I: introduced and persisting outside of cultivation.
Ir: introduced and rare
Ih: introduced and known only from historic records
Ivu: introduced and very uncommon
Iu: introduced and uncommon
Ic: introduced and common
Annotations: Provides comments on general distribution and abundance on the subject lands. Definitions of terminology and abbreviations used as follows.
Abundance
Dominant (D): represented by large numbers; generally forming >10% ground cover or >25% vegetation in any one stratum
Fairly common (F): generally widespread; represented by fairly large numbers of individual clumps; usually forming >10% ground cover
Uncommon (U): present as widespread scattered individuals or represented by one or more clumps of many individuals
Rare (R): represented in the polygon by less than about five individuals or small clumps

DETAILED EXPLANATION OF TERMS
Floral Quality Index and Coefficient of Conservatism Values
Vegetation species and community sensitivity was assessed through the application of coefficient of conservatism values (CC), assigned to each native species in southern Ontario (Oldham, et. al, 1995). The value of CC, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to specific habitat integrity. The occurrence of species with a CC of 9 or 10 can be good indicators of undisturbed conditions such as mature forests, fens or bogs.

General habitat values associated with the CC values are:
0-3: species found in a wide variety of communities, including disturbed sites
4-6: species associated with a specific community, but tolerate moderate disturbance
7-8: species associated with a community in an advanced successional stage, tolerant of minor disturbances
9-10: species with a high degree of fidelity to a narrow range of synecological parameters

Appendix H. Plant Species List

Nextera - Bluewater Study Area

BOTANICAL NAME	COMMON NAME	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status	OMNR Status	COSEWIC Status	Global Status	Local Status Huron County	514 BLW1603&1658 April 17, 2012	514 BLW1603&1658 April 17, 2012	514 BLW1603&1658 April 17, 2012	551 BLW1358&1371 April 19, 2012	551 BLW1358&1371 April 19, 2012	555 BLW1329 April 23, 2012	555 BLW1329 June 19, 2012	582 BLW1315 May 16, 2012
										514			551		555 (SCP-01)		582
		Oldham et al	Oldham et al	Oldham et al	Newmaster			Newmaster	Oldham 1993	SWD6-3	FOD5-1	CUM1	FOD 5-2 CUM 1-1	CUP3-2	FOD9-5	SOCC Vascular Plant Survey FOD9-5	CUM1-1

The floristic quality of an area is reflected in the mean value of CC. For example, an old field or grazed woodlot would tend have a low mean CC; these habitats are dominated by opportunistic species that occur in a wide range of site conditions and are tolerant of disturbance. A bog, prairie or intact forest would have a higher value, reflecting the specific habitat requirements of many of the species and a generally undisturbed condition. The following provides an example of interpretation of CC values:
mean CC value / % spp CC >8 / Condition of the Landscape
5 / 27 / intact
3.5 / 19 / slightly degraded
1.3 / 2 / severely degraded

The FQI accounts for the species diversity of the area by equating the number of native species with the mean CC value. The FQI is generally used for comparing natural areas. The CC value and FQI of the study area were calculated for the entire study area.

Weediness Index
The sensitivity of natural areas can be assessed through application of the Weediness Index. The Weediness Index quantifies the potential invasiveness of non-native plants, and, in combination with the percentage of non-native plants can be used as an indicator of disturbance. Values (ranging from 1- to -3) have been assigned to most non-native species based on the potential impact each species can have in natural areas:
-1: little or no impact on natural areas (most non-native plants are in this category)
-2: occasional impacts on natural areas, generally infrequent or localized
-3: major potential impacts on natural areas

Wetness Index
All plants in southern Ontario have been assigned a wetland category, based on the designations developed for use by the United States Fish & Wildlife Service. Plants are designated into the following categories:
OBL (Obligate Wetland): occurs almost always in wetlands under natural conditions (estimated >99% probability)
FACW (Facultative Wetland): usually occurs in wetlands, but occasionally found in non-wetlands (estimated 67-99% probability)
FAC (Facultative): equally likely to occur in wetlands or non-wetlands (estimated 34-66% probability)
FACU (Facultative Upland): occasionally occurs in wetlands, but usually occurs in non-wetlands (estimated 1-33% probability)
UPL (Upland): occurs almost never in wetlands under natural conditions (estimated <1% probability)

Further refinement of the Facultative categories are denoted by a "+" or "-" to express exaggerated tendencies for those species. The "+" denotes a greater estimated probability occurring in wetlands than species in the general indicator category, but a lesser probability than species occurring in the next higher category. The "-" denotes a lesser estimated probability of occurring in wetlands than species in the general indicator category, but a greater probability than species occurring in the next lower general category.

Each wetland category has been assigned a numerical value to facilitate the quantification of the wetness index. The wetland categories and their corresponding values are as follows:

OBL : -5
FACW+: -4
FACW: -3
FACW-: -2
FAC+: -1
FAC: 0
FAC-: 1
FACU+: 2
FACU: 3
FACU-: 4
UPL: 5

Provincial Status
Provincial ranks are used by the NHIC to set protection priorities for rare species and natural communities. These rankings are based on the total number of extant Ontario populations and the degree to which they are potentially or actively threatened with destruction. The
S1: Critically Imperiled—Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province
S2: Imperiled—Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province
S3: Vulnerable—Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation
S4: Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5: Secure—Common, widespread, and abundant in the nation or state/province
SH: Possibly Extirpated (Historical)—Species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become NH or SH without such a 20-40 year delay if the only known occurrences in a nation or state/province were destroyed or if it had been extensively and unsuccessfully looked for. The NH or SH rank is reserved for species or communities for which some effort has
SNR Unranked—Nation or state/province conservation status not yet assessed
SX: Presumed Extirpated—Species or community is believed to be extirpated from the nation or state/province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered
SNA Not Applicable —A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
SU: Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends
Rank ranges, e.g. S2S3, indicate that the rank is either S2 or S3, but that current information is insufficient to differentiate.
S#S# Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

REFERENCES
Nomenclature based on:
Integrated Taxonomic Information System (IT IS). 2012: (http://www.itis.gov)

Co-efficient of Conservatism, Wetness & Weediness:
Oldham, M.J., W.D. Bakowsky and D.A. Sutherland. 1995. Floristic quality assessment for southern Ontario. OMNR, Natural Heritage Information Centre, Peterborough. 68 pp.

Provincial (Ontario) Status:
Natural Heritage Information Centre (NHIC). 2000. Provincial status of plants, wildlife and vegetation communities database. http://www.mnr.gov.on.ca/MNR/nhic/nhic.html. OMNR, Peterborough.

Local Status:
Oldham, M.J. 1993. Distribution and Status of the Vascular Plants of Southwestern Ontario. OMNR

Appendix F

Wildlife Species List

Appendix F. Wildlife Species List

Taxon	Common Name	Scientific Name	Provinical Status (S Rank)[1]
Birds	American Robin	*Turdus migratorius*	S5B
	Black-capped Chickadee	*Poecile atricapillus*	S5
	Blue Jay	*Cyanocitta cristata*	S5
	Brown-headed Cowbird	*Molothrus ater*	S4B
	Cooper's Hawk	*Accipiter cooperi*	S4
	Downy Woodpecker	*Picoides pubescens*	S5
	Horned Lark	*Eremophila alpestris*	S5B
	House Wren	*Troglodytes aedon*	S5B
	Killdeer	*Charadrius vociferus*	S5B, S5N
	Mourning Dove	*Zenaida macroura*	S5
	Northern Cardinal	*Cardinalis cardinalis*	S5
	Northern Flicker	*Colaptes auratus*	S4B
	Red-bellied Woodpecker	*Melanerpes carolinus*	S4
	Red-tailed Hawk	*Buteo jamaicensis*	S5
	Red-winged Blackbird	*Agelaius phoeniceus*	S5
	Song Sparrow	*Melospiza melodia*	S5B
	Vesper Sparrow	*Pooecetes gramineus*	S4B
	White-crowned Sparrow	*Zonotrichia leucophrys*	S4B
	Wild Turkey	*Meleagris gallopavo*	S5
	Yellow Warbler	*Dendroica petechia*	S5B
	Yellow-bellied Sapsucker	*Sphyrapicus varius*	S5B
Butterflies	Red Admiral	*Vanessa atalanta*	S5
Amphibians	Wood Frog	*Rana (Lithobates) sylvatica*	S5

[1] S Rank (from Natural Heritage Information Centre): S1 (Critically Imperiled), S2 (Imperiled) or S3 (Vulnerable), S4 (apparently secure, uncommon), or S5 (secure, common).

Appendix H

OWES Evaluation for Stanley Big Drain Wetland

Stanley Big Drain Wetland

Wetland Evaluation Edition	3rd

June, 2012

Comments

The wetland polygon's were identified and mapped using 2010 hard copies of aerial photos

This wetland complex is approximately 50.18 hectares in size, comprised of three wetland units. It is classified as both a riverine and palustrine wetland system, hydrologically connected to the Bannokburn River via Stanley Big Drain. This watercourse passes through the western portion of the wetland complex. This wetland complex is composed of both marsh and swamp wetland types. Dominant species observed within the marsh areas include Canada rush (Juncus Canadensis), swamp milkweed (Asclepias incarnata), hop sedge (Carex lupulina), purple-stem aster (Symphyotrichum puniceus), broad-leaved cattail (Typha latifolia), reed canary grass (Phalaris arundinacea), soft stem bulrush (Scirpus validus). The dominant species observed within the swamp areas include, green ash (Fraxinus pennsylvanica), freeman's maple (Acer Freemanii), white elm (Ulmus americana), spicebush (Lindera benzoin), sensitive fern (Onoclea sensibilis), and jewelweed (Impatiens capensis). Some of the swamp areas were dominated by drier species such as red baneberry (*Actaea rubra*), blue cohosh (*Caulophyllum thalictroides*), enchanter's nightshade (*Circaea lutetiana*)and star flower solomon's seal (*Maianthemum stellatum*).

Additional Information

Include relevant information that can not be entered in the wetland data record(Ex. Sections that have not been completed.)

Official Name:	Stanley Big Drain Wetland				
Evaluation Edition:	3rd	Class:		Wetland ID.:	
Wetland Significance	Year/Month Last Evaluated			June 26, 2012	
Not Provincially Significant	Year/Month Last Updated				
Special Planning Considerations:				**Scores**	
				Biological:	89
				Social:	61
				Hydrological:	154
				Special Features:	120
Information Source				Overall:	424
Submitted by:	Jessica Piette, To Shorney, & Jillian deMan				
Date:	July, 2011				

Southern Ontario Wetland Evaluation, Data and Scoring Record **March 1993**

Wetland Manual

WETLAND DATA AND SCORING RECORD

i) **WETLAND NAME:** **Stanley Big Drain Wetland**

ii) **MNR ADMINISTRATIVE REGION:** **Southern** **DISTRICT:** **Guelph**

AREA OFFICE (if different from District):

iii) **CONSERVATION AUTHORITY JURISDICTION:** **Asauble Bayfield Conservation Authority**

(If not within a designated CA, check here: _____

iv) **COUNTY OR REGIONAL MUNICIPALITY:** **Huron County**

v) **TOWNSHIP:** **Municipality of Bluewater and Municipality of Huoron East**

vi) **LOTS & CONCESSIONS:**

(attach separate sheet if necessary)

vii) **MAP AND AIR PHOTO REFERENCES**

a) Latitude: _____ Longitude: _____

b) UTM grid reference: Zone: **17** Block: _____
Grid:E **45106945** Grid:N **4816425.55**

c) National Topographic Series:

map name(s) _____

map number(s) _____ edition _____

scale _____

d) Aerial photographs: Date photo taken: **2010** Scale: _____

Flight & plate numbers: _____

(attach separate sheet if necessary)

e) Ontario Base Map numbers & scale _____

(attach separate sheets if necessary)

Field Comm	Comm Code		Site Type							Soil Type							Dominate Vegetation														Vegetation Forms	No. of Forms	Wetland Type				% OPEN WATER			Fish Hab Data ?	Vegetation	Wildlife	Comments
	WT	SC	I	P	R	L	RRM	LEB	LEL	C/L	S/M	Lim	S	H/M	F	G	H	C	DH	DC	TS	LS	DS	GC	M	NE	BE	RE	FF	F	SU	U			Sw	Ma	Fe	Bo	LOW	HIGH	AVG				
1	M	1		2.31																												ne*, ls, gc	3		2.31									
Total			0.00	2.31	0.00	0.00	0.00	0.00	0.00																																		
2	M	2		0.18																												ne*, re, ls	3		0.18									
Total			0.00	0.18	0.00	0.00	0.00	0.00	0.00																																		
3	M	3		0.49																												ne*, gc	2		0.49									
Total			0.00	0.49	0.00	0.00	0.00	0.00	0.00																																		
4	S	1																														h*, ne, gc	3	1.13									
Total			0.00	0.00	0.00	0.00	0.00	0.00	0.00																																		
5	S	2																														h*, ls, ts, gc	4	19.89									
Total			0.00	0.00	0.00	0.00	0.00	0.00	0.00																																		
6	S	3			4.24																											h*, ls, ts, gc	4	4.24									
Total			0.00	0.00	4.24	0.00	0.00	0.00	0.00																																		
7	S	4			10.90																											h*, ts, gc	3	21.29									
Total			0.00	0.00	10.90	0.00	0.00	0.00	0.00																																		
8	U		0.65																													Unvegetated			0.65									
			0.65	0.00	0.00	0.00	0.00	0.00	0.00																																		
Total										0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			46.55	1.32	0.00	0.00						

viii) WETLAND SIZE AND BOUNDARIES

a) Single contiguous wetland area: 50.18 hectares

b) Wetland complex comprised of 3 individual wetlands:

Wetland Unit Number (for reference)		Size of each wetland unit							
		Isolated	Palustrine	Riverine	Lacustrine	Riv. R.M.	Lac.E.B.	Lac.E.L.	
Wetland Unit No.	1		24.65	4.24					ha
Wetland Unit No.	2			10.90					ha
Wetland Unit No.	3		10.39						ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit Totals:		0.00	35.04	15.14	0.00	0.00	0.00	0.00	

(Attach additional sheets if necessary)

TOTAL WETLAND SIZE 50.18 ha

c) Brief documentation of reasons for including any areas less than 0.5 ha in size:

(Attach separate sheets if necessary .)

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

1.1.1 GROWING DEGREE-DAYS/SOILS

GROWING DEGREE DAYS (check one)		
1)		<2800
2)		2800 -3200
3)		3200 -3600
4)	x	3600 -4000
5)		>4000

SOILS Estimated Fractional Area	
	clay/loam
	silt/marl
	limestone
1.00	sand
	humic/mesic
	fibric
	granite

Determine the soil type from the appropriate OMAF soils maps

SCORING:

Growing Degree-Days	Clay-Loam	Silt-Marl	Lime-stone	Sand	Humic-Mesic	Fibric	Granite
<2800	15	13	11	9	8	7	5
2800-3200	18	15	13	11	9	8	7
3200-3600	22	18	15	13	11	9	7
3600-4000	26	21	18	15	13	10	8
>4000	30	25	20	18	15	12	8

(maximum score 30; if wetland contains more than one soil type, evaluate based on the fractional area)

Steps required for evaluation: (maximum score 30 points)

1. Select GDD line in evaluation table applicable to your wetland;
2. Determine fractional area of the wetland for each soil type;
3. Multiply fractional area of each soil type by score;
4. Sum individual soil type scores (round to nearest whole number).

In wetland complexes the evaluator should aim at determining the percentage of area occupied by the categories for the complex as a whole.

Score		
	clay/loam	0.00
	silt/marl	0.00
	limestone	0.00
15	sand	15.00
	humic/mesic	0.00
	fibric	0.00
	granite	0.00

Final Score Growing Degree-Days/Soils (maximum 30 points) 15

1.1.2 WETLAND TYPE (Fractional Area = area of wetland type/total wetland area)

Estimate the Wetland Type from air photos or default to "swamp" (8)

	Fractional Area		Score
Bog		x 3	0.0
Fen		x 6	0.0
Swamp	0.92	x 8	7.4
Marsh	0.05	x 15	0.8
		Subtotal:	8.1

Wetland type score (maximum 15 points) 8

1.1.3 SITE TYPE (Fractional Area = area of site type/total wetland area)

Estimate from air photos

	Fractional Area		Score
Isolated	0.00	x 1 =	0.00
Palustrine (permanent or intermittent flow)	0.70	x 2 =	1.40
Riverine	0.30	x 4 =	1.20
Riverine (at rivermouth)	0.00	x 5 =	0.00
Lacustrine (at rivermouth	0.00	x 5 =	0.00
Lacustrine (on enclosed bay, with barrier beach)	0.00	x 3 =	0.00
Lacustrine (exposed to lake)	0.00	x 2 =	0.00
		Sub Total:	2.60

Site Type Score (maximum 5 points) 3

1.2 BIODIVERSITY

1.2.1 NUMBER OF WETLAND TYPES

(Check only one)			Score
1)		one	9 points
2)	13	two	13
3)		three	20
4)		four	30

Number of Wetland Types Score (maximum 30 points) 13

1.2.2 VEGETATION COMMUNITIES

Attach a separate sheet listing community (map) codes,vegetation forms and dominant species.
Use the form on the following page to record percent area by dominant vegetation form. This information will be used in other parts of the evaluation.

Communities should be grouped by number of forms. For example, 2 form communities might appear as follows:

2 forms

Code	Forms		Dominant Species			
M6	re,	ff	re,	*Typha latifolia;*	ff,	*Lemna minor, Wolffia*
S1	ts,	gc	ts,	*Salix discolor;*	gc,	*lmpatiens capensis, Thelypteris palustris*

Note that the dominant species for each form are separated by a semicolon. The dominant species (maximum of 2) within a form are separated by commas.

Scoring:

Total # of communities with 1-3 forms	Total # of communities with 4 -5 forms	Total # of communities with 6 or more forms
1 = 1.5 points	1 = 2 points	1 = 3 points
2 = 2.5	2 = 3.5	2 = 5
3 = 3.5	3 = 5	3 = 7
4 = 4.5	4 = 6.5	4 = 9
5 = 5	5 = 7.5	5 = 10.5
6 = 5.5	6 = 8.5	6 = 12
7 = 6	7 = 9.5	7 = 13.5
8 = 6.5	8 = 10.5	8 = 15
9 = 7	9 = 11.5	9 = 16.5
10 = 7.5	10 = 12.5	10 = 18
11 = 8	11 = 13	11 = 19
+.5 each additional community = 5.0	+.5 each additional community = 3.5	+ 1 each additional community =

e.g., a wetland with 3 one form communities 4 two form communities 12 four form communities and 8 six form communities would score:

6 + 13.5 + 15 = 34.5 = 35 points

Vegetation Communities Score (maximum 45 points) 9

Wetland Name: Stanley Big Drain Wetland

Wetland Size (ha): 50.18

Vegetation Form	% area in which form is dominant
h	92.77
c	
dh	
dc	
ts	
ls	
ds	
gc	
m	
ne	5.94
be	
re	
ff	
f	
su	
u (unvegetated)	1.29
Total = 100%	100.00

1.2.3 DIVERSITY OF SURROUNDING HABITAT

(Check all appropriate items(1))

Determine from air photos

1	row crop
	pasture
1	abandoned agricultural land
1	deciduous forest
	coniferous forest
	mixed forest (at least 25% conifer and 75% deciduous or vice versa)
	abandoned pits and quarries
	open lake or deep river
1	fence rows with cover, or shelterbelts
	terrain appreciably undulating,hilly,or with ravines
1	creek flood plain
5	Subtotal

Diversity of Surrounding Habitat Score (1 for each, maximum 7 points) 5

1.2.4 PROXIMITY TO OTHER WETLANDS

(Check first appropriate category only) Scoring

Determine from air photos and other wetlands evaluations in the vicinity

1)	Hydrologically connected by surface water to other wetlands (different dominant wetlaI1d type) or to open lake or deep river within 1.5 km	8 points
2)	Hydrologically connected by surface water to other wetlands (same dominant wetland type) within 0.5 km	8
3) 5	Hydrologica11y connected by surface water to other wetlands (different dominant wetland type),or to open lake or deep river from 1.5 to 4 km away	5
4)	Hydrologically connected by surface water to other wetlands (same dominant wetland type) from 0.5 to 1.5 km away	5
5)	Within 0.75 km of other wetlands (different dominant wetland type) or open water body, but not hydrologically connected by surface water	5
6)	Within 1 km of other wetlands,but not hydrologically connected by surface water	2
7)	No wetland within 1 km	0

Proximity to other Wetlands Score (Choose one only, maximum 8 points) 5

hydrologically connected to the Grand River and associated nearshore marshes

1.2.5 INTERSPERSION

Optional: Complete as time permits or as scoring dictates.

	Number of Intersections (Check one)			Score
1)	26 or less			3
2)	27 to 40			6
3)	41 to 60	9	50	9
4)	61 to 80			12
5)	81 to l00			15
6)	101 to 125			18
7)	126 to 150			21
8)	151 to 175			24
9)	176 to 200			27
10)	>200			30

Interspersion Score (Choose one only maximum 30 points) 9

1.2.6 OPEN WATER TYPES

Determine from aerial photos.

	Permanently flooded: (Check one)		Score
1)		type 1	8
2)		type 2	8
3)	14	type 3	14
4)		type 4	20
5)		type 5	30
6)		type 6	8
7)		type 7	14
8)		type 8	3
9)		no open water	0

Open Water Type Score (Choose one only maximum 30 points) 14

1.3 SIZE

Score may be lower than actual if "Vegetation Community and Interspersion" have not been calculated.

50.2 hectares 55 Subtotal for Biodiversity

Size Score (Biological Component) (maximum 5O points) 9

Evaluation Table Size Score (Biological component)

Wetland size (ha)	Total Score for Biodiversity Subcomponent									
	<37	37-48	49-60	61-72	73-84	85-96	97-108	109-120	121-132	>132
<21 ha	1	5	7	8	9	17	25	34	43	50
21-40	5	7	8	9	10	19	28	37	46	50
41-60	6	8	9	10	11	21	31	40	49	50
61-80	7	9	10	11	13	23	34	43	50	50
81-100	8	10	11	13	15	25	37	46	50	50
101-120	9	11	13	15	18	28	40	49	50	50
121-140	10	13	15	17	21	31	43	50	50	50
141-160	11	15	17	19	23	34	46	50	50	50
161-180	13	17	19	21	25	37	49	50	50	50
181-200	15	19	21	23	28	40	50	50	50	50
201-400	17	21	23	25	31	43	50	50	50	50
401-600	19	23	25	28	34	46	50	50	50	50
601-800	21	25	28	31	37	49	50	50	50	50
801-1000	23	28	31	34	40	50	50	50	50	50
1001-1200	25	31	34	37	43	50	50	50	50	50
1201-1400	28	34	37	40	46	50	50	50	50	50
1401-1600	31	37	40	43	49	50	50	50	50	50
1601-1800	34	40	43	46	50	50	50	50	50	50
1801-2000	37	43	47	49	50	50	50	50	50	50
>2000	40	46	50	50	50	50	50	50	50	50

2.0 SOCIAL COMPONENT

2.1 ECONOMICALLY VALUABLE PRODUCTS

2.1.1 WOOD PRODUCTS

Determine the percentage of the wetland area dominated by "h" or "c" by using aerial photograph.

Area of wetland forested (ha), i.e. dominant form is h or c. Note that this is not wetland size. (Check one only)

h:	0.00		c:	0.00

			Score
1)	0	<5 ha	0
2)		5 -25 ha	3
3)	6	26 -50 ha	6
4)		51- l00 ha	9
5)		101 -200 ha	12
6)		>200 ha	18

Source of information: Determined through a combination of aerial photography interpretation and field observations

Wood Products Score (Score one only, maximum 18 points) 6

2.1.2 WILD RICE

(Check one)			Score (Choose one)
Present (minimum size 0.5 ha)	1)		6 points
Absent	2)	0	0

Source of information: AECOM field observations

Wild Rice Score (maximum 6 points) 0

2.1.3 COMMERCIAL FISH (BAIT FISH AND/OR COARSE FISH

(Check one)			Score (Choose one)
Present	1)	12	12 points
Habitat not suitable for fish	2)		0

Source of infolmation: Confirmed with AECOM Aquatic Ecologists

If any part of the wetland is riverine or the District fisheries files indicate presence of fish score"present"

Commercial Fish Score (maximum 12 points) 12

2.1.4 BULLFROGS

(Check one)			Score (Choose one)
Present	1)		1 points
Absent	2)	0	0

Source of information: Determined through field investigations conducted by AECOM

Bullfrog Score (maximum 1 point) 0

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2.1.5 SNAPPING TURTLES

(Check one)			Score (Choose one)
Present	1)		1 point
Absent	2)	0	0

Source of information: No evidence observed by AECOM during field investigations

Snapping Turtle Score (maximum 1 point) 0

2.1.6 FURBEARERS

(Consult Appendix 9)

Name of furbearer		Source of information
1)		No evidence observed during AECOM field observations
2)		
3)		
4)		
5)		
SubTotal	0	

Scoring: 3 points for each species. maximum 12

Furbearer Score (maximum 12 points) 0

2.2 RECREATIONAL ACTIVITIES

Type of Wetland-Associated Use							
Intensity of Use	Hunting		Nature Enjoyment/ Ecosystem Study		Fishing		
High	40 points		40 points		40 points		
Moderate	20		20		20		
Low	8	8	8	8	8		
Not possible/NotKnown	0		0	0	0		
Totals		8		8		0	16

(score one level for each of the three wetland uses; scores are cumulative; maximum score 80 points)

Sources of information:

Hunting:

Nature: AECOM field investigations - Trails observed throughout

Fishing:

Recreational Activities Score (maximum 80 points) 16

2.3 LANDSCAPE AESTHETICS

Score using ortho-aerial photography

2.3.1 DISTINCTNESS

(Check one)			Score (Choose one)
Clearly distinct	1)	3	3 points
Indistinct	2)		0

Landscape Distinctness Score (maximum 3 points) 3

2.3.2 ABSENCE OF HUMAN DISTURBANCE

(Check one)			Score (Choose one)
Human disturbances absent or nearly so	1)		7 points
One or several localized disturbances	2)		4
Moderate disturbance; localized water pollution	3)	2	2
Wetland intact but impairment of ecosystem quality intense in some areas	4)		1
Extreme ecological degradation, or water pollution severe and widespread	5)		0

Source of information: AECOM observations
Localized water pollution observed

Absence of Human Disturbance Score (maximum 7 points) 2

2.4 EDUCATION AND PUBLIC AWARENESS

Optional: complete as time and scoring dictates.

2.4.1 EDUCATIONAL USES

(Check one)			Score (Choose one)
Frequent	1)		20 points
Infrequent	2)		12
No visits	3)	0	0

Source of information: None Known

Requires contact with Local Boards of Education.

Educational Uses Score (maximum 20 points) 0

2.4.2 FACILITIES AND PROGRAMS

(check one)			Score (Choose one)
Staffed interpretation centre	1)		8 points
No interpretation centre or staff but a system of self-guiding trails or brochures available	2)		4
Facilities such as maintained paths (e.g., woodchips) boardwalks, boat launches or observation towers but no brochures or other interpretation	3)		2
No facilities or programs	4)	0	0

Source of information: None Known

Facilities and Programs Score (maximum 8 points) 0

2.4.3 RESEARCH AND STUDIES

(check appropriate spaces)		Score
Long term research has been done		12 points
Research papers published in refereed scientific journal or as a thesis		10
One or more (non-research) reports have been written on some aspect of the wetland ' s flora fauna hydrology etc.		5
No research or reports	0	0
Subtotal:	0	

Attach list of known reports by above categories

Research and Studies Score (Score is cumulative, maximum 12 points) 0

2.5 PROXIMITY TO AREAS OF HUMAN SETTLEMENT

Circle the highest applicable score

Distance of wetland from settlement	1) population> 10,000		2) population 2,500 -10,000		3) population <2,500 or cottage community	
1) Within or adjoining settlement	40 points		26		16	
2) 0.5 to 10 km from settlement	26		16		10	10
3) 10 to 60 km from settlement	12		8		4	
4) >60 km from settlement	5		2		0	
		0		0		10

Name of settlement: Town of Zurich - population 886

Proximity to Human Settlement Score (maximum 40 points) 10

2.6 OWNERSHIP (FA= fraction Area) Score

Select a default value of "4" if no other information exists.

FA of wetland in public or private ownership held under contract or in trust for wetland protection		x	10	=	0.00
FA of wetland area in public ownership,not as above		x	8	=	0.00
FA of wetland area in private ownership,not as above	1.00	x	4	=	4.00

Source of information: Huron County

Ownership Score (maximum 10 points) 4

Additional Reports

Southern Ontario Wetland Evaluation, Data and Scoring Record March 1993

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2.7 SIZE

The score may be lower than actual since economic and recreational values have not been completed.

50.2 hectares 44 Subtotal for Social

Evaluation Table for Size Score (Social Component)

Wetland Size (ha)	Total for Size Dependent Score									
	<31	31-45	46-60	61-75	76-90	91-105	106-120	121-135	136-150	>150
<2 ha	1	2	4	8	10	12	14	14	14	15
2 - 4ha	1	2	4	8	12	13	14	14	15	16
5 - 8ha	2	2	5	9	13	14	15	15	16	16
9 - 12ha	3	3	6	10	14	15	15	16	17	17
13-17	3	4	7	10	14	15	16	16	17	17
18-28	4	5	8	11	15	16	16	17	17	18
29-37	5	7	10	13	16	17	18	18	19	19
38-49	5	7	10	13	16	17	18	18	19	20
50-62	5	8	11	14	17	17	18	19	20	20
63-81	5	8	11	15	17	18	19	20	20	20
82-105	6	9	11	15	18	18	19	20	20	20
106-137	6	9	12	16	18	19	20	20	20	20
138-178	6	9	13	16	18	19	20	20	20	20
179-233	6	9	13	16	18	20	20	20	20	20
234-302	7	9	13	16	18	20	20	20	20	20
303-393	7	9	14	17	18	20	20	20	20	20
394-511	7	10	14	17	18	20	20	20	20	20
512-665	7	10	14	17	18	20	20	20	20	20
666-863	7	10	14	17	19	20	20	20	20	20
864-1123	8	12	15	17	19	20	20	20	20	20
1124-1460	8	12	15	17	19	20	20	20	20	20
1461-1898	8	13	15	18	19	20	20	20	20	20
1899-2467	8	14	16	18	20	20	20	20	20	20
>2467	8	14	16	18	20	20	20	20	20	20

Total Size Score (Social Component) 8.0

2.8 ABORIGINAL AND CULTURAL HERITAGE VALUES

Either or both Aboriginal or Cultural Values may be scored. However, the maximum score permitted for 2.8 is 30 points. Attach documentation.

2.8.1 ABORIGINAL VALUES

Full documentation of sources must be attached to the data record.

1)	Significant		=	30 points
2)	Not Significant		=	0
3)	Unknown	0.0	=	0
	Total:	0		

2.8.2 CULTURAL HERITAGE

1)	Significant		=	30 points
2)	Not Significant		=	0
3)	Unknown	0.0	=	0
	Total:	0		

Aboriginal Values/Cultural Heritage Score (maximum 30 points) 0.0

3.0 HYDROLOGICAL COMPONENT

3.1 FLOOD ATTENUATION

Estimated&Calculated values can be obtained from G.I.S. data layers.

If the wetland is a complex including isolated wetlands, apportion the l00 points according to area. For example if 10 ha of a l00 ha complex is isolated, the isolated portion receives the maximum proportional score of 10. The remainder of the wetland is then evaluated out of 90.

Step 1: Detennination of Maximum Score

	Wetland is located on one of the defined 5 large lakes or 5 major rivers (Go to Step 4)
	Wetland is entirely isolated (i.e. not part of a complex) (Go to Step 4)
X	All other wetland types (Go through Steps 2,3 and 4B)

Step 2: Determination of Upstream Detention Factor (DF)

(a)	Wetland area (ha)		50.18	
(b)	Total area (ha) of upstream detention areas (include the wetland itself)		66.35	***estimate***
(c)	Ratio of (a):(b)		1.00	
(d)	Upstream detention factor: (c) x 2 = (maximum allowable factor = 1)	(0.75)*2	1.00	

Step 3: Determination of Wetland Attenuation Factor (AF)

(a)	Wetland area (ha)		50.18	
(b)	Size of catchment basin (ha) upstream of wetland (include wetland itself in catchment area)		2306.00	***calculate***
(c)	Ratio of (a):(b)		0.02	
(d)	Wetland attenuation factor: (c) x 10 = (maximum allowable factor = 1)	0.2	0.22	

Step 4: Calculation of final score

(a)	Wetlands on large lakes or major rivers		0	
(b)	Wetland entirely isolated		l00	
(b)	All other wetlands --calculate as follows:			
(c	* Complex Formula - Isolated portion	100.00		
	Initial Score		100 *	
	Upstream detention factor (DF) (Step 2)		1.00	
	Wetland attenuation factor (AF) (Step 3)		0.22	
	Final score: [(DF + AF)/2] x Initial score =		61.00	
(c	* Final score:=	61		

*Unless wetland is a complex with isolated portions (see above).

Flood Attenuation Score (maximum l00 points) 61.0

3.2 WATER QUALITY IMPROVEMENT

3.2.1 SHORT TERM WATER QUALITY IMPROVEMENT

Step 1: **Determination of maximum initial score**

	Wetland on one of the 5 defined large lakes or 5 major rivers (Go to Step 5a)
X	All other wetlands (Go through Steps 2, 3, 4, and 5b)

Step 2: **Determination of watershed improvement factor (WIF)**

Calculation of WIF is based on the fractional area (FA) of each site type that makes up the total area of the wetland.

(FA= area of site type/total area of wetland)	Fractional Area				
FA of isolated wetland	0.00	x	0.5	=	0.00
FA of riverine wetland	0.30	x	1	=	0.30
FA of palustrine wetland with no inflow	0.70	x	0.7	=	0.49
FA of palustrine wetland with inflows		x	1	=	0.00
FA of lacustrine on lake shoreline	0.00	x	0.2	=	0.00
FA of lacustrine at lake inflow or outflow		x	1	=	0.00
			Sub Total:		0.79
			Sum (WIF cannot exceed 1.0)		0.79

Step 3: Determination of catchment land use factor (LUF)

(Choose the first category that fits upstream landuse in the catchment.)

1)	1.0	Over 50% agricultural and/or urban	1.0
2)		Between 30 and 50% agricultural and/or urban	0.8
3)		Over 50% forested or other natural vegetation	0.6

LUF (maximum 1.0) 1.00

Step 4: Determination of pollutant uptake factor (PUT)

Calculation of PUT is based on the fractional area (FA) of each vegetation type that makes up the total area of the wetland. Base assessment on the dominant vegetation form for each community except where dead trees or shrubs dominate. In that case base assessment on the domininant live vegetation. (FA = area of vegetation type/total area of wetland)

	Fractional Area				
FA of wetland with live trees, shrubs, herbs or mosses (c,h,ts,ls,gc,m)	0.92	x	0.75	=	0.69
FA of wetland with emergent, submergent or floating vegetation (re,be,ne,su,f,ff)	0.05	x	1	=	0.05
FA of wetland with little or no vegetation (u)	0.01	x	0.5	=	0.00
			Subtotal:		0.74

Estimate FA from air photos or use default factor of "0.75" **Sum (PUT cannot exceed 1.0)** 0.74

Step 5: **Calculation of final score**

(a)	Wetland on large lakes or major rivers	0
(b)	All other wetlands -calculate as follows	
	Initial score	60
	Water quality improvement factor (WQF)	0.79
	Land use factor (LUF)	1.00
	Pollutant uptake factor (PUT)	0.74
	Final score: 60 x WQF x LUF x PUT =	35.08

Short Term Water Quality Improvement Score (maximum 60 points) 35

3.2.2 LONG TERM NUTRIENT TRAP

Determine wetland type from aerial photos and soil type from OMAF soils maps.

Step 1:

	Wetland on large lakes or 5 major rivers	0 points
X	All other wetlands (proceed to Step 2)	

Step 2: Choose only one of the following settings that best describes the wetland being evaluated

1)		Wetland located in a river mouth	10 points
2)		Wetland is a bog, fen or swamp with more than 50% of the wetland being covered with organic soil	10
3)		Wetland is a bog, fen or swamp with less than 50% of the wetland being covered with organic soil	3
4)		Wetland is a marsh with more than 50% of the wetland covered with organic soil	3
5)	0	None of the above	0

Long Term Nutrient Trap Score (maximum 10 points) 0

3.2.3 GROUNDWATER DISCHARGE

The final score will be underestimated since some of the wetland characteristics cannot be scored

(Circle the characteristics that best describe the wetland being evaluated and then sum the scores. If the sum exceeds 30 points assign the maximum score of 30.)

Wetland Characteristics	Potential for Discharge					
	None to Little		Some		High	
Wetland type	1) Bog = 0		2) Swamp/Marsh = 2	2	3) Fen = 5	
Topography	1) Flat/rolling = 0	0	2) Hilly = 2		3) Steep = 5	
Wetland Area: Upslope Catchment Area	Large (>50%) = 0		Moderate (5-50%) = 2		Small <(5%) = 5	5
Lagg Development	1) None found = 0	0	2) Minor = 2		3) Extensive = 5	
Seeps	1) None = 0	0	2) = or < 3 seeps = 2		3) > 3 seeps = 5	
Surface marl deposits	1) None = 0	0	2) = or < 3 sites = 2		3) > 3 sites = 5	
Iron precipitates	1) None = 0	0	2) = or < 3 sites = 2		3) > 3 sites = 5	
Located within 1 km of a major aquifer	N/A = 0	0	N/A = 0		Yes = 10	
Totals		0		2		5

(Scores are cumulative maximum score 30 points)

Groundwater Discharge Score (maximum 30 points) 7

3.3 CARBON SINK

Choose only one of the following

1)	Bog, fen or swamp with more than 50% coverage by organic soil		5 points
2)	Bog, fen or swamp with between 10 to 49% coverage by organic soil		2
3)	Marsh with more than 50% coverage by organic soil		3
4)	Wetlands not in one of the above categories	0	0

Carbon Sink Score (maximum 5 points) 0

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3.4 SHORELINE EROSION CONTROL

Step 1: ***Determine from ortho-aerial photography*** Score

	Wetland entirely isolated or palustrine	0
x	Any part of the Wetland riverine or lacustrine (proceed to Step 2)	

Step 2:

Choose the **one** characteristic that best describes the shoreline vegetation (see text for a definition of shoreline)

			Score
1)		Trees and shrubs	15
2)		Emergent vegetation	8
3)		Submergent vegetation	6
4)	3	Other shoreline vegetation	3
5)		No vegetation	0

Shoreline Erosion Control Score (maximum 15 points) 3

3.5 GROUND WATER RECHARGE

3.5.1 WETLAND SITE TYPE

Score

(a) Wetland > 50% lacustrine (by area) or located on one of the five major rivers — 0

(b) Wetland not as above. Calculate final score as follows:
(FA= area of site type/total area of wetland)

	Fractional Area			
FA of isolated or palustrine wetland	0.70	x 50	=	35.0
FA of riverine wetland	0.30	x 20	=	6.0
FA of lacustrine wetland (wetland <50% lacustrine)	0.00	x 0	=	0.0
		Subtotal:		41.0

Ground Water Recharge Wetland Site Type Component Score (maximum 50 points) 41

3.5.2 WETLAND SOIL RECHARGE POTENTIAL

Determine from OMAF soils maps.

(Circle only **one** choice that best describes the hydrologic soil class of the area surrounding the wetland being evaluated.)

Dominant Wetland Type	1) Sand, loam, gravel, till		2) Clay or bedrock	
1) Lacustrine or on a major river	0		0	
2) Isolated	10		5	
3) Palustrine	7	7	4	
4) Riverine (not a major river)	5		2	
Totals		7		0

Ground Water Recharge Wetland Soil Recharge Potential Score (maximum 10 points) 7

4.0 SPECIAL FEATURES COMPONENT

4.1 RARITY

4.1.1 WETLANDS

Site District 6-1

Presence of wetland type (check one or more)

	Bog
	Fen
X	Swamp
X	Marsh

Score for rarity within the landscape and rarity of the wetland type. Score for rarity of wetland type is cumulative (maximum 80 points) based on presence or absence.

Slte District	Score for Rarity within the Landscape	Score for Rarity of Wetland Type			
		Marsh	Swamp	Fen	Bog
6-1	60	40	0	80	80
6-2	60	40	0	80	80
6-3	40	10	0	40	80
6-4	60	40	0	80	80
6-5	20	40	0	80	80
6-6	40	20	0	80	80
6-7	60	10	0	80	80
6-8	20	20	0	80	80
6-9	0	20	0	80	80
6-10	20	0	20	80	80
6-11	0	30	0	80	80
6-12	0	30	0	60	80
6-13	60	10	0	80	80
6-14	40	20	0	40	80
6-15	40	0	0	80	80
7-1	60	0	60	80	80
7-2	60	0	0	80	80
7-3	60	0	0	80	80
7-4	80	0	0	80	80
7-5	60	20	0	80	80
7-6	80	30	0	80	80

Rarity within the Landscape Score (maximum 80 points)	60
Rarity of Wetland Type Score (maximum 80 points)	40

4.1.2 SPECIES

4.1.2.1 BREEDING HABITAT FOR AN ENDANGERED OR THREATENED SPECIES

	Name of species		Source of information
1)			
2)			
3)			
4)			
5)			None observed during
	Total:	0	Field Investigations

Attach documentation.

Scoring:

For each species 250 points

(score is cumulative, no maximum score)

Breeding Habitat for Endangered or Threatened Species Score (no maximum) 0

4.1.2.2 TRADITIONAL MIGRATION OR FEEDING HABITAT FOR AN ENDANGERED OR THREATENED SPECIES

	Name of species		Source of information
1)			
2)			
3)			
4)			
5)			None observed during
	Total:	0	field investigations

Attach documentation.
Scoring:

For one species 150 points
For each additional species 75

(score is cumulative, no maximum score)

Traditional Habitat for Endangered Species Score (no maximum) 0

4.1.2.3 PROVINCIALLY SIGNIFICANT ANIMAL SPECIES

	Name of species	Source of information
1)		No observations during
2)		field investigations
3)		
4)		
5)		
6)		
7)		
8)		
9)		
10)		
11)		
12)		
13)		
14)		
15)		

Attach separate list if necessary; Attach documentation

Scoring:

Number of provincially significant animal species in the wetland:

1	species =	50 points	14 species =	154
2	species =	80	15 species =	156
3	species =	95	16 species =	158
4	species =	105	17 species =	160
5	species =	115	18 species =	162
6	species =	125	19 species =	164
7	species =	130	20 species =	166
8	species =	135	21 species =	168
9	species =	140	22 species =	170
10	species =	143	23 species =	172
11	species =	146	24 species =	174
12	species =	149	25 species =	176
13	species =	152		

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

(no maximum score)

Provincially Significant Animal Species Score (no maximum) 0

4.1.2.4 PROVINCIALLY SIGNIFICANT PLANT SPECIES

(Scientific names must be recorded)

	Common Name	Scientific Name	Source of information
1)			No observations made
2)			during field investigations
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			
11)			
12)			
13)			
14)			
15)			

Attach separate list if necessary; Attach documentation

Scoring: 80

Number of provincially significant plant species in the wetland:

1 species	=	50 points	14 species	=	154
2 species	=	80	15 species	=	156
3 species	=	95	16 species	=	158
4 species	=	105	17 species	=	160
5 species	=	115	18 species	=	162
6 species	=	125	19 species	=	164
7 species	=	130	20 species	=	166
8 species	=	135	21 species	=	168
9 species	=	140	22 species	=	170
10 species	=	143	23 species	=	172
11 species	=	146	24 species	=	174
12 species	=	149	25 species	=	176
13 species	=	152			

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species Score (no maximum) 0

4.1.2.5 REGIONALLY SIGNIFICANT SPECIES (SITE REGION)

Scientific names must be recorded for plant species. **Lists of significant species must be approved by MNR.**

SIGNIFICANT IN SITE REGION:

.

	Common Name	Scientific Name	Source of information
1)			No observations made
2)			during field investigations
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			
11)			
12)			
13)			
14)			
15)			

Attach separate list if necessary .Attach documentation.

Scoring: 4

No. of species significant in Site Region

1 species	=	20	6 species	=	55
2 species	=	30	7 species	=	58
3 species	=	40	8 species	=	61
4 species	=	45	9 species	=	64
5 species	=	50	10 species	=	67

Add one point for every species past 10. (no maximum score)

Regionally Significant Species Score (Site Region)(no maximum) 0

Additional Species							
Common Name	Scienctific Name	S Rank	G Rank	Wet CoE	Tracked	Poly. Loc	Comments
Plants							
Amphibians							
Mammals							
Birds							
Reptiles							

4.2.1.6 LOCALLY SIGNIFICANT SPECIES (SITE DISTRICT)

Scientific names must be recorded for plant species. **Lists of significant species must be approved by MNR.**

	Common Name	Scientific Name	Source of information
1			No observations made
2			during field investigations
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
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39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			

Attach separate list if necessary .Attach documentation.

Scoring:

No. of species significant in Site District

1 species	=	10	6 species	=	41
2 species	=	17	7 species	=	43
3 species	=	24	8 species	=	45
4 species	=	31	9 species	=	47
5 species	=	38	10 species	=	49

For each significant species over 10 in the wetland, add 1 point.

Locally Significant Species Score (Site District) (no maximum) 0

4.2 SIGNIFICANT FEATURES AND/OR FISH & WILDLIFE HABITAT

4.2.1 NESTING OF COLONIAL WATERBIRDS

Status	Name of species	Source of Information	Score	
1) Currently nesting			50	
2) Known to have nested within past 5 years			25	
3) Active feeding area (Do not include feeding by great blue herons)			15	
4) None known			0	0

Consult the Ontario Heronry database at Bird Studies Canada. Subtotal: 0

Attach documentation (nest locations etc., if known)

Score highest applicable category only; maximum score 50 points.

Score for Nesting Colonial Waterbirds (maximum 50 points) 0

4.2.2. WINTER COVER FOR WILDLIFE

Score "locally significant" if trees & shrubs are present, also consult District deer yard data.

(Check only highest level of significance) **(one only)**		Score
1)	Provincially significant	l00
2)	Significant in Site Region	50
3)	Significant in Site District	25
3)	Locally significant	10
4) 0	Little or poor winter cover present	0

Source of information: little winter cover was observed

Winter Cover for Wildlife Score (maximum l00 points) 0

4.2.3 WATERFOWL STAGING AND/OR MOULTING

(Check only highest level of significance for both staging and moulting; score is cumulative across columns, maximum score 150

		Staging	Score (one only)	Moulting	Score (one only)
1)	Nationally significant		150		150
2)	Provincially significant		100		100
3)	Regionally significant		50		50
4)	Known to occur		10		10
5)	Not possible		0		0
6)	Unknown	0	0	0	0
	Total:	0		0	
	Subtotal:		0		

Source of information: AECOM field investigations

Waterfowl Moulting and Staging Score (maximum 150 points) 0

4.2.4 WATERFOWL BREEDING

		(Check only highest level of significance)	Score
1)		Provincially significant	100
2)		Regionally significant	50
3)	10	Habitat suitable	10
4)		Habitat not suitable	0

Source of information: Potential habitat within ponds, however no breeing paris were observed

Waterfowl Breeding Score (maximum 100 points) 10

4.2.5 MIGRATOR PASSERINE, SHOREBIRD OR RAPTOR STOPOVER AREA

(check highest applicable category)

1)		Provincially significant	100
2)		Significant in Site Region	50
3)		Significant in Site District	10
4)	0	Not significant	0

Source of information: AECOM field investigations

Passerine, Shorebird or Raptor Stopover Score (maximum 100 points) 0

4.2.6 FISH HABITAT

Consult District Fisheries files. If fish are present in the wetland, score 15 or 25 points depending on the size of the fish habitat present.

4.2.6. Spawning and Nursery Habitat

Table 5. Area Factors for Low Marsh, High Marsh, and Swamp Communities.

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 1:

_____ Fish habitat is not present within the wetland (Score = 0)

X Fish habitat is present within the wetland (Go to Step 2)

Step 2: Choose only one option

1) _____ Significance of the spawning and nursery habitat within the wetland is known (Go to Step 3)

2) X Significance of the spawning and nursery habitat within the wetland is not known (Go through Steps 4, 5, 6 and 7)

Step 3: Select the highest appropriate category below attach documentation:

1)	_____	Significant in Site Region	l00 points
2)	_____	Significant in Site District	50
3)	_____	Locally Significant Habitat (5.0+ ha)	25
4)	_____	Locally Significant Habitat (<5.0 ha)	15

Score for Spawning and Nursery Habitat (maximum score 100 points) 0

Step 4: **Proceed to Steps 4 to 7 only if Step 3 was not answered.**

(**Low Marsh**: marsh area from the existing water line out to the outer boundary of the wetland)

X Low marsh not present (Continue to Step 5)
_____ Low marsh present (Score as follows)

Scoring for Presence of Key Vegetation Groups

Scoring is based on the one most clearly dominant plant species of the dominant form in each Low Marsh vegetation community. Check the appropriate Vegetation Group (see Appendix 16 Table 16-2) for each Low Marsh community. Sum the areas of the communities assigned to each Vegetation Group and multiply by the appropriate size factor from Table 5.

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (see Table 5)	Score	Final Score (area factor x score)
1	Tallgrass				6 pts	0.0
2	Shortgrass-Sedge				11	0.0
3	Cattail-Bulrush-Burreed				5	0.0
4	Arrowhead-Pickerelweed				5	0.0
5	Duckweed				2	0.0
6	Smartweed-Waterwillow				6	0.0
7	Waterlily-Lotus				11	0.0
8	Waterweed-Watercress				9	0.0
9	Ribbongrass				10	0.0
10	Coontail-Naiad-Watermilfoil				13	0.0
11	Narrowleaf Pondweed				5	0.0
12	Broadleaf Pondweed				8	0.0
Sub Total Score (maximum 75 points)						0.0
Total Score (maximum 75 points)						0.0

Step 5: (**High Marsh**: area from the water line to the inland boundary of marsh wetland type. This is essentially what is commonly referred to as a wet meadow, in that there is insufficient standing water to provide fisheries habitat except during flood or high water conditions.)

X High marsh not present (Continue to Step 6)
_____ High marsh present (Score as follows)

Scoring for Presence of Key Vegetation Groups

Scoring is based on the one most clearly dominant plant species of the dominant form in each High 1Marsh vegetation community. Check the appropriate Vegetation Group (see Appendix 16 Table 16-2) for each High Marsh community. Sum the areas of the communities assigned to each Vegetation Group and multiply by the appropriate size factor from Table 5.

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (see Table 5)	Score	Final Score (area factor x score)
1	Tallgrass				6 pts	0.0
2	Shortgrass-Sedge			0	11	0.0
3	Cattail-Bulrush-Burreed				5	0.0
4	Arrowhead-Pickerelweed				5	0.0
Sub Total Score (maximum 25 points)						0.0
Total Score (maximum 25 points)						0.0

Step 6: (**Swamp**: Swamp communities containing fish habitat,either seasonally or permanently. Determine the total area of seasonally flooded swamps and permanently flooded swamps containing fish habitat.)

_____ Swamp containing fish habitat not present (Continue to Step 7)
x Swamp containing fish habitat present (Score as follows)

Swamp containing fish Habitat	Present (check)	Total area (ha)	Area Factor (see Table 5)	Score	TOTAL SCORE (factor x score)
Seasonally flooded		1.59	0.2	10	2.0
Permanently flooded				10	0.0
Sub SCORE (maximum 20 points)					2.0
SCORE (maximum 20 points)					2.0

Step 7: Calculation of final score

Score for Spawning and Nursery Habitat (Low Marsh) (maximum 75) = 0.0

Score for Spawning and Nursery Habitat (High Marsh) (maximum 25) = 0.0

Score for Swamp Containing Fish Habitat (maximum 20) = 2.0

Subtotal: 2.0

Sum (maximum score 100 points) = 2.0

4.2.6.2 Migration and Staging Habitat

Score only if information on fish migration and staging exists, e.g. migration of northern pike through a wetland to access spawning areas.

Step 1:

1) ____ Staging or Migration Habitat is not present in the wetland (Score = 0)

2) ____ Staging or Migration Habitat is present in the wetland significance of the habitat is known (Go to Step 2)

3) X Staging or Migration Habitat is present in the wetland significance of the habitat is not known (Go to Step 3)

NOTE: Only one of Step 2 or Step 3 is to be scored.

Step 2: Select the highest appropriate category below, attach documentation:

		Score
1)	Significant in Site Region	25 points
2)	Significant in Site District	15
3)	Locally Significant	10
4)	Fish staging and/or migration habitat present,but not as above	5

Score for Fish Migration and Staging Habitat (maximum score 25 points) 0

Step 3: Select the highest appropriate category below based on presence of the designated site type (does not have to be dominant). See Section 1.1.3. Note name of river for 2) and 3).

		Score
1)	Wetland is riverine at rivermouth or lacustrine at rivermouth	25 points
2)	Wetland is riverine,within 0.75 km of rivermouth	15
3)	Wetland is lacustrine,within 0.75 km of rivermouth	10
4)	5 Fish staging and/or migration habitat present, but not as above	5

Score for Staging and Migration Habitat (maximum score 25 points) 5

4.3 ECOSYSTEM AGE

(Fractional Area = area of wetland/total wetland area)

	Fractional Area				Scoring
Bog	0.00	x	25	=	0.0
Fen, treed to open on deep soils floating mats or marl		x	20	=	0.0
Fen, on limestone rock		x	5	=	0.0
Swamp	0.92	x	3	=	2.8
Marsh	0.05	x	0	=	0.0
		Sub Total:			2.8

Ecosystem Age Score (maximum 25 points) 2.8

4.4 GREAT LAKES COASTAL WETLANDS

Score for coastal (see text for definition) wetlands only

Choose one only

	wetland < 10 ha	=	0 points
	wetland 10- 50 ha	=	25
	wetland 51 -lOO ha	=	50
	wetland > 100 ha	=	75

Great Lakes Coastal Wetlands Score (maximum 75 points) 0

5.0 EXTRA INFORMATION

5.1 PURPLE LOOSESTRIFE

____ Absent/Not seen

X Present

(a) One location in wetland X
Two to many locations ____

Abundance code
(b) (1 < 20 stems X
(2 20-99 stems ____
(3 100-999 stems ____
(4 >1000 stems ____

5.2 SEASONALLY FLOODED AREAS

Check one or more

Ephemeral	(less than 2 weeks)	X
Temporal	(2 weeks to 1 month)	____
Seasonal	(1 to 3 months)	X
Semi-permanent	(>3 months)	____
No seasonal flooding		____

5.3 SPECIES OF SPECIAL SIGNIFICANCE

5.3.1 Osprey

Present and nesting	____
Known to have nested in last 5 yr	____
Feeding area for osprey	____
Not as above	X

5.3.2 Common Loon

Nesting in wetland	____
Feeding at edge of wetland	____
Observed or heard on lake or river adjoining the wetland	____
Not as above	X

INVESTIGATORS	AFFILIATION
Jessica Piette	Terrestrial and Wetland Ecologist, AECOM
Tom Shorney	Ecologist, AECOM
Jillian deMan	Terrestrial and Wetland Ecologist, AECOM

DATES WETLAND VISITED

Wetland was visited by AECOM Ecologists on June, 26th and 27th, 2012

DATE THIS EVALUATION COMPLETED: **July 24, 2012**

ESTIMATED TIME DEVOTED TO COMPLETING THE FIELD SURVEY IN "PERSON HOURS"

20

WEATHER CONDITIONS

i) at time of field work 20ºC, and dry, on the 26th and approximately 25ºC on the 27th

(Continue in the space below if necessary)

ii) summer conditions in general this summer has been warm and dry

OTHER POTENTIALLY USEFUL INFORMATION:

CHECKLIST OF PLANT AND ANIMAL SPECIES RECORDED IN THE WETLAND:

Attach a list of all flora and fauna observed in the wetland.

*Indicate if voucher specimens or photos have been obtained, where located, etc.

Southern Ontario Wetland Evaluation March 1993

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WETLAND EVALUATION SCORING RECORD

WETLAND NAME AND/OR NUMBER	Stanley Big Drain Wetland

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

1.1.1	Growing Degree-Days/Soils	15.0	
1.1.2	Wetland Type	8.1	
1.1.3	Site Type	2.6	
		Total for Productivity	26

1.2 BIODIVERSITY

1.2.1	Number of Wetland Types	13.0	
1.2.2	Vegetation Communities (maxixmum 45)	8.5	
1.2.3	Diversity of Surrounding Habitat (maximum 7)	5.0	
1.2.4	Proximinty to Other Wetlands	5.0	
1.2.5	Interspersion	9.0	
1.2.6	Open Water Type	14.0	
		Total for Biodiversity	55

Sub Total for Biodiversity 55

1.3 SIZE (Biological Component) 9

Sub Total: 89.21

TOTAL FOR BIOLOGICAL COMPONENT (not to exceed 250) 89

2.0 SOCIAL COMPONENT

2.1 ECONOMICALLY VALUABLE PRODUCTS

2.1.1	Wood Products	6
2.1.2	Wild Rice	0
2.1.3	Commercial Fish	12
2.1.4	Bullfrogs	0
2.1.5	Snapping Turtles	0
2.1.6	Furbearers	0

Total for Economically Valuable Products: 18

2.2 RECREATIONAl ACTIVITIES (maximum 80): 16

2.3 LANDSCAPE AESTHETICS

2.3.1	Distinctness	3
2.3.2	Absence of Human Disturbance	2

Total for Landscape Aesthetics: 5

2.4 EDUCATION AND PUBLIC AWARENESS

2.4.1	Educational Uses	0
2.4.2	Facilities and Programs	0
2.4.3	Research and Studies	0

Total for Education and Public Awareness: 0

2.5 PROXIMITY TO AREAS OF HUMAN SETTLEMENT: 10

2.6 OWNERSH1P: 4

Subtotal for Social Component: 44.0

2.7 SIZE (Social Component): 8

2.8 ABORIGINAL AND CULTURAL VALUES: 0

Sub Total: 61

TOTAL FOR SOCIAL COMPONENT (not to exceed 250): 61

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3.0 HYDROLOGICAL COMPONENT

3.1 FLOOD ATTENUATION		61
3.2 WATER QUALITY IMPROVEMENT		
3.2.1 Short Term Improvement	35.1	
3.2.2 Long Term Improvement	0.0	
3.2.3 Groundwater Discharge (maximum 30)	7.0	
Total for Water Quality Improvement		42
3.3 CARBON SINK		0
3.4 SHORELINE EROSION CONTROL		3
3.5 GROUNDWATER RECHARGE		
3.5.1 Site Type	41.00	
3.5.2 Soils	7.0	
Total for Groundwater Recharge		48
Sub Total:		154
TOTAL FOR HYDROLOGICAL COMPONENT (not to exceed 250)		154

4.0 SPECIAL FEATURES

4.1 RARITY

4.1.1 Wetlands		
4.1.1.1 Rarity within the Landscape	60.0	
4.1.1.2 Rarirty of Wetland Type (maximum 80)	40.0	
Total for Wetland Rarity		100
4.1.2 Species		
4.1.2.1 Endangered or Threatened Species Breeding	0.0	
4.1.2.2 Traditional Use by Endangered or Threatened Species	0.0	
4.1.2.3 Provincially Significant Animals	0.0	
4.1.2.4 Provincially Significant Plants	0.0	
4.1.2.5 Regionally Significant Species	0.0	
4.1.2.6 Locally Significant Species	0.0	
Total for Species Rarity		0

4.2 SIGNIFICANT FEATURES OR HABITAT

4.2.1 Colonial Waterbirds	0.0	
4.2.2 Winter Cover for Wildlife	0.0	
4.2.3 Waterfowl Staging and Moulting	0.0	
4.2.4 Waterfowl Breeding	10.0	
4.2.5 Migratory Passerine, Shorebird or Raptor Stopover	0.0	
4.2.6 Fish Habitat	7.0	
Total for Significant Features and Habitat		17

4.3 ECOSYSTEM AGE 3

4.4 GREAT LAKES COASTAL WETLANDS 0

Sub Total: 120

TOTAL FOR SPECIAL FEATURES (maximum 250) 120

Southern Ontario Wetland Evaluation, Score Summary — March 1993

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SUMMARY OF EVALUATION RESULT

Wetland	Stanley Big Drain Wetland
TOTAL FOR 1.0 BIOLOGICAL COMPONENT	89
TOTAL FOR 2.0 SOCIAL COMPONENT	61
TOTAL FOR 3.0 HYDROLOGICAL COMPONENT	154
TOTAL FOR 4.0 SPECIAL FEATURES COMPONENT	120
WETLAND TOTAL	424

INVESTIGATORS	AFFILIATION
Jessica Piette	Terrestrial and Wetland Ecologist, AECOM
Tom Shorney	Ecologist, AECOM
Jillian deMan	Terrestrial and Wetland Ecologist, AECOM
0	0
0	0

DATE: July 24, 2012

Vegetation Communities

Comm Sp Code	Comm Nu Code	Vegetation Forms	# Forms	Species	Comments
	M1	ne*, ls, gc	3	*ne*, Juncus canadensis; Juncus species, Carex lupulina,*	
				ls, Fraxinus pennsylvanica; Comus sericea, Sambucus racemosa,	
				gc, Asclepias incarnata; Symphyotrichum puniceum	
	M2	ne*, re, ls	2	ne*, *Phalaris arundinacea; Schoenoplectus tabernaemontani, Juncus canadensis, Eleocharis sp.*	
				ls, *Fraxinus pennsylvanica*	
	M3	ne*, gc	2	ne*, *Phalaris arundinacea; Bromus inermis*	
				gc, *Asclepias syriaca; Symphyotrichum novae-angliae, Urtica dioica*	
	S1	h*, ne, gc	3	h*, *Fraxinus pennsylvanica; Populus tremuloides, Salix eriocephela*	
				ne, *Juncus canadensis; Carex lupulina, Schoenoplectus tabernaemontani*	
				gc, *Asclepias incarnata, Symphyotrichum puniceum*	
	S2	h*, ls, ts, gc	4	h*, *Acer freemanii; Fraxinus pennsylvanica, Ulmus americana*	
				ls, *Lindera benzoin; Fraxinus pennsylvanica, Cornus alternifolia*	
				ts, *Lindera benzoin*	
				gc, *Onoclea sensibilis; Impatiens capensis, Boehmeria cylindrica, Viola species*	
	S3	h*, ls, ts, gc	4	h*, *Acer freemanii; Fraxinus pennsylvanica, Ulmus americana*	
				ls, *Lindera benzoin; Fraxinus pennsylvanica*	
				ts, *Fraxinus pennsylvanica; Cornus alternifolia, Ulmus americana*	
				gc, *Matteuccia struthiopteris;Thalictrum pubescens, Arisaema triphyllum, Impatiens capensis*	
	S4	h*, ts, gc	3	h*, *Fraxinus pennsylvanica, Fraxinus nigra, Ulmus americana, Acer freemanii*	
				ts, *Fraxinus nigra; Fraxinus pennsylvanica*	
				gc, *Actaea rubra, Thalictrum pubescens; Circaea lutetiana, Arisaema thriphyllum, Geum canadense*	

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL STATUS	OMNR STATUS	COSEWIC STATUS	GLOBAL STATUS	LOCAL STATUS HURO	M1	M2	M3	S1	S2	S3	S4
	SOURCE		OLDHAM ET AL.	OLDHAM ET AL.	OLDHAM ET AL.	NEWMASTER			NEWMASTER	OLDHAM 1993							
PTERIDOPHYTES		**FERNS & ALLIES**															
Dryopteridaceae		**Wood Fern Family**															
Dryopteris	*carthusiana*	Spinulose Wood Fern	5	-2		S5			G5	X							X
Matteuccia	*struthiopteris*	Ostrich Fern	5	-3		S5			G5	X						X	
Onoclea	*sensibilis*	Sensitive Fern	4	-3		S5			G5	X					X		X
GYMNOSPERMS		**CONIFERS**															
Cupressaceae		**Cedar Family**															
Thuja	*occidentalis*	Eastern White Cedar	4	-3		S5			G5	X			X		X		
Tsuga	*canadensis*	Eastern Hemlock	7	3		S5			G5	X					X	X	
DICOTYLEDONS		**DICOTS**															
Aceraceae		**Maple Family**													X		
Acer	*rubrum*	Red Maple	4	0		S5			G5	X							
Acer X	*freemanii*	Freeman's Maple											X		X	X	X
Toxicodendron	*radicans*	Poison-ivy	5	-1		S5			G5T	X				X	X	X	X
Asclepiadaceae		**Milkweed Family**															
Asclepias	*incarnata*	Swamp Milkweed	6	-5		S5			G5T5	X	X			X			
Asclepias	*syriaca*	Common Milkweed	0	5		S5			G5	X			X				X
Asteraceae		**Composite or Aster Family**															
Arctium	*minus*	Common Burdock		5	-2	SE5			G?T?	I			X				
Symphyotrichum	*lanceolatum*	Tall White Aster	3	-3		S5			G5T?	X			X			X	X
Symphyotrichum	*lateriflorum*	Calico Aster	3	-2		S5			G5T5	X							X
Symphyotrichum	*novae-angliae*	New England Aster	2	-3		S5			G5	X	X						X
Symphyotrichum	*puniceum*	Purple-stemmed Aster				S5			G5T?	X	X						
Cirsium	*arvense*	Canada Thistle		3	-1	SE5			G?	I							X
Erigeron	*annus*	Eastern Daisy Fleabane	0	1		S5			G5								X
Erigeron	*philadelphicus*	Philadelphia Fleabane	1	-3		S5			G5T?	X							X
Taraxacum	*officinale*	Common Dandelion		3	-2	SE5			G5	I							X
Balsaminaceae		**Touch-me-not Family**															
Impatiens	*capensis*	Spotted Touch-me-not	4	-3		S5			G5	X				X	X	X	X
Berberidaceae		**Barberry Family**															
Caulophyllum	*thalictroides*	Blue Cohosh	6	5		S5			G	X					X	X	X
Podophyllum	*peltatum*	May-apple	5	3		S5			G5	X							X
Betulaceae		**Birch Family**															
Betula	*alleghaniensis*	Yellow Birch	6	0		S5			G5	X			X		X	X	
Brassicaceae		**Mustard Family**															
Alliaria	*petiolata*	Garlic Mustard		0	-3	SE5			G5	I			X			X	
Sambucus	*racemosa var. racemosa*	Red-berried Elderberry	5	2		S5			G5T4T5	X	X						X
Cornaceae		**Dogwood Family**															
Cornus	*alternifolia*	Alternate-leaved Dogwood	6	5		S5			G5	X					X	X	X
Cornus	*sericea*	Red-osier Dogwood	2	-3		S5			G5	X	X		X				
Vicia	*cracca*	Tufted Vetch		5	-1	SE5			G?	I			X				
Geraniaceae		**Geranium Family**															
Geranium	*robertianum*	Herb-robert		5	-2	SE5			G5	I					X	X	X
Grossulariaceae		**Currant Family**															
Ribes	*lacustre*	Swamp Black Currant	7	-3		S5			G5								X
Juglandaceae		**Walnut Family**															
Juglans	*cinerea*	Butternut	6	2		S3?			G4	X							
Lauraceae		**Laurel Family**															
Lindera	*benzoin*	Spicebush	6	-2		S5			G5	X					X		
Oleaceae		**Olive Family**															
Fraxinus	*nigra*	Black Ash	7	-4		S5			G5	X							X
Fraxinus	*pennsylvanica*	Green Ash	3	-3		S5			G5	X	X	X	X	X	X	X	X
Onagraceae		**Evening-primrose Family**															
Circaea	*lutetiana ssp. canadensis*	Enchanter's Nightshade	3	3		S5			G5T5	X					X	X	X
Rumex	*crispus*	Curly-leaf Dock		-1	-2	SE5			G?	I							X
Ranunculaceae		**Buttercup Family**															
Actaea	*rubra*	Red Baneberry	5	5		S5			G5	X						X	X
Anemone	*acutiloba*	Sharp-lobed Hepatica	6	5		S5			G5	X						X	
Ranunculus	*abortivus*	Kidney-leaf Buttercup	2	-2		S5			G5	X							X
Ranunculus	*acris*	Tall Buttercup			-2	SE5			G5	I					X		X
Ranunculus	*pensylvanicus*	Bristly Buttercup	3	-5		S5			G5	X					X		X
Thalictrum	*pubescens*	Tall Meadow-rue	5	-2		S5			G5	X						X	
Rhamnaceae		**Buckthorn Family**															
Rhamnus	*cathartica*	Common Buckthorn		3	-3	SE5			G?								X
Rosaceae		**Rose Family**															
Agrimonia	*gryposepala*	Tall Hairy Agrimony	2	2		S5			G5	X							X
Fragaria	*virginiana*	Virginia Strawberry	2	1		SU			G5T?	X							X
Geum	*canadense*	White Avens	3	0		S5			G5	X					X	X	X
Prunus	*virginiana ssp. virginiana*	Choke Cherry	2	1		S5			G5T?	X							X
Rubus	*idaeus ssp. idaeus*	Red Raspberry				SE1			G5T5				X				X
Salicaceae		**Willow Family**															

Populus	*deltoides ssp. deltoides*	Eastern Cottonwood	4	-1		SU			G5T?	X			X				
Populus	*tremuloides*	Trembling Aspen	2	0		S5			G5	X		X	X				
Salix	*eriocephala*	Missouri Willow	4	-3		S5			G5	X		X					
Salix	*exigua*	Sandbar Willow	3	-5		S5			G5	X			X				
Veronica	*anagallis-aquatica*	Water Speedwell		-5	-1	SE5			G5	I							X
Solanaceae		**Nightshade Family**															
Solanum	*dulcamara*	Bitter Nightshade		0	-2	SE5			G?	I					X		X
Tiliaceae		**Linden Family**															
Tilia	*americana*	American Basswood	4	3		S5			G5	X				X	X	X	
Ulmaceae		**Elm Family**															
Celtis	*occidentalis*	Common Hackberry	8	1		S4			G5	X						X	
Ulmus	*americana*	White Elm	3	-2		S5			G5?	X					X	X	X
Urticaceae		**Nettle Family**															
Boehmeria	*cylindrica*	False Nettle	4	-5		S5			G5	X					X	X	
Laportea	*canadensis*	Wood Nettle	6	-3		S5			G5	X						X	X
Urtica	*dioica ssp. dioica*	European Stinging Nettle		-1	-1	SE2			G5T?				X		X	X	X
Violaceae		**Violet Family**															
Viola	*conspersa*	American Dog Violet	4	-2		S5			G5	X							
Viola	*species*	Violet species													X	X	X
Vitaceae		**Grape Family**															
Parthenocissus	*inserta*	Inserted Virginia-creeper	3	3		S5			G5	X				X	X	X	X
Vitis	*riparia*	Riverbank Grape	0	-2		S5			G5	X				X	X		X
MONOCOTYLEDONS		**MONOCOTS**															
Araceae		**Arum Family**															
Arisaema	*triphyllum*	Small Jack-in-the-pulpit	5	-2		S5			G5T5	X					X	X	
Cyperaceae		**Sedge Family**															
Carex	*bebbii*	Bebb's Sedge	3	-5		S5			G5	X					X		
Carex	*lupulina*	Hop Sedge	6	-5		S5			G5	X	X			X			
Eleocharis	*palustris*	Small's Spike-rush	6	-5		S5			G5?	X							
Schoenoplectus	*tabernaemontani*	American Great Bulrush/softstem bulrush	5	-5		S5			G?	X	X	X		X			
Iridaceae		**Iris Family**															
Iris	*species*	Iris species														X	
Juncus	*species*	Rush species									X	X					
Juncus	*canadensis*	Canada Rush	6	-5		S5			G5		X	X					
Liliaceae		**Lily Family**															
Lilium	*michiganense*	Michigan Lily	7	-1		S5			G5	X						X	X
Maianthemum	*stellatum*	Star-flowered Solomon's Seal	6	1		S5			G5	X						X	X
Epipactis	*helleborine*	Common Helleborine		5	-2	SE5			G?	I						X	X
Poaceae		**Grass Family**															
Bromus	*inermis ssp. inermis*	Awnless Brome		5	-3	SE5			G4G5T?	I							X
Glyceria	*striata*	Fowl Meadow Grass	3	-5		S5			G5	X				X	X	X	X
Phalaris	*arundinacea*	Reed Canary Grass	0	-4		S5			G5	X	X	X	X				
Typhaceae		**Cattail Family**															
Typha	*latifolia*	Broad-leaved Cattail	3	-5		S5			G5	X	X						

FLORISTIC SUMMARY & ASSESSMENT

Species Diversity

Total Species:		**73**	
Native Species:		**59**	80.82%
Exotic Species		**14**	19.18%
Total Taxa in Region (List Region, Source)		10000	
% Regional Taxa Recorded		0.73%	
Regionally Significant Species		0	
S1-S3 Species		0	
S4 Species		1	
S5 Species		56	

Co-efficient of Conservatism and Floral Quality Index

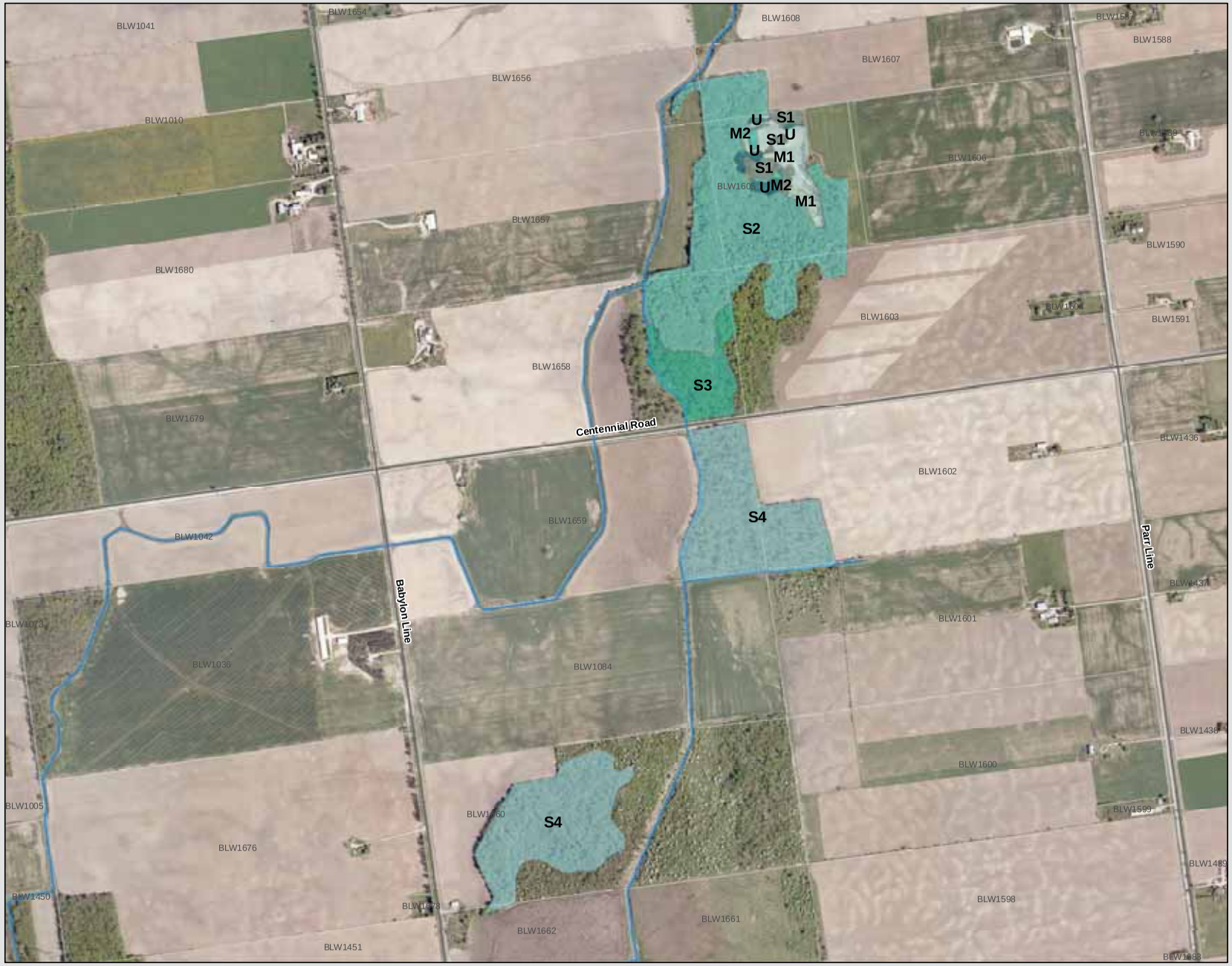
Co-efficient of Conservatism (CC) (average)		**4.07**	
CC 0 to 3	*lowest sensitivity*	24	40.68%
CC 4 to 6	*moderate sensitivity*	30	50.85%
CC 7 to 8	*high sensitivity*	5	8.47%
CC 9 to 10	*highest sensitivity*	0	0.00%
Floral Quality Index (FQI)		**31.25**	

Presence of Weedy & Invasive Species

mean weediness		**-1.93**	
weediness = -1	*low potential invasiveness*	4	28.57%
weediness = -2	*moderate potential invasiveness*	7	50.00%
weediness = -3	*high potential invasiveness*	3	21.43%

Presence of Wetland Species

average wetness value	**-0.58**	
upland	10	13.70%
facultative upland	11	15.07%
facultative	16	21.92%
facultative wetland	23	31.51%
obligate wetland	12	16.44%



Legend

OWES Code

- U
- M1
- M2
- S1
- S2
- S3
- S4
- Properties

OWES Code	Ha
M1	0.264
M1	2.042
M2	0.118
M2	0.078
S1	0.328
S1	0.675
S1	0.141
S2	19.89
S3	4.242
S4	10.38
S4	10.907
U	0.082
U	0.043
U	0.252
U	0.276
Total	49.718

Basemapping from Ontario Ministry of Natural Resources

200 100 0 200 Metres

UTM Zone 17N, NAD 83

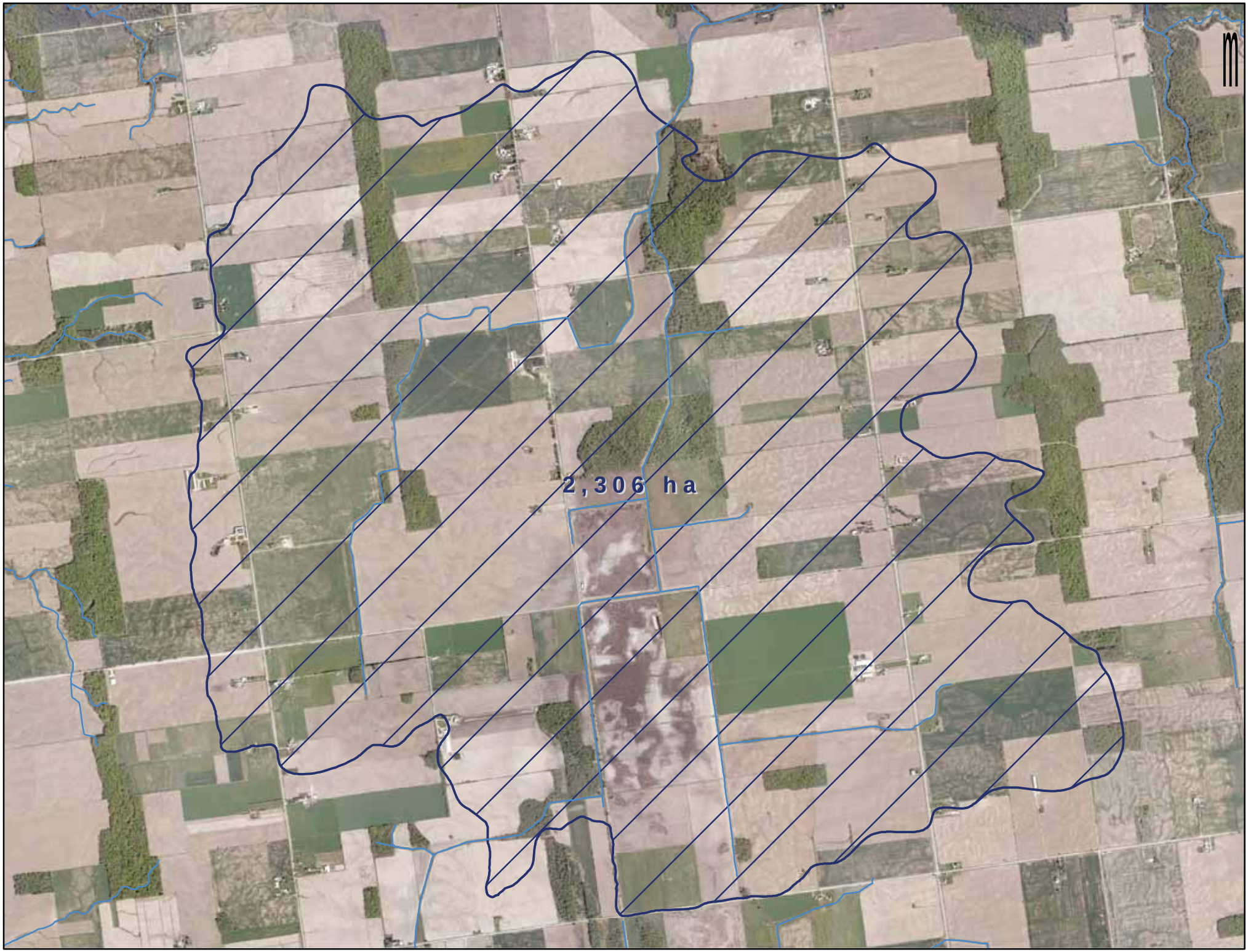
Bluewater Wind Energy Centre

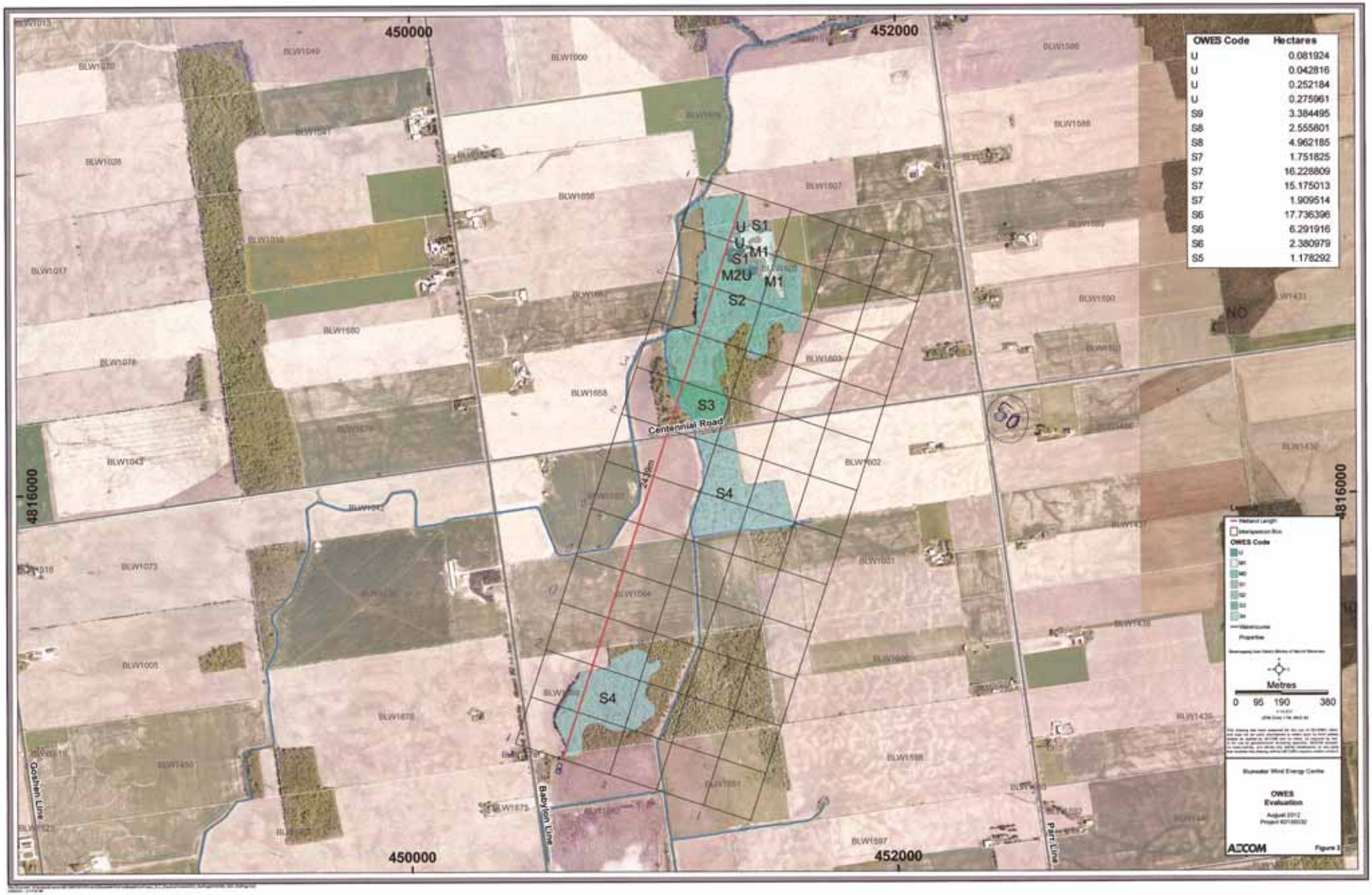
OWES Evaluation

August 2012
Project 60155032

AECOM

Figure 1


2,306 ha


450000
452000
4816000
OWES Code
Hectares
U 0.081924
U 0.042816
U 0.252184
U 0.275961
S9 3.384495
S8 2.555801
S8 4.962185
S7 1.751825
S7 16.228809
S7 15.175013
S7 1.909514
S6 17.736396
S6 6.291916
S6 2.380979
S5 1.178292
U S1
U M1
S1
M2U M1
S2
S3
S4
S4
Centennial Road
Goshen Line
Babylon Line
Part Line
Metres
0 95 190 380
Wetland Length
Interference Box
OWES Code
Properties
Bluewater Wind Energy Centre
OWES Evaluation
August 2012
Project: 60168032
AECOM
Figure 3

Appendix I

Woodland Breeding Bird Species List

Appendix I. Breeding Birds Survey Data

Common Name	Scientific Name	Status				514 (SCB-01)												551 (SCB-02)						555 (SCB-03)			
						BLW1603		BLW1658		BLW1603		BLW1658		BLW1603		BLW1658		BLW1371						BLW1329			
						Visit 1				Visit 2				Visit 3				Visit 1		Visit 2		Visit 3		Visit 1	Visit 2	Visit 3	
		National Species at Risk [a]	Provincial Species at Risk [b]	Provincial Status (S Rank) [c]	Area Sensitive Species [d]	P.C. # 1	P.C # 2	P.C. # 3	P.C. # 4	P.C. # 1	P.C # 2	P.C. # 3	P.C # 4	P.C. # 1	P.C # 2	P.C. # 3	P.C # 4	P.C. # 1	P.C # 2	P.C. # 1	P.C # 2	P.C. # 1	P.C # 2	P.C. # 1	P.C. # 1	P.C. # 1	Total No. Individuals Observed
American Crow	*Corvus brachyrhynchos*			S5B			1	1		1	2	1		1					3	2			3	1		1	17
American Goldfinch	*Cardeulis tristis*			S5B								1	2	4			3		1				1	1	1		14
American Redstart	*Setophaga ruticilla*			S5B	A				1										1								1
American Robin	*Turdus migratorius*			S5B		1		1	1	1	1	1	2	2	1	3	1	1	1	1	1	1	1	1			21
Baltimore Oriole	*Icterus galbula*			S4B		1		1	2			2						1	1	2	1	1		1			13
Belted Kingfisher	*Megaceryle alcyon*			S4B																1							1
Black-capped Chickadee	*Poecile atricapillus*			S5		1											1			1				1			4
Blue Jay	*Cyanocitta cristata*			S5				1	1		1			1					1		3	1					9
Brown-headed Cowbird	*Molothrus ater*			S4B						2			2	1			3							1			9
Cedar Waxwing	*Bombycilla cedrorum*			S5B																	2						2
Common Grackle	*Quiscalus quiscula*			S5B						1				7	3			1				1					13
Common Yellowthroat	*Geothlyphis trichas*			S5B				1	1			1					1										4
Cooper's Hawk	*Accipiter cooperi*			S4	A																					1	1
Downy Woodpecker	*Picoides pubescens*			S5			1									1	1			1		1		1			7
Eastern Phoebe	*Sayornis phoebe*			S5B																					1		1
Eastern Wood-Pewee	*Contopus virens*			S4B		2	2	1		1			1	1		1	1	1	1	2	2		1		1	1	19
Gray Catbird	*Dumetella carolinensis*			S4B				2					2				1	1	1								7
Great Crested Flycatcher	*Myiarchus crinitus*			S4B		1	1		1		1	1		1	2	1			1	1	1		1	1	1	1	16
House Wren	*Troglodytes aedon*			S5B			2	3	1		1	2	1		2	3	2	2	2	2	2	3	1	2			31
Indigo Bunting	*Passerina cyanea*			S4B													2			2					1		5
Least Flycatcher	*Empidonax minimus*			S4B	A				2															1	1		4
Mourning Dove	*Zenaida macroura*			S5									1	1						1							3
Mourning Warbler	*Oporornis philadelphia*			S4B																				1			1
Northern Cardinal	*Cardinalis cardinalis*			S5					1				1			1			1	1							5
Northern Flicker	*Colaptes auratus*			S4B							2																2
Ovenbird	*Seiurus aurocapillus*			S4B	A	1	1			2	2	1			1												8
Pileated Woodpecker	*Dryocopus pileatus*			S5	A												1										1
Red-bellied Woodpecker	*Melanerpes carolinus*			S4																1							1
Red-eyed Vireo	*Vireo olivaceus*			S5B		2	1	3		2	1	3	1	3	4	2		1	2	1	2		2	1		1	32
Red-tailed Hawk	*Buteo jamaicensis*			S5				1				1					1										3
Red-winged Blackbird	*Agelaius phoeniceus*			S5												1		1									2
Rose-breasted Grosbeak	*Pheucticus ludovicianus*			S4B		2	2	1	2		2			1	1	2	1		2				2				18
Scarlet Tanager	*Piranga olivacea*			S4B	A		1				1																2
Song Sparrow	*Melospiza melodia*			S5B					2				2			1	3	1		1	1	2	1	4	1		19
Turkey Vulture	*Cathartes aura*			S5B													1										1
Warbling Vireo	*Vireo gilvus*			S5B													1			1							2
White-breasted Nuthatch	*Sitta carolinensis*			S5	A								1		1						1						3
Wild Turkey	*Meleagris gallopavo*			S5		2																					2
Wood Duck	*Aix sponsa*			S5				1																			1
Wood Thrush	*Hylocichla mustelina*			S4B		3	2	1		2	1	1	1	3	2	2	1		1				2	2	1		25
Yellow Warbler	*Dendroica petechia*			S5B					3				3				3										9
Yellow-bellied Flycatcher [e]	*Empidonax flaviventris*			S5B												4											4
Yellow-bellied Sapsucker	*Sphyrapicus varius*			S5B	A				1	1		1					2										5
Yellow-billed Cuckoo	*Coccyzus americanus*										1																1
Yellow-throated Vireo	*Vireo flavifrons*			S4B	A																			1			1
Number of Species:						10	10	12	14	7	14	12	13	12	9	12	19	9	13	16	8	7	12	15	8	5	
Number of Individuals						16	14	16	21	10	19	16	20	26	17	22	30	10	18	21	11	13	17	20	8	5	

KEY

[a] National Species at Risk are those listed by COSEWIC = Committee on the Status of Endangered Wildlife in Canada: END = Endangered, THR = Threatened, SC = Special Concern

[b] Provincial Species at Risk are those listed by COSSARO = Committee on the Status of Species at Risk in Ontario: END = Endangered, THR = Threatened, SC = Special Concern

[c] S Rank (from Natural Heritage Information Centre): S1 (Critically Imperiled), S2 (Imperiled) or S3 (Vulnerable), S4 (apparently secure, uncommon), or S5 (secure, common).

[d] Area Sensitive Species according to OMNR (2000) Significant Wildlife Habitat Technical Guide (Appendix G)