

Appendix D

Preliminary Ecological Site Assessment
and the final
Ecological Site Assessment



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December 20, 2007

Mr. Daniel Lalande
J.L. Richards
203-863 Princess Street
Kingston, Ontario K7L 5N4

**RE: KINGSTON WEST WATER IMPROVEMENT
PRELIMINARY ECOLOGICAL SITE ASSESSMENT
DECEMBER 2007 SITE VISITS**

Dear Dan:

As outlined in our proposal of December 4, 2007, we have made site visits to the Sunny Acres Road and O'Connor Drive. Our observations are summarized below:

ENVIRONMENTAL SITE EVALUATION: SUNNY ACRES ROAD

Site Description:

A. Ecological Land Classification

The site consists of an expanse of Cultural Meadow (CUM, after Lee *et al.* 1998) with patches of Deciduous Forest. The forest (FOD, after Lee *et al.* 1998) will be assessed in more detail in 2008, but is likely an FOD5 ecosite based on the presence of Sugar Maples. The majority (approximately 70%) of the site is open, with the remaining lands wooded, in two patches, plus scattered trees along the Lake Ontario shoreline. Tree species noted included Sugar Maple, White Birch, White Ash, Poplar, Manitoba Maple, Red Cedar, White Spruce, White Cedar, and a clump of four Red Pines. Staghorn Sumac shrubs were found, and woodland regeneration was noted in the presence of young maple saplings. Evidence of human disturbance (e.g., trails, tracks of domestic pets, climbing aids on one tree) was noted, and the proximity to residential development indicates that this is likely an ongoing disturbance issue.

Lake Ontario lies immediately south of the subject lands, and the proximity of these woodland patches to the lake, particularly as they occur in a relatively depauperate surrounding landscape, may be of some importance to migrating birds in spring and fall migration periods.

B. Soils

Soils could not be examined due to heavy snow cover on the site.

C. Slope

The site is generally flat, with the lands gently sloping down toward Lake Ontario to the south.

Is the Proposed Development:

- A. In a Provincially Significant Wetland? **No.** Adjacent to a PSW? **No.**
 B. In a Regionally Significant Wetland? **No.** Adjacent to an RSW? **No.**
 C. In/adjacent to an unevaluated wetland? **No.**
 D. In an Area of Natural and Scientific Interest? **No.** Adjacent to an ANSI? **No.**
 E. In the habitat of Species at Risk? **No.** Adjacent to SAR habitat? **No.**
 F. In significant wildlife habitat? Adjacent to significant wildlife habitat?

Based on our preliminary observations of the site, particularly the moderately high level of disturbance, it is not expected that the woodland is of high value as wildlife habitat. The Cataraqui Region Conservation Authority has identified the two woodland patches as "contributory woodland," however, and it is likely that it has some importance to a variety of migrating birds. This will be examined in more detail in the spring of 2008.

- G. Within 90 m of a water body? **Yes.** Lake Ontario is immediately south of the subject lands.
 H. In fish habitat? **No.** Adjacent to fish habitat? **Yes.** Lake Ontario is immediately south of the subject lands. Depending upon where the proposed plant expansion occurs, it is potentially within lands adjacent to (or within 30 m of) fish habitat.
 I. Adjacent to Highly or Moderately Sensitive Lake Trout Lake? **No.**
 J. In a significant woodland? Adjacent to a significant woodland?
 Based on our preliminary observations of the site, it is not expected that the woodland is of intrinsically high ecological value. The Cataraqui Region Conservation Authority has identified the two woodland patches as "contributory woodland," however, and it is likely that it has some importance to a variety of migrating birds. This will be examined in more detail in the spring of 2008.
 K. In a significant valleyland? **No.** Adjacent to a significant valleyland? **No.**

Other Comments:

Work in the spring of 2008 will focus on gathering a list of species on the subject lands, which was not possible due to the timing of this preliminary site evaluation. Spring work will include several early morning songbird census visits to ascertain the potential value of the site to breeding birds.

Anticipated Ecological Value: Based on existing information and on the December 2007 visit, portions of the site are expected to have at least moderate ecological value.

Anticipated Ecological Sensitivity: Based on existing information and on the December 2007 visit, portions of the site are expected to have moderate ecological sensitivity.

Site location image and site photo attached in Appendix A.

Environmental Site Evaluation Completed By: Mary Alice Snetsinger

Date of Site Inspection: December 17, 2007

ENVIRONMENTAL SITE EVALUATION: O'CONNOR DRIVE

Site Description:

A. Ecological Land Classification

The site consists of Cultural Meadow (CUM, after Lee *et al.* 1998). This is a highly disturbed site, on graded fill material. It is primarily open, with goldenrods (including *Solidago altissima*), grasses (including *Bromus inermis*), and various other herbaceous plants, including many non-native species. On the north side of the site, we observed a fringe of shrubs (e.g., Gray Dogwood) and deciduous trees, primarily Manitoba Maple, along with some ash and a few Red Cedars.

Lying immediately to the east of the subject lot, a small drainage channel is part of the west branch of Little Cataraqui Creek; drainage from the site may be into a roadside ditch along O'Connor Drive or into this natural valley.

B. Soils

Soils could not be examined due to snow cover on the site, but the substrate is imported fill material. At the north end of the site, grading was incomplete and fill piles could be discerned. Fill material is assumed to be a combination of rock and soil.

C. Slope

The site is generally flat, with some hummocky areas at the north end of the site, where the grading was incomplete.

Is the Proposed Development:

A. In a Provincially Significant Wetland? **No.** Adjacent to a PSW? **No.**

B. In a Regionally Significant Wetland? **No.** Adjacent to an RSW? **No.**

C. In/adjacent to an unevaluated wetland? **No.**

D. In an Area of Natural and Scientific Interest? **No.** Adjacent to an ANSI? **No.**

E. In the habitat of Species at Risk? **No.** Adjacent to SAR habitat? **No.**

F. In significant wildlife habitat? **No.** Adjacent to significant wildlife habitat? **No.**

It is noted that NE-SW corridor of the west branch of Little Cataraqui Creek runs immediately east of the property; this corridor is likely to have some wildlife habitat values.

G. Within 90 m of a water body? **No.** It is noted that the west branch of Little Cataraqui Creek lies just east of the subject lands, but that there is no clear channel or open water in this area. This will be examined in more detail in the spring of 2008.

H. In fish habitat? **No.** Adjacent to fish habitat? **No.** (See G. above.)

I. Adjacent to Highly or Moderately Sensitive Lake Trout Lake? **No.**

J. In a significant woodland? **No.** Adjacent to a significant woodland? **No.**

K. In a significant valleyland? **No.** Adjacent to a significant valleyland? **No.**

Other Comments:

Work in the spring of 2008 will focus on gathering a list of species on the subject lands, which was not possible due to the timing of this preliminary site evaluation. Spring work will include early morning songbird census work to ascertain the potential value of the site to breeding birds.

Anticipated Ecological Value: Based on prior knowledge of the site and on the December 2007 visit, the site is expected to have low ecological value.

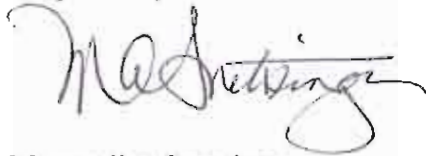
Anticipated Ecological Sensitivity: Based on prior knowledge of the site and on the

December 2007 visit, the site is expected to have low ecological sensitivity. Site location image and site photo attached in Appendix B.
Environmental Site Evaluation Completed By: Mary Alice Snetsinger
Date of Site Inspection: December 15, 2007

In conclusion, our site inspections of December 2007 confirm our initial assessment of the potential environmental concerns with respect to these two sites. We will expect to revisit the sites in early and late May of 2008 to undertake site inventory work, as requested, and to undertake songbird census work.

Please give me a call if you have any questions, or need anything further.

Respectfully submitted,



Mary Alice Snetsinger

Appendix A. Sunny Acres Road site.

Satellite image (from Google Earth) showing the approximate location of the subject lands. Lake Ontario lies south of the site, and the existing water treatment plant is in the center of the site. The two woodland patches discussed in the report lie along the west boundary of the subject lands.



View to the south (Lake Ontario in the far distance) at one of the woodland patches discussed in the text. Photo taken by Mary Alice Snetsinger on December 17, 2007.



At the northern woodland edge, with open agricultural land typical of the open areas in the background. Note that there are some large, mature trees in the woodland patches. Photo taken by Mary Alice Snetsinger on December 17, 2007.

Appendix B. O'Connor Drive site.

Satellite image (from Google Earth) showing the approximate location of the subject lands. The west branch of Little Cataraqui Creek lies south and east of the site, and the existing industrial development that largely surrounds the site.



View to the north across the open site. The scattered vegetation that characterizes the site can be seen, along with the trees at the north end of the site. Photo taken by Mary Alice Snetsinger on December 15, 2007.



View to the west at the north end of the site. Note the hummocky nature of the area, where grading of fill material is incomplete. Photo taken by Mary Alice Snetsinger on December 15, 2007.

Ecological Site Evaluation
Kingston West Water Improvement

O'Connor Drive

Kingston

prepared for

J.L. Richards and Associates Ltd.

May 2008

Prepared by

Dale Kristensen, MSc



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1.0 Summary. This report presents the results of an ecological site evaluation conducted for the O'Connor Drive site in May 2008 by Ecological Services.

Overall, the O'Connor Drive site is considered to be of **Low Ecological Sensitivity** due to the following features:

- site substrates consisting largely of deep unconsolidated construction waste fill (subsoils, gravel, concrete, asphalt)
- majority of site consisting of an open meadow dominated by grasses (Smooth Brome, Reed Canary Grass) and herbaceous weeds (goldenrod, Bull Thistle, Wild Carrot)
- narrow fringe of young trees and shrubs (Red Ash, Box Elder, Honeysuckle, Common Elder) is insufficient in size to provide more than limited wildlife habitat
- relatively high number of invasive species (Garlic Mustard, Tartarian Honeysuckle, Gromwell)
- location of site within a commercial/industrial district reducing its value as wildlife habitat,
- does not provide sufficient buffering capacity in terms of drainage or vegetative cover to adjacent natural valleylands to the east (Little Cataraqui tributary)
- absence of any species or communities of designated significance (i.e., rarity)

2.0 Site Location. Corner lot on O'Connor Drive in the City of Kingston (see Figure 1)



Figure 1. Site location and approximate boundaries.

3.0 Property Size. Approximately 1 hectare.

4.0 Site Description (See Photos 1 and 2). The following site description is based on the results of 3 separate site visits by Ecological Services staff (November 2001, December 2007 and May 2008). Vegetation community classification follows the Ecological Land Classification for Southern Ontario guidelines (ELC, Lee et. al. 1998). A complete checklist of flora and fauna is provided in the appendices.

i) **ELC Communities:**

- **Cultural Meadow:** This vegetation community type comprises approximately 70% of this 1.0 hectare site. The dominant vegetation type is Smooth Brome (*Bromus inermis*) with patches of Reed Canary Grass (*Phalaris arundinacea*), Tall Goldenrod (*Solidago altissima*), Canada Goldenrod (*S. canadensis*), and Common Raspberry (*Rubus idaeus*). Patches of dogwood (*Cornus foemina*), Staghorn Sumac (*Rhus typhina*) and young Red Ash occur around the periphery.
- **Fresh-Moist Deciduous Mixed Forest:** Around the periphery of the site, the remaining vegetation community type is represented by a mixed stand of young (i.e., <30 year-old) deciduous trees dominated by Box Elder (*Acer negundo*), Red Ash (*Fraxinus pensylvanica*), and Balsam Poplar (*Populus balsamifera*). A few scattered Red Cedar (*Juniperus virginianus*) and Silver Maple (*Acer saccharinum*) occur as well. The only notable tree of size is a large (60 cm DBH), mature White Oak (*Quercus alba*) located on the east edge of the property, although several others specimens are >15 cm DBH.

ii) **Flora and Fauna.** No rare or otherwise significant floral or faunal species were identified, or were expected, given the urban location and disturbance history of this site. Approximately 50 species of plants were identified, of which nearly half are non-native invasives, including Garlic Mustard (*Alliaria petiolata*), Smooth Brome and Tartarian Honeysuckle. Except for a single occurrence of a Wood Thrush in adjacent habitat, all bird and mammal species observed are common to urban environments. No rare species are noted for this area in the Natural Heritage Information Centre's Element Occurrence database.

iii) **Adjacent Lands.** The site is located within an area of commercial/light industrial development. To the east is a 2-3 metre treed slope bordering a hydro corridor which parallels a minor valleyland that is part of a tributary of the Little Cataraqui Creek system (see Figure 1).

iv) **Features of Natural Heritage Significance.** Neither this site, nor any adjacent lands have been identified as of significance in the Cataraqui Region Conservation Authority's Natural Heritage Studies. *However, under the City of Kingston's Tree Conservation Bylaw, the presence of several trees of >15 cm DBH requires preparation of a tree management strategy, if tree removal is required.*

v) **Soils.** Soils and substrates consist of deep (>1 metre) unconsolidated construction fill material, including mixed subsoils, gravels, asphalt and concrete.



Photo 1. Open meadow area dominated by Smooth Brome. Note young maples and ash in background.



Photo 2. East slope bordering hydro corridor (to right of photo).

- vi) **Slope and Drainage.** The site is predominantly flat, although raised about 1 metre above street level. To the east is a 2-2.5 metre slope leading down to the hydro corridor and valleylands. There is evidence of localized erosion here as a result of surficial and subsurface run-off. There are no areas of open water or wetland present.

5.0 Present Ecological Condition and Sensitivity. The meadow and young forest/thicket communities on the O'Connor Drive site have little ecological value as they are quite small and occur on unconsolidated waste fill. The site is located within an urban zone of commercial/industrial development, which severely restricts any value as wildlife habitat, and there are no known species of interest present. The adjacent valleylands to the east are down slope of the site, and aquatic systems could conceivably be impaired by contaminant run-off, however, the proposed development is not of this nature. For these reasons, this site is considered to have *low ecological sensitivity*.

6.0 References:

Cataraqui Region Conservation Authority. 2006. Central Cataraqui Natural Heritage Study.

Ecological Services 2001. Kingston water Storage Site Selection. Environmental Sensitivity Ranking of Proposed Sites: Addendum. Prepared for R.V. Anderson Assoc. Ltd. Ottawa, Ontario.

Ecological Services, 2007. Kingston West Water Improvement. Preliminary Ecological Site Assessment. December 2007 Site Visits. Prepared for J.L. Richards and Assoc. Ltd. Kingston, Ontario.

Lee, H., W. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig, and S. McMurray. 1998. Ecological Land Classification for Southern Ontario. Natural Heritage Information Centre, OMNR Peterborough.

Ontario Ministry of Municipal Affairs and Housing. 2005. Provincial Policy Statement. Issued under Section 3 of the *Planning Act*, came into effect March 1, 2005.

Ontario Ministry of Natural Resources. 1999. Natural Heritage Reference Manual for Policy 2.3 of the Provincial Policy Statement

Sincerely,



*Dale Kristensen, MSc.
Consultant, Ecological Services*

Appendix 1. Checklist of plant species identified for the O'Connor Drive site.

Species Name	Common Name	Srank	Family
<i>Acer negundo</i>	Box Elder	S5	ACERACEAE (102)
<i>Acer saccharinum</i>	Silver Maple	S5	ACERACEAE (102)
<i>Alliaria petiolata</i>	Garden Garlic Mustard	SE5	BRASSICACEAE (73)
<i>Arctium minus ssp. minus</i>	Burdock	SE5	ASTERACEAE (168)
<i>Asclepias syriaca</i>	Kansas Milkweed	S5	ASCLEPIADACEAE (145)
<i>Bromus inermis ssp. inermis</i>	Brome	SE5	POACEAE 22)
<i>Buglossoides arvensis</i>	Corn-gromwell	SE5	BORAGINACEAE 149)
<i>Cardamine pensylvanica</i>	Pennsylvania Bitter-cress	S5	BRASSICACEAE 73)
<i>Centaurea jacea</i>	Brown Starthistle	SE5	ASTERACEAE 168)
<i>Chrysanthemum leucanthemum</i>	Oxeye Daisy	SE5	ASTERACEAE 168)
<i>Cirsium vulgare</i>	Bull Thistle	SE5	ASTERACEAE 168)
<i>Cornus foemina</i>	Stiff Dogwood	S5	CORNACEAE 130)
<i>Cornus stolonifera</i>	Red-osier Dogwood	S5	CORNACEAE 130)
<i>Daucus carota</i>	Wild Carrot	SE5	APIACEAE 129)
<i>Erigeron hyssopifolius</i>	Daisy Fleabane	S5	ASTERACEAE 168)
<i>Fragaria virginiana</i>	Virginia Strawberry	S5	ROSACEAE 82)
<i>Fraxinus pennsylvanica</i>	Green Ash	S5	OLEACEAE 141)
<i>Hypericum punctatum</i>	Common St. John's-wort	S5	CLUSIACEAE 111)
<i>Juniperus communis</i>	Ground Juniper	S5	CUPRESSACEAE 13.5)
<i>Juniperus virginiana</i>	Eastern Red Cedar	S5	CUPRESSACEAE 13.5)
<i>Lonicera tatarica</i>	Tartarian Honeysuckle	SE5	CAPRIFOLIACEAE 162)
<i>Medicago sativa ssp. falcata</i>	Yellow Alfalfa	SE4	FABACEAE 83)
<i>Melilotus alba</i>	White Sweet Clover	SE5	FABACEAE 83)
<i>Nepeta cataria</i>	Catnip	SE5	LAMIACEAE 151)
<i>Oenothera biennis</i>	Common Evening-primrose	S5	ONAGRACEAE 125)
<i>Phalaris arundinacea</i>	Reed Canary Grass	S5	POACEAE 22)
<i>Phleum pratense</i>	Meadow Timothy	SE5	POACEAE 22)
<i>Phragmites australis</i>	Common Reed	S5	POACEAE 22)
<i>Poa compressa</i>	Canada Bluegrass	S5	POACEAE 22)
<i>Populus balsamifera</i>	Balsam Poplar	S5	SALICACEAE 41)
<i>Populus tremuloides</i>	Trembling Aspen	S5	SALICACEAE 41)
<i>Potentilla norvegica</i>	Norwegian Cinquefoil	S5	ROSACEAE 82)
<i>Potentilla recta</i>	Sulphur Cinquefoil	SE5	ROSACEAE 82)
<i>Quercus alba</i>	White Oak	S5	FAGACEAE 46)
<i>Rhamnus cathartica</i>	Buckthorn	SE5	RHAMNACEAE 106)
<i>Rosa blanda</i>	Smooth Rose	S5	ROSACEAE 82)
<i>Rubus idaeus ssp. melanolasius</i>	Raspberry	S5	ROSACEAE 82)
<i>Sambucus canadensis</i>	Common Elderberry	S5	CAPRIFOLIACEAE 162)
<i>Solanum dulcamara</i>	Climbing Nightshade	SE5	SOLANACEAE 152)
<i>Solidago canadensis var. canadensis</i>	Canada Goldenrod	S5	ASTERACEAE 168)
<i>Symphotrichum lateriflorus var. lateriflorus</i>	Small White Aster	S5	ASTERACEAE 168)
<i>Symphotrichum novae-angliae</i>	New England Aster	S5	ASTERACEAE 168)
<i>Taraxacum officinale</i>	Brown-seed Dandelion	SE5	ASTERACEAE 168)
<i>Trifolium campestre</i>	Low Hop Clover	SE5	FABACEAE 83)

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<i>Trifolium repens</i>	White Clover	SE5	FABACEAE 83)
<i>Tussilago farfara</i>	Colt's Foot	SE5	ASTERACEAE 168)
<i>Verbascum thapsus</i>	Great Mullein	SE5	SCROPHULARIACEAE 153)
<i>Viburnum lentago</i>	Nannyberry	S5	CAPRIFOLIACEAE 162)
<i>Vicia cracca</i>	Tufted Vetch	SE5	FABACEAE 83)

Appendix 2. Checklist of birds observed at the O'Connor Drive site.

Species Name	Common Name	S-Rank	Family
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	S5B,SZN	ICTERIDAE
<i>Buteo jamaicensis</i>	Red-tailed Hawk	S5B,SZN	ACCIPITRIDAE
<i>Carduelis tristis</i>	American Goldfinch	S5B,SZN	FRINGILLIDAE
<i>Columba livia</i>	Rock Dove	SE	COLUMBIDAE
<i>Corvus brachyrhynchos</i>	American Crow	S5B,SZN	CORVIDAE
<i>Cyanocitta cristata</i>	Blue Jay	S5	CORVIDAE
<i>Dendroica petechia</i>	Yellow Warbler	S5B,SZN	PARULIDAE
<i>Dumetella carolinensis</i>	Gray Catbird	S5B,SZN	MIMIDAE
<i>Geothlypis trichas</i>	Common Yellowthroat	S5B,SZN	PARULIDAE
<i>Hirundo rustica</i>	Barn Swallow	S5B,SZN	HIRUNDINIDAE
<i>Hylocichla mustelina</i>	Wood Thrush	S5B,SZN	TURDIDAE
<i>Melospiza melodia</i>	Song Sparrow	S5B,SZN	EMBERIZIDAE
<i>Molothrus ater</i>	Brown-headed Cowbird	S5B,SZN	ICTERIDAE
<i>Passer domesticus</i>	House Sparrow	SE	PASSERIDAE
<i>Quiscalus quiscula</i>	Common Grackle	S5B,SZN	ICTERIDAE
<i>Sitta carolinensis</i>	White-breasted Nuthatch	S5	SITTIDAE
<i>Sturnus vulgaris</i>	European Starling	SE	STURNIDAE
<i>Turdus migratorius</i>	American Robin	S5B,SZN	TURDIDAE

Appendix 3. Checklist of mammals observed at the O'Connor Drive site.

Species Name	Common Name	S-Rank	Family
<i>Marmota monax</i>	Woodchuck	S5	SCIURIDAE
<i>Microtus pennsylvanicus</i>	Meadow Vole	S5	MURIDAE
<i>Odocoileus virginianus</i>	White-tailed Deer	S5	CERVIDAE
<i>Procyon lotor</i>	Raccoon	S5	PROCYONIDAE
<i>Sciurus carolinensis</i>	Grey Squirrel	S5	SCIURIDAE
<i>Sylvilagus floridanus</i>	Eastern Cottontail	S5	LEPORIDAE