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PROJECT No. 1536620

TO Michael Dakin, Resource Planner
Cataraqui Region Conservation Authority

CC Tim Beaubiah, CRCA

FROM Gwendolyn Weeks, H.B.Sc.Env

EMAIL gweeks@golder.com

**TERMS OF REFERENCE FOR NATURAL ENVIRONMENT STUDIES – BROCKVILLE EMPLOYMENT
LANDS, CITY OF BROCKVILLE, ONTARIO**

FIELD INVESTIGATIONS

Golder Associates Ltd. (Golder) would like to submit this Terms of Reference for Natural Environment Studies on the Brockville Employment Lands, City of Brockville (the Site) to the Cataraqui Region Conservation Authority (CRCA) for review and approval. In order to assess the natural features [e.g. Species at Risk (SAR), significant wildlife habitat (SWH), significant woodlands, etc.] on the Site, several site visits are proposed. If, following these field surveys, or upon agency review and consultation, additional features within the Site are identified that require further investigation, or any SAR authorizations are required, additional effort may be required. A single site reconnaissance visit was undertaken at the Site by Golder in August 2015.

Plant Community and Wildlife Habitat Surveys

Two (2) plant community surveys will be conducted between April and August 2016. During these surveys, the Site will be assessed using Ecological Land Classification (ELC) standard protocols (Lee *et al.* 1998). Locations of any SAR or significant plants encountered will be mapped using GPS.

In addition to the ELC and plant surveys, habitat structure and features specific to the habitat requirements of the potential SAR and significant natural features identified in the desktop assessment will be noted. These surveys will occur on the same visits as wildlife surveys below.

Butternut

Butternut (*Juglans cinerea*), is protected as endangered under the ESA, and was identified on the Site during the initial site visit undertaken by Golder in 2015. Although butternut will be searched for during all survey events, given the large and heavily vegetated nature of the Site, an additional survey will be undertaken to ensure no butternuts are missed. This will include a search of the entire Site. If required, butternut health assessments (BHA) will be completed by Golder's certified butternut health assessors concurrently with this survey.

Herptile Surveys

To assess the potential presence and extent of breeding herptiles, including SAR, as well as related SWH, the following herptile surveys will be conducted.



Golder Associates Ltd.

1931 Robertson Road, Ottawa, Ontario, Canada, K2H 5B7
Tel: +1 (613) 592 9600 Fax: +1 (613) 592 9601 www.golder.com

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Nocturnal Amphibian Surveys

To assess breeding amphibians, nocturnal amphibian surveys will be conducted during three survey events from April to July 2016 between the period of 30 minutes after sunrise and midnight. Survey methods will follow those of the Marsh Monitoring Program (MMP 2008).

Herptile Visual Encounter Surveys

To assess herptiles such as snakes, turtles, and salamanders, visual encounter surveys will be conducted throughout the Site. Survey methods will follow standard MNRF-approved procedures (McDiarmid 2012, MNRF 2013).

Breeding Bird Surveys

To assess the potential presence of breeding birds, including SAR, as well as related SWH, the following surveys will be conducted.

Diurnal Point Counts

To assess the presence of songbirds and other bird groups that are active during the day, breeding bird point count surveys will be conducted on the Site between May 25 and July 10, 2016, at least two (2) weeks apart, following standard protocols (Cadman *et al* 2007). Surveys will be conducted at point-count stations distributed throughout all habitats on the Site (including potential SAR habitat), and will occur in the period between 30 minutes before sunrise and 10:00am, to cover the period of highest bird detectability.

Nocturnal Breeding Bird Surveys

It was determined through Golder's initial Site visit in 2015 that eastern whip-poor-will is unlikely to occur on Site, and therefore MNRF protocols for this species are not required. However to determine presence of other species that are active at dusk and in the night (e.g. owls), nocturnal breeding bird surveys will be conducted concurrently with nocturnal amphibian surveys.

Bat Surveys

Golder has extensive experience surveying bats in a number of regions and different sectors using acoustic survey methods. We believe that the acoustic bat survey approach described herein is reasonable and technically defensible to determine if SAR bats are present and likely to be using the Site during the maternity roosting season.

The field surveys will include four stations surveyed with passive full-spectrum bat detectors placed at suitable locations on the Site based on our work to date. These detectors will record for at least 10 nights during the month of June when pregnant or lactating female bats would be near their maternity roosts.

Analysis of the data will be conducted under Golder's multi-step analytical procedure using Kaleidoscope® and Sonobat® software along with Golder's specially designed BatData program. The resulting information will be compiled to determine the mean bat passes per night for each species or species-group at each detector location.

In addition, a habitat assessment will be conducted to determine potential presence of bat maternity roosts, with a focus on SAR and potential SWH.

Butterfly/Dragonfly, Mammal and Other Wildlife Surveys

During all field surveys, Visual Encounter Surveys for butterflies, dragonflies, mammals and other wildlife will be conducted following recommended procedures (Bookhout 1994; Pyle 1984), where possible. All species observed (including direct observations, calls, tracks and other signs) will be noted.

Aquatic Habitat Assessment

Although no sizable surface water features were identified during Golder's initial site visit in 2015, the site visit was conducted in late August, which is not ideal for performing aquatic habitat assessments. An assessment of all surface water features on Site will be conducted during spring and early summer 2016 surveys. It is not anticipated that fish sampling will be required, however if it is deemed necessary based on results of the habitat assessment, and consultation with CRCA, an additional scope of work will be undertaken.

Gwendolyn Weeks, H.B.Sc.Env
Ecologist

Brian Byerley
Principal

GW/BB

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