NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Memo

Project No. 703

To: John Nicholson

CC: Rob Read (EC), Kathryn Woeller (OMNR), Liz Yerex (GRCA)

From: Dave Stephenson

Date: March 8, 2007

Re: Skyway 8 Wind Farm

The following natural environment work program of the Environmental Assessment (EA) for the development of the Skyway 8 Wind Farm on land in Southgate Township is provided for your review. In order to ensure that our field surveys and analyses are completed to the satisfaction of Environment Canada, the MNR, and the GRCA, we would like to request your input on the following work program and we recommend circulation of this document to agencies for their review and comment. Liaison with staff of Environment Canada, the Ministry of Natural Resources (MNR) and the Grand River Conservation Authority (GRCA) are being conducted to assist in scoping subsequent studies.

Work Program

Three study phases for the natural environment analysis are described below. These phases are based on the integration of tasks typically completed as part of an EA. The following work program includes assessments of vegetation, birds, bats, and other wildlife as well as aquatic resources.

Phase 1. Preliminary Natural Environment Scoping and EA Level Analysis.

Preliminary Assessment and Scoping

The collection of background information and discussions with knowledgeable resource specialists to identify specific natural environment issues related to the wind farm facility (e.g. presence of species at risk, etc) commenced in October 2006. A larger study area has been used to identify natural environment features that warrant consideration in subsequent study phases (e.g. features that would require specific study, distance considerations as per existing guidelines, etc.).

Input from Environment Canada, the MNR, and the GRCA that is obtained and the implications of this input will be provided to our client for their review. The potential implications (if any) of comments on the tasks will be summarized in a letter for the client's review and approval.

The following activities are included in the preliminary assessment and scoping:

- Collection and review of background information on natural environment features including but not limited to secondary source reports, NHIC website, local MNR offices, municipality files, etc.
- Discussions with knowledgeable resource specialists to collect first-hand information on natural environment features and issues in the area
- Refinement of area of study if warranted based on background information
- Collection and review of basemapping (topographic, OBM) as well as aerial photography
- Identification of significant natural features and functions such as designated Environmentally Sensitive Areas (ESAs), Areas of Natural and Scientific Interest (ANSIs), Provincially Significant Wetlands (PSWs), Species at Risk, and other natural heritage features as per the Provincial Policy Statement
- Compilation of information from the Ontario Breeding Bird Atlas, Ontario Herpetofaunal Database, Ontario Mammal Atlas, Ontario Butterfly Atlas and other background sources
- Identification of known bird migration functions within the vicinity and assemblage of data from the closest migration monitoring stations, colonial nesting areas, etc.
- Liaison with other study team members to provide key findings of natural environment overview

Natural Areas
Keldon Swamp, a provincially significant wetland, is located on the west side of County Road 8, within 1 km of the study area.

Consultation with the MNR, Midhurst District Office, has indicated to NRSI that no Areas of Natural and Scientific Interest (ANSI) or Important Bird Areas (IBA) occur within close proximity to the study area.

EA Level Analysis
This level of investigation focuses on the project area including the proposed limit of turbines, access roads, and transmission facilities (if available). Collection and review of background information and discussions with resource specialists will continue in this phase of the study, but with a more focused study area.

Included in the analysis are seasonal field investigations to identify features in the study area that will influence the siting of turbines, access roads, transmission facilities etc. This includes a detailed analysis of natural environment features for the completion of the EA and to allow for the analysis of impacts, mitigation, etc. Alternative locations, designs etc. will also be assessed as part of this phase of the study.

The following activities are included the analysis:

- Ongoing collection and review of background information sources
- Detailed mapping of vegetation communities using aerial photography and on-site field surveys (using Ecological Land Classification system)
- Seasonal surveys of flora and fauna (see below) on specific sites
- Input of natural environment analyses to an EA based on integration of all work

- Preparation of a report, documenting all findings, and
- Liaison with other study team members to provide key findings of natural environment investigations

Seasonal Field Investigations
Based on recent experience with similar projects, no spring or fall bird migration monitoring is included in the following work program. Should this type of monitoring be required this would be identified during background information collection and agency liaison. The implications of the recommendations of Environment Canada, the MNR and the GRCA will be provided to the team immediately with recommendations regarding work plan modifications (if any).

The following seasonal field investigations are proposed:

Birds
Spring/Summer Breeding Birds
Extensive information on breeding birds is typically available from the Ontario Breeding Bird Atlas or other sources. Based on comments received from Environment Canada on other projects, breeding bird surveys will be located at the specific sites of the turbines, roads, transmission lines etc. Specific point count surveys of the proposed locations and transects through the surrounding areas will be undertaken.

Breeding bird surveys will be conducted as outlined by Environment Canada Guidelines (July 28, 2006) and will occur throughout the area where facilities are proposed. These consist of two rounds of early morning surveys in June (roughly 10 days apart). Based on the guidance document prepared by Environment Canada and the Canadian Wildlife Service (July 28, 2006), the facility size is considered “Small.” The total project area is approximately 462.5 ha and contains a low diversity of habitat types (the total area of each habitat type is too small to support 20 stations). Based on preliminary community vegetation mapping, approximately 30 point count stations will be sufficient following standard protocols and will be 10min in duration.

Breeding evidence will also be recorded during the earlier monitoring surveys. If Species at Risk or other significant species are known to inhabit the area from the background review and liaison with agency staff, focused surveys for these species will be integrated with the breeding bird monitoring.

Soaring Bird Behaviour
The Ontario Breeding Bird Atlas (OBBA) indicates that a total of 144 species of birds are known to inhabit the vicinity of the study area. In conjunction with breeding bird behaviour (discussed above), behaviour patterns of resident bird species will be assessed. This monitoring focuses on species such as raptors and waterfowl, shorebirds as well colonial species such as gulls. Monitoring will occur on the same days as the breeding bird work, and will be 7hrs in duration from approximately 9am to 3pm, as outlined in Environment Canada’s Guidelines (July 28, 2006), at two stations.

Vegetation

Vegetation Community Mapping

Preliminary community mapping of vegetation based on review of aerial photographs began in October 2006 and will continue throughout the summer of 2007. During 2006 site visits local Ecological Land Classification systems were used to describe vegetation types. To date community types identified in the study area include deciduous and mixed forests, cultural meadow, cultural thicket, swamp thicket, cultural plantation, and agricultural areas. This will be supplemented with roadside checks as well as site-specific community mapping once specific locations of turbines, roads, transmission lines and other features are known.

Plant Inventories

Detailed on-site field surveys will be completed at site-specific features, such as turbines, access roads and transmission lines if they are proposed in natural habitat. NRSI will take into account the following seasonal considerations:

- Spring flora, especially in wooded landscapes
- Summer blooming flora, especially in open meadow and marsh habitats
- Late summer/fall flora, especially to coincide with late blooming species such as asters, goldenrods, etc.

Mammals

During all field surveys, records of wildlife observations will be noted. This includes direct sightings, as well as evidence such as tracks, dens, scats, etc.

Bat monitoring will consist of spring monitoring.

Spring 2007 Bat Acoustic Monitoring

Spring 2007 bat monitoring will occur in May 2007. This will include monitoring at survey stations strategically located throughout the study area as well as along road transects between the monitoring stations.

10 minute monitoring periods will be used at points along the access route (every 2km). This monitoring will commence at sunset and continue until the early morning. Monitoring will occur on approximately 5 to 8 nights in the later half of May.

Currently, the MNR is developing guidelines for monitoring bats which may become available during the scheduled timeline of the project. Late summer and fall monitoring is likely to be recommended by the MNR. Bat monitoring during these periods is not included in this work program because the EA is scheduled for the summer of 2007.

Reptiles and Amphibians

Background research has indicated that there are 13 species of Herpetofauna known in the study area, none of which are listed by the Species at Risk Act (SARA). Observations of all species of reptiles and amphibians observed during field surveys will be recorded. Habitat-specific amphibian call surveys will be conducted in mid April, early May, and late May/early June at strategic times to assess amphibian populations in the vicinity of turbine, road and transmission facility locations.

The monitoring locations will focus on potential amphibian breeding habitats in the vicinity of proposed works. Standard 3 minute monitoring periods between sunset and midnight would be used to record calling amphibians.

Aquatic Habitats

Fall Aquatic Habitat Surveys

The MNR, Midhurst District Office, provided information on some of the water bodies and watercourses within 1km of the study site. Not all of the features within the study area have been surveyed by the MNR but those that have been were identified as cool water fisheries. There were no rare fish species found during surveys conducted by the MNR in 2000.

NRSI Fall 2006 aquatic surveys focused on preliminary aquatic habitat identification, descriptions and mapping. These activities will continue during spring 2007 surveys.

Analysis and Recommendations

NRSI will prepare a detailed characterization report accompanied by recommendations. Based on the findings of NRSI biologists during the preliminary natural environment assessment and scoping, as well as the seasonal field investigations, a final report will be prepared and presented to the client. The final report will detail all the information collected on the natural environment features in the study area as well as constraints to the proposed layout and recommendations on how to mitigate possible detrimental effects to the environment.

Impact Analysis

NRSI will use the data collected during Phase 1 to prepare detailed impact analysis input to the EA screening report. The EA level analysis will allow for any negative impacts to the natural environment in the study area to be identified and mitigated accordingly. Details of the impact analysis will depend on specific natural environment features, species found to be present in the study area, and site specific details such as topography.

Phase 2. Permitting

The second phase of the natural environment study will focus on any permits required for the construction of the facility. Detailed field surveys, layouts etc. will be undertaken to provide the appropriate level of detail to obtain permits related to natural environment features. These surveys will occur at specific reaches where facilities are proposed, especially watercourse crossings.

Details of this phase will depend on the specific natural environment features, issues, and requirements of the approvals process(es). Some overlap in tasks with the preceding phase will be undertaken for efficiency.

Phase 3. Monitoring
This phase of the natural environment investigations would be triggered by site specific issues, permits etc. This work could include monitoring of pre, during and post construction impacts on a wide range of natural environment features such as bird species, bats, other wildlife, and/or vegetation. This work may be triggered as conditions of EA approval, permitting etc.

Details of this phase will depend on the specific natural environment features and issues, and conditions imposed by the approvals process(es). These could include, but are not limited to:

- Pre-construction characterization of natural features to serve as baseline for subsequent monitoring. Overlap with previous phases is envisioned to ensure efficiency.
- During construction monitoring focused on ensuring that mitigation and avoidance measures are effective, etc.
- Post construction monitoring to ensure that impact predications are valid, analysis of effectiveness of mitigation measures, refinement of restoration/enhancement or mitigation measures.

If you have any questions, please do not hesitate to contact me.

Sincerely,
Natural Resource Solutions Inc.

David E. Stephenson, M.Sc.
Senior Biologist