Additional Information Request # 3

Methodology for Significance Determination

Related Comments:

CEAR #544 (Ontario Ministry of Natural Resources)

CEAR #557 (Ontario Ministry of the Environment)

The Ontario Ministry of Natural Resources and the Ontario Ministry of the Environment have raised concerns about the methodology used to determine significance, as well as the validity of some of SCI's significance conclusions. Many of the conclusions have an inadequate rationale for the ratings as high, medium or low. Also, as a result of the approach taken, a 'high' rating for one or all of the assessment factors in step one of the two-step methodology does not necessarily result in a determination of significant residual adverse effect– this can only occur if the societal or ecological value is rated 'high'. There is little indication of which value (societal or ecological) for each of the VECs was assessed to determine overall significance. In addition, there is no clear evidence that significant adverse effects could not still exist to the valued ecosystem component if the societal/ecological value was not rated "high".

Additionally, the ranking of the ecological value for rare plants was determined to be "medium" by SCI. Yet Table 6.1-3 indicates that ecological importance is "high" where a VEC is "recognized as being a threatened or *a rare* or endangered species."

The Ontario Ministry of Natural Resources also questions the ratings assigned for rare vegetation. For example, the rating of "minimal" for *spatial extent* because loss of rare plants is limited to the study area, however, since there are not numerous other locations where the rare plants are found this loss could be seen to be spatially significant.

The Panel requires SCI to:

- Explain and justify how the ratings for societal and ecological value were determined for each of the biophysical VECs that were carried forward to step two in SCI's two-step methodology. Include specific information, with examples, of how input and feedback received from government, the public, local community members and Aboriginal people were factored in.

- Provide evidence to show that significant adverse effects only exist when the social/ecological value is rated as 'high'.

- Provide a response to MNRs concern regarding SCI's ratings assigned for rare plants.

SCI Response:

1.0 <u>RATINGS FOR SOCIETAL AND ECOLOGICAL VALUE</u>

Ecological importance and societal value were two of the factors considered as part of the characterization of the significance of predicted residual effects, as summarized below in Table 6.1-3. Table 6.1-3, which has been reproduced from the EIS, provides a summary of the manner in which, and

the context within which, residual effects predicted by the assessment and their significance were characterized. The characterization used the effects ratings criteria listed below. These effects ratings criteria are consistent with the project-specific EIS guidelines issued by the Joint Review Panel. The effects ratings criteria are:

- MINIMAL = Potential effect may result in a slight decline in a resource or VEC or indicator in the study area during construction, operation and closure, but the resource should return to baseline levels;
- LOW = Potential effect may result in a slight decline in a resource or VEC or indicator in the study area during the life of the Project;
- MEDIUM = Potential effect could result in a decline in a resource within the study area to lower than baseline, but stable, level in a study area after Project closure and into the foreseeable future; and,
- HIGH = Potential effect could threaten sustainability of the resource or VEC or indicator within the Project study area and should be considered a management concern.

Table 6.1-3: Criteria for the Assessment of Residual Effects and their Significance in the Assessment Process (reproduced from the main EIS Report)

	Effects Rating Criteria			
Assessment Factor	**Minimal**	**Low**	**Medium**	**High**
Magnitude	Effect slightly exceeds baseline conditions; however, is less than reference criteria or guideline values.	Effect exceeds baseline conditions; however, is less than reference criteria or guideline values.	Effect will likely exceed reference criteria or guideline values but has limited effect on ecological function.	Effect will likely exceed reference criteria or guideline values and may cause a loss of ecological function.
Spatial extent	Effect limited to site study area.	Effect limited to site study area or immediate surroundings.	Effect limited to local study area.	Effect extends into the regional study area.
Duration	The effect is limited to a one-time event.	Effect is limited to short term events. (a few years or less).	Effect is limited to operational and/decommissioning project phases. (years to decades).	Effect extends beyond the decommissioning phase. (centuries).
Frequency/Probability	Conditions or phenomena causing the effect rarely occur.	Conditions or phenomena causing the effect are unlikely to occur.	Conditions or phenomena causing the effect may occur on one or more occasions over the project life.	Conditions or phenomena causing the effect occur at regular and frequent intervals.
Reversibility	Effect ceases immediately once source or stressor is removed.	Effect ceases once source or stressor is removed.	Effect persists for some time after source or stressor is removed.	Effect is not readily reversible.
Ecological importance	The resource/VEC/indicator being affected is very common and abundant within the local study area.	The resource/VEC/indicator being affected is common and abundant within the local study area.	The resource/VEC/indicator being affected is less common and of limited abundance within the local area but abundant in the regional study area.	The resource/VEC/indicator being affected is recognized as being a threatened or a rare or endangered species.
Societal (including Aboriginal) value	The resource/VEC/indicator has no value from a societal context	The resource/VEC/indicator has limited value from a societal context	The resource/VEC/indicator has moderate value from a societal context.	The resource/VEC/indicator has high value from a societal context.

As indicated in Table 6.1-3, for the purpose of the residual effects significance assessment ecological importance was considered in relation to the commonness or rarity of the VEC.

The societal value assessment considered the “value” of the VEC based on input from Aboriginal communities, the public and government where values were provided during the evaluation process. In this regard, SCI relied on written and verbal input and through the provision of numerous open houses, site visits, and other forms of communications to gauge or benchmark “value”. SCI consulted directly on a number of occasions with FNs and other stakeholders on the VEC list and sought input from these groups as to what environmental features they considered important and should be considered in the effects assessment.

Stillwater received input regarding the “value” of a number of VECs (e.g., moose, salmonids) through the consultation process, however, received little to no input on social values attributed to the six

biophysical VECs that are considered herein. Therefore, the ratings for the "ecological/societal" factor were almost exclusively driven by ecological importance for those VECs.

All predicted effects are residual in the sense that they are considered after the application or consideration of mitigation measures either incorporated in the conceptual mine design or developed to deal with the predicted effect. The latter includes prescribed requirements such as the Fish Habitat Offset Plan, for example.

The methodology followed a two-step process to determine overall significance of each residual effect:

> Step 1: If at least one of the criteria dealing with the nature or extent of the effect including magnitude, spatial extent, frequency, duration, and reversibility was assigned a "high" rating, the residual adverse effect was carried forward to Step 2, otherwise the residual adverse effect was considered "not significant".
>
> Step 2: If the criterion dealing with the ecological or social implication of the effect was rated high, the residual adverse effect was considered significant and additional mitigation opportunities were considered.

The rationale for this approach is as follows – regardless of magnitude, spatial extent, duration, frequency or reversibility of a predicted effect, if the VEC in question does not have high or reasonably high ecological importance or social value, the effect should not reasonably be given an evaluation of "significant". To do otherwise would diminish the utility of and arguably to some extent even trivialize the evaluation.

The determination of overall significance of an adverse effect using a two-step process is common in large-scale development EAs in Ontario. Evaluations where ecological and social factors are assessed as a second step and where the VEC must have ecological/social importance for the effect to be significant include the Detour Lake Mine EA, the New Nuclear-Darlington EIS, the Keeyask Generation Project, and Ontario Power Generation's Deep Geological Repository for Low and Intermediate Level Waste (L&ILW) EIS.

The six biophysical VEC's that were forwarded to Step 2 of the significance assessment are listed below[1]:

- surface water quantity (magnitude),
- forest cover (duration),
- non-forest cover (duration),
- provincially and regionally rare vegetation species (duration),
- rusty blackbird (reversibility), and
- olive-sided flycatcher (reversibility).

Additional discussion regarding the ecological significance assessment of the biophysical VECs advanced to Step 2 is provided below.

[1] The assessment factor that was rated "high" in the Step 1 of the assessment and provided the rationale for its forwarding to Step 2 is shown in parenthesis.

Surface Water Quantity: Medium ecological/societal importance was attributed to this VEC due to resource user concern. The overall determination was "no significant adverse effect" since only a few small watersheds will be impacted and only during operations; moreover any impact on migratory salmonid production that is attributable to reductions in surface water quantity in Streams 2, 3 and/or 6 should be more than mitigated by the Fish Habitat Offset Plan. Therefore no significant residual effects are anticipated.

Forest and Non-Forest Cover: Ecological/societal importance were assessed as low for both forest cover and non-forest cover since both VECs are very common both within the regional study area. The residual effects associated with the Project on these VECs are minor.

Provincially and Regionally Rare Vegetation Species: Rare plants could be argued to have a high ranking for ecological importance; this is discussed further in Section 3 of this response document.

Rusty Blackbird and Olive-sided Flycatcher: Rusty Blackbird and Olive-sided Flycatchers are VECs with high ecological/societal importance because they are listed under the federal Species at Risk Act (SARA) or provincial Endangered Species Act (ESA). Even if there was no specific concern for these species expressed by the public, Environmental Non-Governmental Organizations (ENGOs) or First Nations, the fact that these species are protected by legislation indicates a high ecological value. High ecological/societal value does not necessarily imply that there is a resulting "significant adverse effect" on these VECs, since in fact the residual effect of the Project may be minor. That is indeed the case for Rusty Blackbird and Olive-sided Flycatcher, as discussed in more detail in the EIS and IR 23.4.3 and 23.4.5.

2. SIGNIFICANT ADVERSE EFFECTS ANALYSIS

The rationale for the two step evaluation process is described above – to conclude for a particular VEC that a significant adverse effect exists (after mitigation), when the VEC in question does itself not have ecological or social value, would diminish the utility of and perhaps even trivialize the evaluation process.

With respect to the specific concern – rare plants – raised by MNR, rare plants were initially ranked as medium for ecological/societal importance in Step 2 of the EIS, even though Table 6.1.3 had indicated rare plants, in addition to threatened or endangered plants would have high ecological importance. It was our belief that rare plants not officially listed as threatened or endangered should not necessarily have a high ecological value rating. Based on MNR input, however, the ranking for provincially rare plants including Alga Pondweed has been revised to high (see Section 3 below). As a result additional mitigation is now being proposed for the three directly impacted regionally rare plant species (see discussion in Section 3 below and AIR #9) to reduce potential impacts to non-significant levels.

There are no VECs affected by the Project with significant residual effects that are medium ranked for ecological/societal importance. Surface water quantity is ranked as medium for ecological/social importance but due to ecological context and the planned mitigation there are no predicted significant residual effects from the project. Both Olive-sided Flycatchers and Rusty Blackbird have high ecological importance but no significant residual effects from the Project are anticipated for the reasons explained elsewhere.

3. RARE PLANT RATINGS

The VEC “provincially and regionally rare vegetation” was used as a catch-all for the 5 provincially rare plants and 11 regionally rare plants identified on the Project site. The assessment factor effects rankings were made in consideration of the VEC as a whole, rather than for the individual species that were represented by the VEC. The majority of the species that comprise this VEC will be unaffected by the Project and the original effects rankings provided in the EIS are reflective of this fact.

It is acknowledged that different effects ratings could be provided in Step 1 of the two step assessment process had they been made in consideration of individual rare plant species, particularly those that are found on the Project site and will be affected by the Project. For example, the assessment factor “magnitude” could have been given a ranking of “high” in relation to Alga Pondweed and Oake’s Pondweed given that potential Project effects if unmitigated represents a relatively high proportion of the known occurrences of these species regionally. In any event, the rare plant VEC was forwarded on to Step 2 of the significance assessment process since a "high" ranking for only one criterion was required (and it already ranked high for ”duration”). It is noted that the rating of “minimal” for “spatial extent” as originally presented in the EIS is still considered appropriate since the Project-related effects were limited to the Site Study Area (see Table 6.1-3).

Upon review of comments from OMNR, SCI agrees that an ecological/societal importance rating of “high” is appropriate for the VEC “provincially and regionally rare vegetation” if consideration of the VEC is made from the perspective of the individual species that comprise the VEC. Specifically, this would be relevant to the provincially rare Alga Pondweed, and possibly for the regionally rare plant species Oake's Pondweed, Northern St. Johnswort and Broad-lipped Twayblade. Although Alga Pondweed is an inconspicuous aquatic species rarely searched for and may be more common provincially than currently understood, the loss of an occurrence in the Project footprint is noted as potentially significant based on the current state of knowledge. Similarly, the losses for the three regionally rare plant species, Oake's Pondweed, Northern St. Johnswort and Broad-lipped Twayblade, are estimated to be 40%, 14% and 7%, respectively, of documented occurrences within the Regional Study Area and can therefore be considered as potentially significant.

As noted above, further mitigation opportunities were therefore considered for these plants. As described in the response to IR 15.1 and updated in the response to AIR #9, Stillwater has developed a mitigation plan for Alga Pondweed and the three affected regionally rare plant species. In short, SCI now proposes to conduct transplanting of affected rare plants. After this mitigation is applied, none of the provincially or regionally rare plant species are anticipated to experience significant adverse effects from the Project.

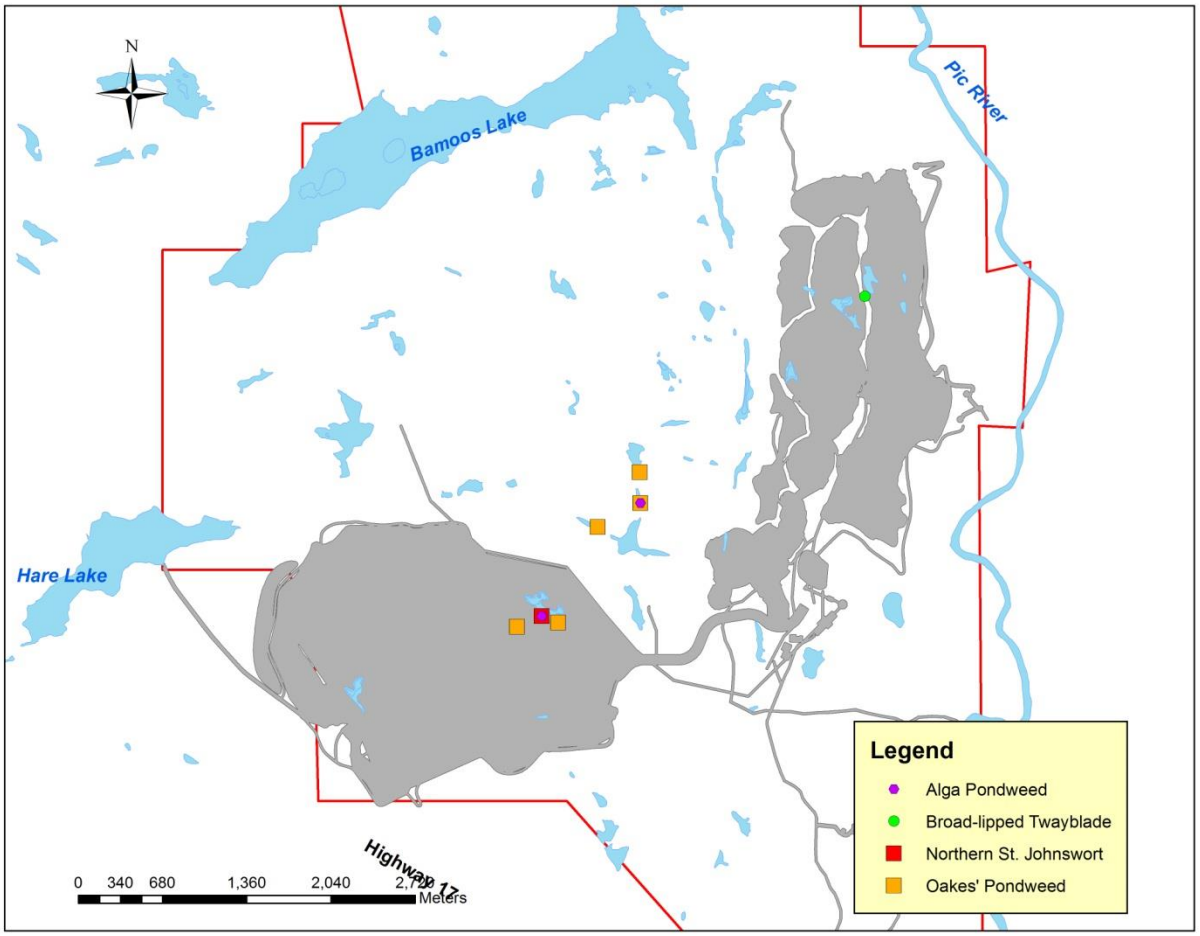

Figure 1. Location of rare plants species with documented locations that will be impacted by the Project footprint (grey shading).