NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

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Grand River Conservation Authority
400 Clyde Road, PO Box 729
Cambridge, Ontario N1R 5W6

Attention: Fred Natolochny, Supervisor of Resource Planning, GRCA

Re: St George Area Study – Response to GRCA Comments on Natural Heritage Study

The following letter has been prepared to include additional information and clarification in response to comments received from the Grand River Conservation Authority (GRCA) dated March 21, 2013 on the Natural Heritage Study prepared by NRSI for the St. George settlement area. NRSI has prepared the below responses taking into account discussion at our meeting held on June 27, 2013. At this meeting it was agreed that a number of the items in the GRCA comments could be addressed at the site specific stage of development rather than at the Area Study level. Note that the three landowners of the landowner group have prepared site specific EISs for their properties which are at varying stages of progress, as follows; Activa lands – Stantec, Empire lands – Ecoplans, Riverview Highlands – NRSI. The data from these studies was incorporated into the original Natural Heritage Study. Responses below are numbered to match the numbering in the GRCA letter. The Natural Heritage Study has been updated and accompanies this letter. All references in this letter refer to the specific section, Figures and appendices in the updated report.

General

1. The Natural Heritage Study for the St. George Area Study was intended as a high level study to provide guidance on natural heritage features and their protection within the Area Study process. Access was only available onto participating landowners' properties and therefore detailed information on the natural features is only available for these parcels. This information was supplemented with background data, aerial photography interpretation and roadside surveys to characterize the remainder of the study area. Further detailed information on natural features and full biological inventories for other properties in the study area will be required at a time when they are proposed for development.
2. As there was a delay between the field work in 2009 and submission of the Natural Heritage Study report in 2012, an additional site visit was carried out on June 8, 2012 to review the study area and ensure that vegetation community mapping was up to date. As stated in comment 1 above, full biological inventories of other properties in the study area are not possible at this stage, but will be required when those properties are proposed for development.
3. An assessment of impacts was not requested as part of the Natural Heritage Study as it was not intended to be an EIS. Impact analysis has been completed on each of the landowner properties through a site specific EIS, as will be required for future property developments. The Natural Heritage Study provides general information on each of the items listed in comment 3, with further clarification provided below, and these are also addressed in detail in the site specific EISs for the landowner properties.

4. The Terms of Reference for the Natural Heritage Study is included in Appendix I of the report.

Section 3.0 – Designated Features

5. The information provided has been incorporated into the Natural Heritage Study text as follows:

   <u>Fairchild Creek Wetland Complex</u>

   A portion (approximately 9.5ha) of this large Provincially Significant Wetland (PSW) complex (145ha) overlaps with the southeastern side of the study area (Kroetsch & Stephenson 1988). The PSW is considered biologically significant based on containing regionally significant species (pale jewelweed, oak fern, New York fern and Cooper's hawk), nesting of colonial waterbirds and active feeding area, winter cover for wildlife (small game and song birds) and presence of fish spawning and rearing habitat for brown trout and northern pike. The complex is made up of two wetland types, 88% swamp and 12% marsh. Generally all wetland units are riverine (ie. have a permanent surface water inlet and outlet). Wetland soils are primarily clays, loams or silts (95%) with a small portion being organic (5%). The majority of the wetlands within the study area are cattail (Typha latifolia) and common reed (Phragmites australis) shallow marshes (MAS2-2 and MAS2) as well as a small area of reed-canary grass (Phalaris arundinacea) marsh (MAS2-1) and small pockets of poplar mineral deciduous swamp (FOD4-5) and white cedar-hardwood mixed mineral swamp communities (SWM1-1).

Section 4.0 Vegetation

6. Due to differing levels of study, not all vegetation communities could be identified to the most detailed level. Vegetation communities will be verified and refined through detailed field studies at the site specific level.
7. The wooded areas in question on Activa's lands were revisited with Stantec staff to determine if the ELC code was appropriate. Based on the low canopy cover (30-60%) and open grown nature of the trees within each of these narrow linear hedgerow type features, it was determined that the CUW classification was appropriate. Stantec had used CUW1-3 as a more descriptive label, even though it is not an official ELC code. In the Natural Heritage Report, CUW1 has been used to label these areas.
8. The placement of the FOD7 label overlapping with the wetland on the Figures is a mapping error. The label has been shifted to the lowland woods. Where access was permitted, the FOD7 communities were verified to be lowland forest and not wetland. Small numbers of facultative wetland species are found along the edges of the watercourse running through the polygon, but the majority of ground vegetation was found to be upland species. FOD7 vegetation communities on properties without access will be verified and refined through detailed field studies at the site specific level.
9. Due to the high level nature of the Natural Heritage Study, a qualitative approach to describing vegetation communities was taken. Plant lists from the landowner properties plus species observed during roadside inventories were compiled to form the list for the study area. Detailed species lists and vegetation community descriptions have been provided in the EISs for the landowner properties as part of the ELC data collection, and would be required for any other properties proposing development in the future.
10. Detailed information on soil type and moisture regime has been provided in the EISs for the landowner properties as part of the ELC data collection, and would be required for any other properties proposing development in the future.

Section 5.0 – Wildlife

11. Figure 7 has been updated and can be found in the accompanying report. Due to renumbering of Figures in the report, it is now Figure 9.
12. The bird species list has been updated and is appended to report in Appendix IV.
13. Section 5.2 has been updated as follows:

    The study area provides modest habitat for amphibians due to the limited amount of wetland and open water habitat present. A number of amphibians such as spring peeper, wood frog and western chorus frog require wetland habitat which is seasonally wet, or vernal pools, for successful breeding. The temporary nature of these wetlands is important to the success of these amphibians in preventing the establishment of fish and other predators who would prey on amphibians, their eggs and larvae. The majority of the wetlands in the study area are expected to be seasonally inundated, but dry by late summer, making them suitable habitat for these kinds of amphibians.

    Wetlands in the study area are small in size and may be isolated from other natural features such as upland forest. Upland forest is important habitat for some amphibians such as wood frog and salamanders which travel to, and reside in, upland areas during the non-breeding season. Areas of wetland in combination with upland forest are found near the abandoned rail line and Industrial Drive as well as along King George Road. A review of aerial photography did not show any vernal pools within the upland forests and none were documented during the field studies for this project.

    A number of man-made ponds are found in the study area which provide suitable habitat for turtles such as painted turtle and snapping turtle, as well as amphibians that need permanent water such as bullfrog and green frog.

    Habitat in the study area is suitable for a variety of snake species as listed in Appendix VI, but none were observed during any of the field studies for the project.

    Specific surveys for turtles and turtle nesting areas were not completed as part of the Natural Heritage Study, due to the high level nature of the study. Any incidental observations of reptiles were recorded and background information was relied on to indicate what species may be found in the study area. Specific searches for snakes were completed on at least one of the landowner properties, with none being found. Detailed field work will be completed as part of an EIS (if required) at a time when properties are proposed for development.

Section 6.0 - Aquatic Habitat

14. NRSI did collect only spring water temperature data. However, this data was not used in stream classification. Section 6.1 describes how the watercourse classifications in the report were arrived at which included background information received from the MNR, GRCA and reports prepared by Stantec and Ecoplans. Temperatures in the text have been removed for clarity. Both Stantec and Ecoplans conducted baseline water temperature monitoring as part of the site specific EISs for those landowners. Any further baseline temperature or water quality monitoring is recommended to be included in future site specific EISs and will be considered as part of a larger stormwater management study.

15. We have corrected the stream thermal regime classification reference in Section 6 to Ontario Ministry of Natural Resources' NRVIS database which was accessed using the GRCA mapping tool not GRCA data as previous drafts have noted.

16. This correction has been made.

Section 7.0 – Natural Heritage System
17. A section on GRCA policies has been added as follows:

7.2 Grand River Conservation Authority Ontario Regulation 150/06

In 2006, the GRCA implemented Ontario Regulation 150/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourse. The Regulation identifies that; "Permission from the GRCA is required to develop in river or stream valleys, wetlands, shorelines or hazardous lands; alter a river, creek stream or watercourse; or interfere with a wetland."

The Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation outlines the policy objectives related the administration of Regulation 150/06 (GRCA 2009).

Current GRCA policies compliment the PPS regarding significant wetlands in Ontario, and to promote greater protection of all wetlands throughout the watershed, regardless of their status. In order to protect wetlands from development or alteration, the GRCA requires that an Environmental Impact Study (EIS) be undertaken in accordance with their EIS Guidelines and Submission Standards for Wetlands where development is proposed within 120m of PSW or 30m of non-PSW (GRCA 2005).

Within the context of the GRCA's Wetland Policy, an EIS is a process that addresses the potential impact of site-specific development on wetlands and supporting hydrological features such as watercourses and groundwater recharge areas (GRCA 2005). An EIS required by GRCA may be a comprehensive landscape scale study, a site-specific study, or a scoped study to address a particular issue. The study should present sufficient information on a proposed development, identify and assess anticipated or potential impacts on wetland features or functions resulting from that development, and specify measures that would avoid or mitigate those impacts (GRCA 2005).

Within the St. George study area, the GRCA regulates all wetlands, most of the watercourses, the floodplain and areas of steep slopes. Appropriate technical studies and/or assessments, site plans, and/or other plans are required to accompany any application for permission to undertake development, interference or alteration in Regulated Areas.

Habitat of Endangered and Threatened Species
18. Noted

Significant Wildlife Habitat
19. A screening exercise was conducted for the study area using the SWH Ecoregion 7E Criterion Schedule (MNR 2012) and is appended to this letter as well as being provided in Appendix XI of the report. Where field inventory information was available, screening of habitats against the criteria was based on vegetation community mapping and species observations recorded during field surveys conducted for this study, as well as data reported by Stantec (2009) and Ecoplans (2008). The screening resulted in 10 types of SWH being considered candidate within the study area, and 3 types confirmed including rare vegetation communities (FOD7-4), amphibian breeding habitat (wetland) and

habitat for Special Concern and Rare wildlife species (eastern wood peewee, western chorus frog, pignut hickory and pin oak). Note that the large meadow in the central portion of the study area is being farmed in 2013 and therefore is no longer SWH for open country breeding birds. SWH, where confirmed, has been mapped on Figure 6.

20. FOD7-4 has been confirmed in the study area and is shown as SWH in the analysis for Comment #19.
21. SWH identified by Stantec on lands adjacent to Activa property has been included in the Table and map.

Significant Wetlands

22. A section of text describing evaluation of the wetland has been inserted into Section 7.5 of the report as follows:

Wetlands in the study area have been reviewed against the 1993/2002/2012 OWES to determine their potential for significance. In order to be evaluated, wetlands should be over 2ha, although wetlands less than >2ha, but greater the 0.5ha may be considered if they provide a significant ecological function. Almost all wetlands in the study area are smaller than 2ha with several being less than 0.5ha. Many of the wetlands in the study area were mapped from aerial photography and were not investigated in the field. Where information was available, a determination was made as to whether small wetlands should be evaluated. Wetlands which had not been studied were included in the evaluation regardless of size.

In order to be considered a wetland complex, wetland polygons must be within the same watershed, except in rare circumstances, and wetland polygons must be within 750m of each other. All wetlands in the study area are within the Fairchild Creek subwatershed and so evaluating them as a complex is appropriate. Any wetland within 750m of a provincially significant wetland (PSW) should be considered for complexing with the PSW, and therefore also becomes significant. The unevaluated wetland in the study area which is closest to the Fairchild Creek PSW is separated by a distance of 743m from this feature (located west of Trillium Drive, between German School Road and the rail line). This unevaluated wetland is very small (0.3ha) and lacks significant ecological functions which would make it suitable for complexing. It is a common reed/reed canary grass marsh which was surveyed for amphibians (station ANR-005). It was found to provide habitat for spring peeper (call code 3), leopard frog (call code 2) and gray tree frog (call code 1), all of which are common species. It does not provide fish habitat and there are no natural habitats connecting it to the PSW polygon. Based on the lack of ecological function, its small size, the large distance and lack of connection to the PSW, it is not recommended to be included in the complex.

All other wetland polygons in the study area are beyond 750m from the existing evaluated PSW, but are within 750m of each other and it would be appropriate to consider them as a stand-alone complex. The total area of the wetlands as a stand-alone complex is 22ha. A full evaluation was not completed, but instead, the Special Features component of the evaluation was used to give an estimate of significance. The other components of the wetland evaluation method (Biological, Hydrological and Social) are quite dependent upon total size and habitat quality/diversity, therefore, the wetland complex was not anticipated to achieve a significant score under these components. Wetlands are considered significant if a total score of 600 or more points is achieved, or if a score of 200 or more points in either the Biological, Social, or Special Features component is achieved.

A table showing how the wetland complex scored using the Special Features component is appended to this report (Appendix XII). The wetland complex scored 168 points, making it non-significant. Significant and other wetlands are shown on Figure 2, 8 and 9.

23. See 22.

24. GRCA policies associated with wetlands which are smaller than 0.5ha have been referenced in the NHS text Section 7.5, as follows:
    Wetlands which are smaller than 0.5ha are still regulated by the GRCA under their consolidated policies (2009).

Significant Woodlands

25. Woodlands in the study area were assessed using the County of Brant definition of significance as well as criteria from the 2010 Natural Heritage Reference Manual such as size, ecological function, uncommon characteristics and economic and social values, where possible. The text in Section 7.5 has been updated and a new map prepared showing significant woodlands on Figure 7.
26. Figure 7 prepared for #25 indicates significant woodlands and includes treed wetlands. Significant wetlands have been mapped separately on Figure 2, but both are shown on Figure 8, Natural Heritage System.
27. This community was revisited to verify its ELC and was re-classified as FOD2-2 Dry-Fresh White Pine-Sugar Maple Mixed Forest. The community has an intact canopy for the most part, but each lot is largely mowed lawn (sometimes open, sometimes beneath canopy trees) resulting in approximately 60-70% canopy cover but with a very limited ground cover and understorey remaining as a narrow fringe between the lots. The entire community is subject to edge effects and lacks any interior habitat and will continue to degrade as mature trees die off and are not replaced through regeneration.
28. Figure 6, now Figure 7, has been updated accordingly.
29. The text in the final paragraph of this section has been edited and was intended to distinguish between significant woodlands which are part of the NHS and have policies associated with their protection, and non-significant woodlands which do not have policies for their protection, but users of the plan are asked to consider maintaining and enhancing these areas as good stewardship practices.

Significant Valleylands

30. General information on and criteria for identifying significant valleylands has been prepared based on the NHRM guidelines and has been included in the report in Section 7.5, as follows.
    The Ministry of Natural Resources provides guidance for identification and evaluation of significant valleylands in its Natural Heritage Reference Manual (NHRM) for Natural Heritage Policies of the Provincial Policy Statement 2005 (MNR 2010). Recommended criteria for identifying significant valleylands in the NHRM include the following;
    - *Landform-related function and attributes, such as,*
        - *surfacewater functions,*
        - *groundwater functions,*
        - *landform prominence, and*
        - *distinctive geomorphic landforms.*
    - *Ecological features such as,*
        - *degree of naturalness,*
        - *community and species diversity,*
        - *unique communities and species,*

- *habitat value, and*
- *linkage function.*

- *Restored ecological functions, based on restoration potential and value.*

Significant valleylands were identified in the study area at a coarse level based on review of topographic mapping, presence of watercourses, floodplain and erosion mapping as well as natural cover using the GRCA online mapping tool and ELC mapping. The significance of valleylands was assessed at a coarse level based on the above criteria and are shown on Figure 8. Significant valleylands were identified separately by Stantec on the Activa lands (Stantec 2009) and are included on Figure 8. Studies on the other Landowner group properties have identified valleys on their lands with top of bank as a constraint to development, through the EIS process. It is important to note that additional studies such as geotechnical and fluvial geomorphic may be required to identify further valleylands and assess their significance. Site specific studies to identify the limits of valleylands such as top of bank, will be required at a time when development is proposed.

Significant valleylands in the study area have been identified at a high level and are shown on Figure 8, but detailed identification of valleyland limits (ie. top of slope) and an assessment of their significance will be completed at the site specific stage of development. Significant valleylands on the landowner properties have been identified in the site specific EISs.

31. Specific technical studies to identify valleylands will be completed at the site specific stage on individual properties as they are proposed for development.
32. See 30.

Linkages

33. Linkages have been more formally assessed using guidance from the NHRM, OMNR SWHTG and the Region of Waterloo Greenlands Network Implementation Guidelines as described below, in Section 7.5 and are shown on Figure 6.

The following are general guidelines for determining linkages and have been taken from the OMNR Natural Heritage Reference Manual (2010), OMNR Significant Wildlife Habitat Technical Guide (2000) and the Region of Waterloo Greenlands Network Implementation Guidelines (2010). These guidelines have been applied within the study area to determine existing linkages and where enhancement or creation of linkages would be valuable.

- *The comprehensive species lists (including Species At Risk) in the NHS should be used to inform the required function and design of linkages,*
- *A network of large scale and small scale linkages should be provided,*
- *Linkages must connect two or more larger habitats,*
- *Linkages should be a minimum of 50-100m in width, but even narrow linkages (such as fencerows) are ecologically valuable,*
- *Longer linkages should be wider, distance to edge ratios should be minimized,*
- *Linkages should be as straight as possible,*
- *Linkage composition and configuration needs to take into account:*
  - *Habitat requirements of target species*
  - *Heterogeneity (providing vegetation diversity along the linkage)*
  - *Continuity (avoiding or minimizing gaps or constrictions in width);*
  - *Providing eco-passages at transportation corridors or other barriers;*

- *Providing a high degree of connectivity (multiple linkages) between habitats where possible;*
- *Shape; in order to maximize use by target species.*

Buffers

34. The NHS recommends general buffers in Section 7.5 for natural features which are in line with provincial and regional practices. The report recommends that these buffers be used as a preliminary approach and it is anticipated that buffers be further refined through site specific studies such as an EIS. During the EIS, those factors listed such as slope, soil type, hydrology, and wildlife dispersal patterns within adjacent areas, as well as the nature of the proposed undertaking should be considered in the determination of buffers. Buffers were not mapped in the NHS due to the scale of the mapping, making buffers indistinguishable.
35. The limits of natural features should be verified by the GRCA, the County of Brant and the MNR as required, at the site specific stage during the EIS.
36. Noted

Section 8.0 Implementation

37. As discussed above, the assessment of potential impacts will be completed on a site specific basis through an EIS.
38. This section (Section 8) has been revised to be consistent with the County of Brant Official Plan (2012) natural heritage policies which are found in Section 2.3 and 3.16 of the OP. Natural features identified in NRSIs report are categorized as either “Natural Heritage System” which precludes any development, or “Development Constraints” (as per the wording of the OP). Development may be permitted within and/or adjacent to natural features which are identified as development constraints, subject to the policies in Section 2.3, namely the preparation of an EIS showing no negative impacts on the natural feature or its ecological functions. Some clarification may be necessary within the OP as to Significant Wildlife Habitat; its level of protection based on its designation within the Natural Heritage System (see section 8.0).

39. It is hoped that the information provided in this letter, the updated report and the attachments is satisfactory to recommend the Natural Heritage System as defined in this report.

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