Comments on the Draft Land Suitability Analyses report for the Sandy Lake Study Area

By the Sandy Lake – Sackville River Regional Park Coalition Steering Committee

May 27, 2024

The draft Land Suitability Analyses Report was produced by the consulting company Stantec for Halifax Regional Municipality. Our expectation for this body of work, culminating in a final report, were:

1. The subject matter that would be examined would be at least what was described in the Request for Proposals (RFP) that Stantec was successful in bidding on (we never saw the contract with Stantec). We recognize that not all topics may be covered in the draft/interim report, however, we expect all topics would be covered in the final report.

2. Stantec would make use of all of the research materials and data about the Sandy Lake area forwarded to them by our Coalition and by HRM. In our meetings with the Stantec team, which included respected scientists, and we provided substantial scientific documentation, not all of which has been used in the draft report. This research has also been provided to HRM in the past, so we are surprised that the relevant evidence we provided to both Stantec and HRM was not used to inform the draft report.

3. Though Stantec was directed to evaluated aspects of land suitability within the Study Area provided by HRM, Stantec would use data and modelling that extended outside of the boundaries of the Study Area when needed in order to properly evaluate an aspect of land suitability, for example wildlife corridors (which would necessarily extend beyond the Study Area).

4. We impressed upon Stantec the fact that the quality of their work has far greater potential impact because the area under study stands to influence the future of the whole, remarkable Sandy Lake – Sackville River ecological unit, part of which is a beloved Regional Park. We were and are looking to the final Stantec Report to display awareness of the significance of this responsibility.

Below we provide our overall comments on the draft report, as well as detailed comments that pertain to specific pages and text in the report. Direct quotes from the report are in italics.

Overall Comments

The draft report is deficient in a number of ways. It has been stated that the draft report will not cover certain topics at this point, including a floodplain analysis. All topics to be covered were listed in the RFP for the Future Serviced Communities Background Studies, and we presume are also in the contract between Stantec and HRM. We anticipate that this work will be produced and shared before or within the final report. Some of the ways in which the draft report is currently lacking, but may be addressed in the final report, are:

1. The LSA does not deal with the entire Sandy Lake sub-watershed (see the RFP). This is the relevant scale to examine potential flooding, stormwater impacts, and water quality. It is vital to examine the potential for flooding in the proposed development area, as well as downstream in the Sackville River. Both are affected by current conditions in the sub-watershed. This level of analysis is also called for in the RFP.

2. The LSA does not describe potential impacts of development on Sandy Lake Regional Park, or on Sandy Lake. These are crucial to investigate to properly gauge potential impacts to these municipal assets.

3. We are aware that additional water and wetland information is expected in the final report. We therefore find it concerning and unacceptable that the draft report recommends buffers widths and location without the additional water and wetland information. Buffer recommendations would need to be based on the crucial water and wetland information about the area. No development should be allowed at the site until buffered based on site-specific information are ascertained.

4. A huge weakness in the draft report is regarding limnology of Sandy Lake. Please closely examine and consider the submission on this topic by Dr. David Patriquin. Specifically:

    i. The water quality data used in this report is very limited. Oxygen is not even there, and it is one of the most important lake water quality variables to examine.
    ii. The report shows data only after the HRM's Lakewatchers program started. There are multiple sources of data about lake water quality that occur before the program, including HRM's water quality sampling after the potential release of untreated water from the treatment plan on Farmer's Dairy Lane in summer 2023.
    iii. As we pointed out in our presentations to the Stantec team, while the 2014 AECOM study has some very good information, it has huge problems. Please see: http://tinyurl.com/ym72jtvc, and Dr. D. Patriquin's May 22, 2024 letter and submission to HRM's development team – attached.
    iv. An independent study by Casey Doucet which corroborates Dr. Patriquin's work is also not used in the draft report. Please see: https://dalspace.library.dal.ca/handle/10222/82119
    i. The draft report states the conclusion that, "The low chloride and TSS concentrations suggest that Sandy Lake is not significantly affected by urban runoff or erosion within the watershed." Even without any consideration of the AECOM 2014 Watershed Study and of the current apparently ongoing Stantec Watershed study, that statement is simply incorrect. Sandy lake is highly affected by runoff and erosion and groundwater influenced by settled areas, highways, and such. See all of the water testing and analyses that were provided to the Stantec team and inexplicably not included in this report. See Dr. Patriquin's submission, attached.

5. It is stunning to us that wild Atlantic Salmon are not listed as being in the Sandy Lake watershed currently. Thirty-five years of outstanding work by the Sackville Rivers Association are reflected in their return to Sandy Lake. Regarding this omission, Walter Regan, board member of the Sackville Rivers Associations says:

"Sandy Lake is the biggest subwatershed in the Sackville River system. Sandy Lake is a very important area for wild Atlantic Salmon in the Sackville River Watershed and must be protected. There is overwhelming evidence that salmon are back in Sandy Lake and its tributaries now. The Sackville Rivers Association have installed many salmon restoration installations in Peverills Brook to enhance salmon habitat to allow for both increased spawning and rearing habitats to support existing populations of Wild Atlantic Salmon and many other species of fish." – Walter N. Regan

> Also see http://versicolor.ca/sandylakebedford/waters/lakes/about-lake-fauna/about-the-fish/beaver/
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> Development in the sensitive tributaries that feed into Sandy Lake (and then the Sackville River) could reverse the progress made on bringing back the salmon. The omission of salmon and these facts in this report are a huge oversight.

Specific Comments

3.1 Overall Study Approach

Pg. 1 – What is "Land Suitability Analysis (January 2023)– Englobe - Sandy Lake Holdings Limited," and why was it used in this analysis? Was this LSA provided by HRM? This report should be available publicly if it is to be used in Stantec's land suitability analyses.

Pg. 1 – Why wasn't the report "*Avian and Species at Risk Surveys of the proposed Sandy Lake-Sackville River Regional Park*" by Natural Wonders Consulting Firm included in the draft report? The information in this report is very relevant to topics Stantec was meant to examine (i.e., Species at Risk, wildlife corridors).

Was the research about the Sandy Lake area completed by Dr. David Patriquin used in the research and analysis by Stantec. Dr. Patriquin's work include big tree mapping, old growth forest stand classification, water quality analysis, and more. This work is very relevant to Stantec's analyses.

Were the WESP studies completed by Ducks Unlimited Canada included as part of Stantec's research? All of these reports are available and were provided and should have been used.

Our Coalition is disappointed that the consultant didn't use or reference all the documents we gave them, especially the land suitability analysis for the Jack Lake Lands completed in 1986 by Canada Mortgage and Housing Corporation.

Pg. 1 – Why wasn't DNRR's Significant Habitat (SigHab) data base used? This database can include observations of moose and salmon, which are SAR known to occupy the Sandy Lake area.

Because only the west side of Sandy Lake was included in the Study Area we see nothing in the report about Marsh Lake. Marsh Lake is connected to Sandy Lake by Peverill's Brook, and what happens to Sandy Lake affects Marsh Lake. In 2021 Marsh Lake was recognized as s provincial Treasured Wetland for Nova Scotia. There is a wealth of information about Marsh Lake and it should have been at least described in the draft report.

Also, the lands south of Sandy Lake that are included in the SPA for development must be included

in the high-quality fact-finding because they stand to significantly impact the lake and system as well.

WETLAND HABITAT

Pg. 4 – The consultant identified 24 wetlands in study area, but only 13 were evaluated using WESP. All of the wetlands should be evaluated using WESP.

Pg. 4 – We challenge the assumption that small wetlands (not visited and not evaluated using WESP) may not be important. Small wetlands could score well on certain WESP variables, or be important to retain because of certain characteristics.

Pg. 4 - Were there any wetlands that the consultant felt were important to visit, but they had not obtained landowner access to visit these wetlands?

3.1.1 WETLAND HABITAT

Pg. 5 – Why was the focus on which wetlands may meet the WSS criteria, and not on wetlands under the Wetland Conservation Policy more broadly?

Pg. 5 – Why was existing WESP data for wetlands (e.g, by Ducks Unlimited Canada) in the study area not used?

Pg. 5 - The information gathered about Marsh Lake as a Treasured Wetland in 2021 is not included here, but should be.

3.1.3 LAND SUITABILITY ANALYSIS – WETLANDS

Pg. 7 – *"Wetlands were scored using the WESPAC results for ecological condition, wetland risk, the composite function score, and the WSS interpretation tool (Table 3.2). Taken together, this evaluation system provides a relative ranking of wetland values in terms of conservation and development potential."*

WESP-AC provides a relative score for a wetland compared to other wetlands in the Province. This province-wide comparison is sometimes not helpful in determining the local significance of a wetland, since a wetland's conservation value may be informed by the wetland's characteristics relative to local wetlands (e.g., a wetland may be considered of high conservation value if there are no other intact wetlands in the sub-watershed). A wetland's conservation value is also informed by the conservation goals of the organization or government enacting a conservation program that includes or is focused on wetlands. This is not mentioned in this section. It seems that conservation goals are not considered or are assumed.

Retaining urban wetlands, regardless of their WESP score, should be an assumed conservation goal, because of the exceptional importance of urban wetland functions. And because so many urban wetlands have been destroyed. Also because in this instance the welfare of natural assets of a valuable regional park are at stake.

Pg. 7 – The wetlands that weren't evaluated using WESP because they weren't visited in the field does not mean that those wetlands aren't important to include in the analysis.

Pg. 12 – The Thresholds for Wetland Function Scores – where do the thresholds come from? A reference should be provided.

Pg. 16 – *"…. specific wetland functions may need to be considered in more detail."*

What does this mean? Will this evaluation happen?

Pg. 16 – Also missing from this section is a reiteration that almost half of the identified wetlands were *not* visited in the field and weren't part of the WESP analysis or the LSA Suitability Rankings. These wetlands need to be evaluated too.

Pg. 17 – Figure 3.3 – Wetlands in the SLSA – Land Suitability Analysis

This Figure does not represent the findings of the Wetlands LSA. "Table 3.8 - Wetlands – Land Suitability Rankings" provides the Average LSA Score for the 13 wetlands that were evaluated. If Figure 3.3 is meant to map the Average LSA Score by category (red for 1 – Low suitability for development, and yellow for 2 – Moderate suitability for development), then all the intervening land should not be shown as green, which is labeled Land Suitability Score – 3 (High) in the map. All of these lands were not evaluated in the Wetlands Land Suitability Analysis, and this area does not draw upon Table 3.8 for the map. The land (which was not evaluated in the Wetland LSA) should instead be a neutral colour.

Watercourses and Water Quality

Pg. 18 – Only some desktop-identified watercourses were field- verified. What happened to the ones that were not visited in the field?

Pg. 18 – One of the sources of information about the potential locations of watercourses was the NTS. Which scale was used?

Pg. 18 – *"…the 2024 water quality sampling program"*

Did this work actually occur in 2023, not 2024?

Pg. 20 – Where is Dr. David Patriquin's work about the lake water quality?

Pg. 20 – Water quality sampling was done on watercourses within the Study Area. Several of these watercourses originate outside the Study Area. Sampling should have also been conducted upstream (i.e., outside the study area) in order to better understand the water quality of the watercourses that drain into Sandy Lake.

Fish and Fish Habitat

Pg. 22 – Wild Atlantic Salmon have been known to frequent Sandy Lake and Peverill's Brook – why is this not described here?

Pg. 22 – Sandy Lake is described as being used for sport fishing, and then several fish species are listed, not including Atlantic Salmon. Sport fishermen have seen Atlantic Salmon in Sandy Lake as recently as 2019, and DNRR Wildlife staff can confirm seeing salmon fry in 2022 where Sandy Lake exits into Peverill's Brook. Why is this data not included?

Pg. 22 – The potential for Fall Fish should be discussed.

Pg. 22 – The report relies on one source of data about the fish species found in the area in 2002. Other and more contemporary sources of information about fish should be included.

Pg. 22 – Why were no field studies conducted to check for fish species, including through electrofishing?

Pg. 22 – The report generalizes that connectivity is sufficient to provide fish passage in the drainage areas above Sandy Lake, but this has not been field-verified. For example, there are hanging culverts, which are not suitable for fish passage, where streams drain under Hammonds Plains Road into Sandy Lake.

Pg. 22 – The section discussing connectivity for fish does not discuss the needs of salmon and trout spawning areas, which are in streams.

Water Quality

Pg. 23 – Was any water quality sampling done in 2024, or planned to be done in 2024 (see previous comment, pg. 18)?

Pg. 23 – Historical Water Quality Data Sources does not include the water quality sampling work completed by Dr. David Patriquin and others. This data should not be omitted from the consultant's analysis.

Pg. 23 – There is additional data for HRM from 2023 regarding testing for bacteria after a suspected wastewater pumping station breach. This should be included.

Pg., 24 – Table 3.11 – The table provides the mean water quality. This is not a suitable calculation to draw conclusions from regarding lake water quality currently or for potential impacts on it in the future.

3.2.2 LAND SUITABILITY ANALYSIS – WATERCOURSES AND WATER QUALITY

Pg. 25 – *"Considering the ecological value associated with watercourses and their riparian habitats, values were assigned to the lands within the study area based on distance to the watercourse and termed 'ecological zones' (Table 3.12). Areas located within 30 m of a watercourse were considered to have low suitability for development. Areas between 30 m and 100 m from a watercourse were considered to have moderate suitability for development while areas greater than 100 m from a watercourse were considered to have higher suitability for development. These land suitability rankings are somewhat different from the rankings used by MEL (2022) who used 0 – 50 m, 50- 100 m and 100 + m as their categories."*

Pg. 26 - *"The objective was to provide suitable areas for development while retaining watercourse function and potential habitat quality for fish. The ecological zones were established based on watercourse setback and buffer of 30 m established in the Bedford Land Use By-Laws (Halifax Regional Municipality 2024). Wider buffers may be more effective at filtering contaminants, encouraging infiltration and providing diversity of habitat. However, the buffer width beyond the minimum standard must also consider the growing need for residential units and the limited land available within Halifax; therefore, the 30 m setbacks established in the Bedford Land Use By-Laws were considered an appropriate starting point for the land suitability process."*

The explanation for the width of the setbacks (30m, 100m) has no basis in riparian or watercourse ecology. The use of 30m should have been argued based on science, not other justifications. Please see Dr. Patriquin's submission for more on this topic.

The "ecological zones" widths were not based on science, yet the report uses them to "provide areas for development while retaining watercourse function and potential habitat quality for fish." There is no evidence presented that 30m or 100m setback protect watercourse function or habitat quality.

The section of the report that essentially claims to be striking a balance with the need for housing is not appropriate here as it has nothing to do with riparian or watercourse ecology. There is not limited land available in Halifax. The Sandy Lake lands are owned by developers and are being considered for development – this did not arise out of a process that identified the area as vital for development due to constraints on land availability elsewhere. It is concerning to see the report, which is expected to be unbiased, state "because of a need for residential…'

Pg. 26 – The report recognizes several factors that are not considered when a uniform setback is applied. The 30m setback is a minimum and further studies or rationale should be required to determine an appropriate setback width.

Additionally, any setback becomes ineffective and irrelevant is you have direct discharge of stormwater and road drainage into the watercourse.

Pg. 26 – *"… intrinsic value for residents"*

How is intrinsic value evaluated and classified? How is this brought into the analysis?

Pg. 6 and Figure 3.6 – Watercourse Land Suitability Analysis – Sandy Lake

This analysis is crude. It does nothing more than create various buffer distances around mapped watercourses.

Figure 3.6 – In the Legend, the layer that is shown is mislabeled (says "Wetland Land Suitability Scores").

3.3 Forest Habitat and Species at Risk

Pg. 28 – Why wasn't the NSDNRR Significant Habitat data layer used? This can indicate locations of exceptional importance for wildlife including SAR.

3.3.1 Forest Habitat

Pg. 28 – This section does not speak to NS DNRR's classification of Old Forests. It is possible to work with the DNRR scorecard for Old Forest stands, which has been done at various locations at Sandy Lake (see Dr. David Patriquin's work). For example, on the peninsula into the lake is an old growth White Pine stand – this is not conveyed in the report.

Pg. 41 – Figure 3.7 – Forest Groups – Sandy Lake

This map indicates where Forest Stand Estimated Age is above or below 30 years, and 80 years. Why were these age classes used? Where is the discussion of Old Growth Forests?

Why is the peninsula not properly classified with regards to age or FEC, and why is it not show as over 80 years?

We strongly recommend that the report states that stands over 80 years old are of high conversation value and should be protected.

There should be more field work completed to verify stand FG.

3.3.3 SPECIES AT RISK

Pg. 42 – Why were SAR and SOCC data from iNaturalist and eBird not used?

Pg. 43 – No observations of moose are discussed. Observations of moose may have been found if other data sources for SAR observation had been used.

Why was the observation of Blue Felt Lichen, a Species of Conservation Concern, not included?

Pg. 56 – Mentions that salmon have been seen in Sandy Lake but the report frames this as a historical observation. It is not – the latest sightings include 2020 and 2022 observations.

Pg. 61 – Figure 3.9 – The entire study area could have 1 or more listed SAR. More field work should be conducted before any construction or site prep takes place.

Pg. 62 – *"Therefore, the remnants of mature forest in the SLSA have become concentrated along the shores of these watercourses."*

There are multiple mature forests and old growth stands in the study area that are not along watercourses. These should be protected too.

Pg. 62 – The report states: *"The riparian habitats along the watercourses are protected by buffer zones within which no forest harvesting may occur."* This is not accurate. DNRR's Wildlife Habitat and Watercourse Protection regulation allow for forest harvesting with the 20m watercourse buffer. Also see Dr. Patriquin's submission, page 3.

3.3.4 LAND SUITABILITY ANALYSIS – FOREST HABITAT AND SPECIES AT RISK

Pg. 64 – 80+ year old stands should be protected. They also need to be ground-truthed because it could be old growth as per the DNRR definition This is partly supported by the statement: *"While late successional forests are assigned the lowest priority for development due to their limited occurrence on the landscape and the high potential to provide key habitat."*

Pg. 65 – SAR could be anywhere in study area. HRM should no allow development in SAR habitat or areas that could be SAR habitat. There should be more warning about this in the report, referring to the federal and provincial SAR legislation.

Pg. 65 – *"Rankings are meant to be indicative, and to lay the groundwork for future, site specific investigations to be conducted as planning proceeds. In particular, further field confirmation will be required (e.g., for wetlands) in areas not covered in this study."*

The need for more field work should have been more clearly emphasized in the wetland LSA section. Field work is also needed for examining SAR habitat potential location, and verifying old growth forest stands.

Pg. 66 – This maps conflicts with the SAR number map (pg. 61) because it seems to rate lands in green as High for development potential yet all of this area could have 1 or more SAR, and therefore is not yet evaluated for suitability.

Pg. 66 – Figure 3.10 – Forest Habitat and SAR Land Suitability Analysis – SLSA

The mapping seems to indicate that the peninsula into the lake could be suitable for development but it is not because it contains a genuine old growth White Pine stand.

This map should exclude the areas determined to be wetlands, since those are evaluated and mapped in a different Land Suitability Analysis.

3.4 Land Connectivity

Pg. 67 – This section describes wildlife corridors in 3 reports. These predicted wildlife corridors should be shown on a map.

Pg. 67 – *"Critical Corridor…"* Should be Essential Corridor, one of two types of corridors described in the HGNP.

Pg. 67 – *"Nova Scotia Crown Share Land Legacy Trust (NSCSLLT)"* corridor mapping charette corridors should be on the map. The report by Natural Wonders Consulting Firm, which includes identification of wildlife corridors, should also be included here.

Pg. 67 – *"The presence of a potential north/south corridor connecting the proposed Sandy Lake Park to the Blue Mountain Birch Cove Lakes Wilderness Area was also recognized in the Sandy Lake Ecological Features Assessment (MEL 2022)."*

Which corridor exactly is meant here?

Pg. 68 – *"balances the need…"*

Balances with what? This is not request in the RFP, this is not a task for Stantec to comment on.

Pg. 68 – *"HRM regulations require that wetlands situated along watercourses be buffered by 30 m."*

There is not currently an HRM-wide regulation requiring a watercourse buffer of 30m in new subdivisions. This is proposed in the draft Regional Plan (August 2023), and has been implemented already in some Development Agreements.

Pg. 68 – *"These buffered watercourses and wetlands will provide east/west wildlife corridors which would aid in the movement of both aquatic and upland organisms."*

This is not accurate. Organisms do move through riparian habitat but also need upland habitat, including sometimes away from water. A wetland or watercourse buffer is not the same as a wildlife corridor. East/west corridors need to be wider than 30m.

"In areas where the combined buffering of water courses and/or wetlands along these east/west corridors is insufficient to provide a 100 m wide corridor, additional buffering has been applied to make the corridor 100 m wide."

Again, some organisms are not going to be able to use the aquatic environment, so a 100m wide buffer that is over a watercourse is really a 50m buffer with a barrier in the middle for some organisms. A 100m buffer on each side of a watercourse is needed.

The buffer should be recommended to be in public ownership.

"To better facilitate the movement of wildlife north/south along the western shore of Sandy Lake to the buffered watercourses, it is recommended that the mature forest stands located along the western shore of the lake be incorporated into a second north/south corridor that would extend south from the outflow of Sandy Lake to the intersection of Hammonds Plains Road and Farmers Dairy Lane."

How wide would this corridor be?

This analysis did not use observations from iNaturalist for SAR, nor was it informed by input from Dr. Karen Beazley, who did attend the initial meeting with Stantec regarding information and resource people available to them. The report provided by Dr. Beazley is attached.

P.g. 85 – *"It is important to note that this is not an exhaustive analysis of all parameters that could influence whether or not a given location is amenable for development. It is also not possible to definitively declare which parameters are most important in determining whether an area is suitable for development. Therefore, each parameter used in the summary analysis is equally weighted and caution should be used when applying the combined analysis for planning purposes."*

It is important to note that not all parameters that could be considered have been examined by Stantec, by their own admission.

Appendices

Appendix D

The ARIA field work only looked at a small area on the south side of the lake. Field work did not examine other parts of the area, which contain areas of archaeological interest that have been identified in city maps, by the NS Museum, and other materials we provided to Stantec. Other areas not examined could contain petroglyphs, which have been found nearby in Bedford. The ARIA seems to fall very short on examining the area for connections to Mi'kmaq historic use of the area. At least the proponent should have used the Bedford First Nations archeological maps from the Museum "Areas of elevated archeological potential." See also map from Eisner Cove LiDAR work.