Somenos Marsh Wildlife Society Board Report
Referral for Zoning Amendment Bylaw 3761 (Motorsport Circuit)

Prepared by Elodie Roger, Program Manager
Prepared for Municipality of North Cowichan

Monday, September 30, 19

1. Who we are

The Somenos Marsh Wildlife Society (SMWS) is a non-profit organization that was created in 1989 to protect, restore and steward the S'amuna'|Somenos watershed and its biological, ecological and cultural values.

Over the past 30 years, the SMWS has developed a strong expertise in the field of water quality, riparian ecology and habitat restoration programs. Our dedication to providing grass-root conservation and restoration efforts led to:

- The designation of the S'amuna'|Somenos Conservation Area as a *globally significant Important Bird & Biodiversity Area (IBA)* for migratory avian communities since 2001

- The creation of one of the most extensive water quality data history for the S'amuna'|Somenos watershed

- The management and improvement of salmon habitat

- The preservation of habitats for several rare and endangered plant, animal and invertebrate species as identified by Madrone (2003)

Our overarching vision is to protect and restore cultural and wildlife corridors (also referred as "greenways") throughout the whole S'amuna'|Somenos watershed. This includes the mouth of the Cowichan River, Somenos Creek, Somenos Lake, Bings and Menzies Creeks, Richards and Averill Creeks. The SMWS is working towards the study and development of minimum regional standards for buffer zones around riparian areas that would help remediate habitat fragmentation, improve freshwater water quality and

hydrology, enhance and protect wildlife habitats, and connect traditional and modern wildlife corridors.

To achieve these objectives, the SMWS continuously develops its partnership with the Cowichan Tribes, regional scientists and experts, homeowners and local governments to protect, restore and support the long-term resilience and health of this culturally and biologically rich conservation area which is the S'amuna'|Somenos watershed.

2. Methodology used to respond to the MNC's referral request

Literature review

The SMWS is honored to be trusted as a referral agency for the rezoning amendment application contained in Bylaw No 3761. In order to respond to the best of our capacity to this referral request, our staff reviewed the literature forwarded with the referral request and consulted with experts within the short timeframe allocated. Also several reports produced by Dr. Dave Preikshot regarding water quality and water discharge levels in Bings and Menzies Creeks were used to address the ecological viability and concerns associated with the project proposal.

Site Visit

To supplement this information, a site visit was organized with the Vancouver Island Motorsport Circuit (VIMC) on September 17th, 2019. As shown on Figure 1, the four-hour site visit took place on parcel No. 009-751-297, and included the following five participants:

- Sarah BONAR, Registered Professional Biologist, Aquaparian Ltd.
- Chris ERB, SupErb Construction Ltd.
- Elodie ROGER, Program Manager, Somenos Marsh Wildlife Society
- Erik PIIKKILA, Forest and Watershed Ecologist
- Bruce COATES, BSc, Professional Geoscientist

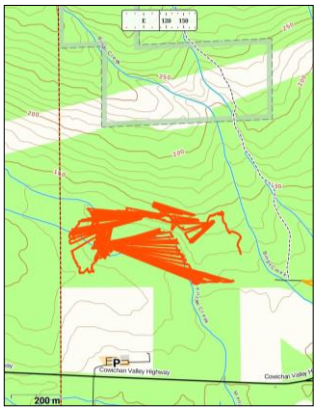

Figure 1: GPS tracks of the site visit with VIMC, Sept. 17th 2019 on lot # 0009-751-297

Participants followed the racetrack expansion contours and cut South through the ravine, then walked East along Menzies Creek. Participants also crossed the locations for proposed bridges ID #1, 2, 3, and 4 and ended the site visit with a walk along the Western Arm of Bings Creek.

The SMWS board expresses its gratitude to every participant who contributed their time and knowledge to this process.

3. General observations

The subject property is located in the upper arm of Menzies Creek and Bings Creek, two significant creeks that feed into the S'amuna'|Somenos watershed. Menzies Creek meets Bings Creek downstream of the subject property. Bings Creek then flows into Somenos Lake, which then drains into the Cowichan River.

The subject land supports a healthy 14-year-old third growth forest (seral vegetation) which were planted after a previous and more recent clearcut, and an extensive 40-year-old forest that was established after historical clearcutting and planting. 1.5% of its Riparian forest is protected under the Streamside Protection and Enhancement Area (SPEA).

The proposed rezoning and expansion plans for the racetrack will involved crossing Menzies Creek in four locations with bridges that have been designed with a approximate ratio of 4:1 (width to length) as a replacement for previously proposed culverts.

The S'amuna'|Somenos watershed includes a number of tributaries, wetlands, swamp, fens, basins and drainage areas. Wetland and riparian area degradation leads to a general decrease in the ecological functions and health of the watershed. In this referral letter, the SMWS staff brings to your attention the benefits and costs involved with the subject land proposal and will focus on the five primary functions of a riparian area that are at threat:

1. Hydrological functions
2. Water quality
3. Support of vegetation and soil functions
4. Habitat for wildlife
5. Additional areas of consideration will also be introduced at the end of this report.

The interconnectedness of the above ecological functions suggests that riparian area mitigation strategies should be considered on a watershed basis.

4. Comments and Observations

4.1. Hydrological functions

4.1.a. Background

Hydrological functions of a system include the topography especially depressions, and the physical movements and intensity of water discharge through the environment. Hydrology is often considered as the primary force influencing watershed development, structure, sustainability and ecological functions. Hydrological systems affect species habitat, population dynamics and water quality, and by extension the inflow and outflow of nutrients. Modifying the hydrology of a system also influences seed germination and species dispersal. A complete understanding of the hydrological organization of Menzies and Bings Creeks will provide a context within which it will be possible to evaluate the most effective riparian area restoration and mitigation strategies.

According to Preikshot (2019), water discharge levels in the Somenos Watershed are constantly decreasing and could lead to a zero discharge in Bings creek by 2040.

> *Historic data is from Water Survey of Canada gauge at Agira Rd. Mean discharge has declined from ~0.03 m^3/s to 0.01 m^3/s. Forecast model shows ±50% confidence interval, i.e., 25% of the years are below the lower white line. The model, therefore, suggests that by 2040 @25% of years will have zero discharge in August.*
> *(Preikshot 2019)*

One water reservoir is being built in the South-East Corner of the subject land. This reservoir will be designated for fire protection in the event of a forest fire. Our site visit clearly identified that the reservoir will not be used to improve water discharge over the summer nor will it contribute to improving wildlife habitats.

Seven storm water ponds will be constructed on the subject land. According to our study, none of these storm water ponds will be large enough to improve the hydrological function of Menzies Creek, which dries out from May to October.

Water quality improvement is achievable through wetland mitigation planning, and the proposed storm water management addresses storing water temporarily. However, further planning is needed to ensure that the ecological functions of Menzies Creek are improved and not impeded by construction processes.

We also recommend that existing wetlands that are at least 40 years old and may have been created as a result of logging road construction to harvest the area 40 years ago, should be protected and maintained. Post disturbance ecosystem recovery is well underway over the past 40 years, and these wetlands form intact parts of the current hydrologic organization that need to be retained. A large amount of hydrologic disruption

will occur if these wetlands and damaged, removed or destroyed during track construction. Ecological processes need and operate on timescales that are decades or centuries long. The area has 40 years of ecological recovery time banked. The 6 additional ponds will involve excavation and construction and will require 40 years to recovery to the point that the existing wetlands currently occupy.

4.1.b. Considerations

First order streams such as Bings and Menzies Creeks are very sensitive to surrounding anthropogenic disturbances. The design and location of storm water ponds must take into account the hydrological functions of Menzies and Bings creeks as they will play a major role in improving, sustaining or degrading the water quality in downstream tributaries. Therefore, the following costs and benefits of the proposed mitigation have been identified.

One major benefit associated with the presence of seven ponds is ability to increase water storage capacity during the wet season. With drier and longer summers, it is our responsibility to support our ecosystems in storing as much water as possible during the wet season. However, the current proposal gives no consideration to developing storm water ponds large enough to enhance water discharge levels throughout the dry season.

Based on information shared during the visit, it appears that moving forward with the construction of the racetrack and adjacent facilities is likely to increase sediment erosion.

What provisions are in place for capturing, retaining or intercepting sediment during all phases of construction (forest floor, overburden and soil removal, any drilling or rock blasting, preliminary grade construction and ditching, road base placement, paving operations, and bridge construction), and especially during regular winter rains, high rain and water events, 1 in 200 year events, weekday, weekend shutdowns, seasonal shutdowns, and longer term shutdowns, and especially high rain and water shutdowns?

Are operability thresholds and maximums for rain and water flows in place for high rain and water events that will require shutdown procedures and protocols to be activated?

Placement of Coarse Woody Debris (CWD) on the ground in disturbed and/or restored areas will act as water sponges and provide longer term water storage and release during summer droughts. Placement of Large Organic Debris (LOD) in streams will also provide longer term water storage and supply.

Both measures will slow down water on the landscape and provide a longer-term supply of water into the ecosystem, especially during the drought season, which now extends from April to November due to Climate Change and Global Warming.

4.1.c. Recommendation to the Municipality of North Cowichan

With the increasing frequency of hostile and dry summer months with unprecedented drought events, it is our responsibility to support the ecosystem's resilience by increasing its capacity to store healthy unpolluted surface and groundwater. While we encourage the development of water storage improvement strategies, the proposed plan currently focuses on temporary storage at the expense of other ecological functions of the impacted site.

For the watershed to benefit from the proposed rezoning and expansion project, baseline data must be collected to clearly identify the current hydrological system and how the latter could be improved to increase Menzies and Bings Creeks' discharge level, sediment retention, water storage, nutrient flow and capacity to filter adjacent pollution source points.

Careful consideration must be given to the storm-water ponds' capacity to trap sediment, phosphate and nitrates, moderate water temperature and discharge levels.

4.2. Water Quality in the Somenos Watershed

4.2.a. Background

Water quality is influenced by the hydrological organization of a riparian area. The mineral composition of soils, the vegetation coverage and adjacent environmental stresses influence soils' capacity to retain and improve water quality. In a report produced by Dr. Dave Preikshot, 2019, reactive metals and non-metal concentrations were measured in mg/L during summer 2018 in Menzies Creek (Curry Rd) and Bings Creek (Tansor Rd and Phil/Mary Rd). The data set also included eight stations on the Cowichan River (Preikshot, 2019). Findings are summarized in Table 1.

Of the Cowichan River, Bings Creek and Menzies Creek:

- **Menzies Creek displayed the highest concentration for 50%** of the soluble elements measured; including two metal concentrations known as exceeding Provincial Guidelines of water quality standards for fish habitat
- **Bings Creek displayed the highest concentration for 44.5%** of the water soluble elements measured; including two metal concentrations known to exceed Provincial Guidelines of water quality standards for fish habitat
- **94.5% of the highest concentrations** of the measured metal and non-metals were found in Menzies and Bings creeks (Table 1)

Menzies Creek	Bings Creek
▪ **Aluminum**: exceeding by far the Provincial guidelines for fish habitat ▪ **Manganese**: exceeding by far the Provincial guidelines for fish habitat ▪ **Chromium** ▪ **Cobalt** ▪ **Titanium** ▪ **Vanadium** ▪ **Sodium** ▪ **Barium** ▪ **Strontium**	▪ **Iron**: exceeding the Provincial guidelines for fish habitat ▪ **Arsenic** ▪ **Potassium** ▪ **Copper** ▪ **Silicon** ▪ **Sulfur** ▪ **Calcium** ▪ **Magnesium** ▪ **Manganese**: exceeding by far the Provincial guidelines for fish habitat

Table 1: Summary of the reactive metals and non-metals that appeared in excessively high concentrations in Menzies creek and Bings creek during summer 2018 (Preikshot, 2019)

Such metal concentrations pose serious threats to wildlife, as well as to surface and ground waters health. Several studies demonstrate how bio amplification and bioaccumulation processes of such metals affect the neurological, reproduction and dispersal functions of fish and wildlife.

The extent of this research (Preikshot, 2019) does not allow us to identify pollution-source. However, careful consideration must be given to the threats posed by pre-existing concentrations of metals when making the decision to move forward with a high-impact development project such as the one submitted here.

Wetland and riparian areas mitigation strategies have the capacity to improve water-quality and functions if they take into account all of the hydrological and biological functions of the place. Upstream riparian areas contribute to addressing hypoxia issues encountered downstream.

4.2.b Considerations

If the water-quality mitigation strategy adopted to restore the riparian area is located between pollution source and the creeks, then the riparian area function might be superior to the current state of the subject land.

Supportive documents do not currently provide sufficient baseline data about the water quality upstream of Menzies Creek and Bings Creek. In order to assess the potential success of the proposed water-quality improvement on the subject land, additional

baseline data must be collected about the quality and quantity of surface water and groundwater flowing through Menzies and Bings Creeks.

This baseline data is of foremost importance in order to monitor and assess the success or failure of the proposed expansion and rezoning plan, implementation of adaptive management strategies that support the hydrological health and functions of Bings and Menzies Creeks, and their downstream effects through the S'amuna'|Somenos watershed.

4.3. Animal diversity and dispersal, *Habitat connectivity and edge effect*

4.3.a Species biodiversity - Aquatic

The Somenos watershed is home to countless species, including migratory birds, mammals, fish and amphibians. Historically, Somenos Lakes and its tributaries supported one of the largest populations of Coho and Chinook salmon, attracting every year thousands of migratory birds. Today, the loss in water quality, successive droughts events and the spread of invasive species throughout the region has led to significant declines of those populations.

Since 2014, SMWS has been recording water temperature, dissolved oxygen levels, conductivity and pH in Somenos Lake. While the water quality of the lake has slightly improved over the past two years, hypoxia - the lack of dissolved oxygen in the water, measure at 2.1 as of Sept. 24th 2019 - represents a major threat to aquatic species. While Bings Creek and Menzies Creek still sustain small populations of salmonids, such as cutthroat and rainbow trout, but their numbers are in decline. It is the SMWS' goal to restore the health of traditional and current wildlife and fish corridors. There is evidence of cutthroat trout populations at the mouth of Menzies Creek on the subject property and peamouth chub (*Mylocheilus caurinus*) in Somenos Lake.

Aquatic life forms' habitat restoration has been considered in the development process. As the racetrack expands on the South slope of Mt Prevost, the track is forecasted to cross Menzies Creek in four locations. Bridges construction is forecasted to mitigate impact on fish corridors and will likely provide shade and spawning habitat for fish if undisturbed.

During our visit, we noticed the presence of wetlands and marshes adjacent to the creeks. Bridges provide greater chance for fish to hide and spawn if the winter water discharge allows them to travel upstream. Identifying a detailed impact mitigation plan during the construction phase of the bridges will aid in mitigating soil erosion and silt deposition in Menzies Creek.

4.3.b. Species biodiversity - Terrestrial

During our site-visit, there was numerous evidence of Menzies Creek's riparian area being used as a corridor by deer, Roosevelt elk, black bears, amphibians, avian and invertebrate species. Traditional Ecological Knowledge of the Cowichan Tribes also highlights the cultural significance of the subject property as a primary wildlife corridor for Roosevelt elk, deer and black bears.

The Menzies Creek Riparian Area is acting as refugee for ungulates in a gentle but somewhat deeper valley that is populated by 40 year old trees that are providing thermal and precipitation cover, deflecting winds, and providing protected locations for day and night beds. The proposed application for zoning amendment and racetrack extension would suppress 45ha of Roosevelt elk habitat.

The current proposal refers to fencing-off the entire subject property to mitigate wildlife collision risks around the racetrack. It was explicitly mentioned during the site visit that no consideration is given in this proposal to metapopulation dynamics for large mammals that are affected by the expansion of the racetrack and the fencing of the property.

4.3.c. Habitat connectivity: Considerations

The dispersal of plant and animal species is influenced by the connectivity between wetlands and other habitats. Many species require an upland-wetland matrix to thrive. Aquatic and semi-aquatic species therefore depend equally upon aquatic and surrounding terrestrial habitats and their connectivity.

The SMWS board agrees that building bridges that are approximately 4 times wider than their length across Menzies Creek will benefit better aquatic fauna than the previously announced culverts. Yet, several benefits and costs must be understood if moving forward with this proposal:

- The bridges allow aquatic species corridors to remain open for seasonal spawning and sheltering

- The width of the bridge will provide shade and shelter to aquatic and semi aquatic species

- The bridge construction will impact considerably the surrounding vegetation and wetlands, which can only be replaced if the ecological functions are improved

- The bridge mitigation does not address sediment build-up and fish habitat improvement through water discharge and chemical run-off mitigation into the creeks

While bridges offer a direct answer to creek and fish habitat preservation, they often offer little more and do not support the full range of ecological functions required to improve the health of Menzies and Bings Creeks.

Migratory corridors for culturally significant mammals such as deer, elks and black bears are not addressed in the proposed rezoning and expansion plan. Human-wildlife conflicts and encroachment are rising throughout the whole Cowichan Valley. Altering such corridors and disturbing habitat connectivity will result in profound conflicts (i.e. increasing habituation of bears, increased collision risks on Drinkwater road, Highway 18, Highway 1, and increasing economic loss for surrounding farmers amongst others).

Edge effects are characterized where two habitats or landscape level patches or types overlap such as:

- land-water or forest-grassland habitats or roads and urban development (often where urban areas intersect more natural areas)

- where changes have occurred on these habitats or patches, and the level to which they have maintained their naturalness, have been simplified or changed to a less ecologically complex condition or state

- and where the subsequent impacts on the habitat, landscape and connectivity, and the health and density of an animal population are often negative

A less fragmented landscape is healthier and more beneficial for wildlife. Roads, trails and anthropogenic development crossing Menzies Creek multiple times in this proposal will disturb habitat connectivity and lead to negative edge effects for terrestrial, avian and aquatic species. Negative edge effects will occur through reductions in forest and thus habitat patch size, create non-natural straight edges, and allow incursions of non natural hardscapes (road surfaces and bridges) which will extend into or cut through more natural forest and habitat patches. Landscape fragmentation is controlled by the type, intensity and extent of each disturbance. Landscape fragmentation is also about the level and method of change, and the length of time an ecosystem has been vastly simplified through the:

- reduction, removal, destruction, or degradation of structural elements (Biological Legacies) such as Large Live Trees, Large Dead Trees, and Downed Logs

- ecological processes such as water absorption, capture, filtration, and storage

- vegetation and tree species that are involved at the very least with water movement through an ecosystem (thick mats of moss and lichens in the forest canopy and on the forest floor slowing water down)

- reduction in patch sizes and increases in the number of patches all of which lead to more edge effects and landscape fragmentation

Also Edge Effects may extend at least 240 meters from a clearcut to the interior of a forest (Chen, Franklin and Spies 1990, 1992) which we suggest could be remnant/relict ecosystem or habitat patches or even patches of younger more recently established forest as is the case with the subject lands in the VIMC Rezoning Amendment Application. Kremsater and Bunnell (1999), also described that the range of edge effects extended from 0 to several hundred meters, microclimatic effects extended 1 to 3 tree heights, edge influences on the distributions of organisms or factors affecting organisms (such as predation and nest parasitism) were concentrated within 50 meters of an edge, and perhaps most interestingly for this letter the disturbance effects from road traffic extend even farther than the distances mentioned just above.

Successful monitoring of such effects requires strong understanding of the ecological balance of the subject land prior to any development.

The SNWS stresses the need for a complete study of the ecological impacts of landscape fragmentation, edge effects, noise pollution, corridor disturbance, and eliminating movement of some if not all species dependent avian, terrestrial and aquatic species. Ungulates movements will especially need to be studied because this plan and construction activities will result in their being completely fenced out and their movements completely restricted into and through this property. Ungulates have been using this site for at least the last 40 years and their migration, paths and patterns, and bedding areas may have been established over the past 10,000 years since the end of glaciation. The Menzies Creek Corridor is very well used and is full of elk sign in the form of abundant tracks and scat.

Other jurisdictions and watersheds with major wildlife corridor and roadways conflicts, kill zones and issues have resorted to maintaining wildlife corridors through the use of underpass or overpass structures that allow free movement of wildlife and reducing collisions with cars to almost zero. Great strides and advances in wildlife underpasses and overpasses have been pioneered and implemented in the National Parks such as Banff in the Canadian Rockies over the past 20+ years (Google Search 2019).

4.4. Vegetation and terrestrial diversity

4.4.a. Background

Impacts on the subject property will lead to the direct loss of 19.42 hectares of habitats, which include:

- 14.3ha of a 40-year-old forest, in other words 27% of the total surface area
- 4.12ha of a 14-year-old seral vegetation
- 3.84ha of riparian forest of which 1.5% is the Streamside Protection and Enhancement Area (SPEA)

Land clearing will result in the loss of 25% wildlife habitat. Mitigation plans suggest that successful restoration strategy could restore of 15.5% of the loss habitat.

Mitigation strategies include re-vegetating the outside buffer of the newly developed track with a 1.3ha of 2m grass strip, 2ha of landscaping and 10.7 ha of reforestation and 1.5ha of Bings creek riparian augmentation. The use of Flex MSE system to raise the new racetrack is also suggested as a re-vegetation strategy.

As trees age, and grow in size through diameter and height increases, the amount of wood required to cover and fill in the diameter, height and surface area of a tree also increase. Trees that are 40 years old are very young when compared to their total lifespan of 500, 800 or even 1000 years and growing very fast.

In fact, Douglas-fir forests will actually double their stand volume (m3/ha) between age 60 and age 100.

Wood that goes into building trees is actually carbon that has been captured as a part of photosynthesis where Carbon Dioxide is absorbed and processed and Oxygen is released. Carbon Stored as wood is known as Carbon Sequestration. Older and larger trees as they age provide long-term storage of carbon. Carbon also becomes part of the root systems throw growth. Carbon also goes into the soil from the roots and from leaf and branches dropping to the forest floor from trees.

Fungal networks that connect all trees and plants also share carbon with all plants connected by the fungal network.

4.4.b Consideration

SMWS appreciate efforts put in place to mitigate the loss in vegetation and terrestrial habitats. However, the overarching goal of habitat enhancement is to design mitigation systems that encompass and improve the full spectrum of ecological function of an ecosystem. In a climate where drought intensity and frequency accelerate every year, it is of prime importance to acknowledge the need for storing and releasing water slowly throughout the watershed; consider habitat loss of wildlife and ensure the design of self-maintaining systems.

Carbon sequestration capacity

The Menzies Creek Riparian Area and this entire forested hillside is on the verge of some impressive growth and carbon sequestration if the trees are allowed to mature and grow in size.

This forest could perhaps become a major Carbon Sink (long term ecological storage system) that will absorb some of the carbon output from both racetrack systems.

As these 40 year old trees mature, if some Ecological Thinning were scheduled, these trees and the forest could advance along the Old Growth Development Curve and provide even more benefits and ecological goods and services such as increased Carbon Sequestration.

The Municipality of North Cowichan is embarking on a project and some analysis of the Carbon Storage Potential and possible Carbon Credits in the Municipal Forests with UBC Forestry and the Coastal Douglas-fir Conservation Partnership (CDFCP). Findings from this analysis will also be applicable to the Menzies Creek Riparian Forest.

By advancing the forest towards Old Growth Conditions of cooler, shadier and more moisture, this forest could become a Fire Break where a ground fire will either stop or grow very slowly. Thinning will also reduce or remove ladder fuels (trees with canopies that reach from the ground into the tree tops) so a ground fire will not be able to climb into the tree tops and become an uncontrollable crown fire.

Water retention capacity

Logging practices and impact mitigation strategies on the subject land should therefore address ways to improve the subject land's ability to store water and be self-sufficient, by keeping wood debris on the forest floor and increase the riparian capacity to store water.

Control of invasive species

Forest and riparian areas restoration are susceptible to the spread of invasive species where habitat and soil are disturbed, canopy is removed and now open and where waters present eutrophic characteristics (which is the case for Menzies Creek).

Small gaps in the canopy cover will be created during the construction phase. Canopy disturbances combined with soil disturbances and the potential for species contamination with workers and machinery coming in and out of the site will increase risks of invasive species spreading. Further research and details are needed on what type of seeding mix will be used in the Flex MSE system to remediate vegetation loss along the new track as all risks of invasive species introduction must be mitigated.

We recommend a monitoring plan for Invasive Species and if Invasive Species are present, assess the hazard, and formulate an expeditious Removal Plan.

Overall, monitoring of native and invasive vegetation and community dynamics is necessary to measure the success of the low impact practices that are suggested in the proposal.

Most keystone and umbrella species are species that show maturity past the recommended 5 years of monitoring.

Natural filtration system

Constructed forest and riparian habitats are very susceptible to external influences such as anthropogenic development and pollution source. Most plant and tree species replanted will remain immature and non-resilient to natural and anthropogenic disturbances such as extreme weather events, pollution and irregular nutrient flow or contaminant exposure. In order to monitor the success of restoration practices, baseline data must be collected about the current state of vegetation communities and succession before construction begins so that assessments can be made and determine how well the fabricated landscape adapts overtime.

4.5. Additional considerations - Archaeological and Cultural Considerations

The SMWS would like to acknowledge that we live and exercise our activities on the unceded traditional territory of the Cowichan people. The SMWS prescribes that the Cowichan Tribes should be directly involved and consulted at every stage of the project. Inputs and guidance should be sought in order to acknowledge the traditional and cultural significance of the land and its people. Trained Cowichan Tribes archeological monitoring staff members should be present on site at all time when and where machinery will be operated.

5. Conclusions

The Somenos Marsh Wildlife Society appreciates greatly the opportunity to be consulted by the Municipality of North Cowichan regarding the Zoning Amendment Bylaw 3761 (Motorsport Circuit). In this referral letter, we have identified to the best of our knowledge and expertise the values and concerns related the ecological resilience and stability of the subject property and by extension the S'amuna'|Somenos watershed.

Based on our literature review and site visit, we appreciate the efforts the candidate went through to mitigate the concerns previously raised by the various environmental assessments.

However, we suggest that the current remediation strategies proposed in the Bylaw 376 are not encompassing all of the ecological and cultural functions of the subject land. We anticipate that the current project plan would negatively impact efforts to protect, restore and steward aquatic and riparian corridors used by fish, wildlife and plant species in the Somenos watershed, and will impede on the traditional significance of the area.

As a result, the Somenos Marsh Wildlife Society encourages North Cowichan decision makers to consider the following recommendations before exercising any final decision on this zoning amendment and expansion proposal:

- Require the collection of detailed and complete baseline data, information and analysis as the most important step forward in this process. Identifying data gaps and developing methodologies for the on-going monitoring of information related to the ecological functions of the Menzies Creek, Bings Creek and the S'amuna'|Somenos watershed are critical to measure the success or failure of the project and allow the adoption of adaptive land use management strategies

- Adopt precautionary principles when making decisions that affect the natural functions and anthropogenic uses of the land. Collecting the following baseline data would aid in designing land use strategies that will improve and not reduce the ecological functions of Menzies and Bings Creeks.

- Baseline data would include:

    i. **Water quality**, upstream, midstream and downstream of the subject lands on Menzies and Bings Creeks

    ii. **Water discharge levels** upstream and downstream of Menzies and Bings Creeks

    iii. **Baseline data for wildlife populations**, umbrella species such as salmonidae, avian life, bats and Roosevelt elk populations (including habitat corridors, population dynamics)

    iv. **Baseline data for toxic substances and particles** at risk to enter the food chain and hydrological system

In an era of the Climate Change emergency, fragile economy and increasing human-wildlife conflicts, it is imperative to invest into improving ecological functions that will help mitigating climate change, water and habitat loss.

We appreciate the opportunity to support decision-makers in their evaluation of the ecological and cultural risks and benefits associated to the proposed rezoning and expansion plan for the Vancouver Island Motorsport Circuit.

We hope that our contribution brings value to the process and look forward to the opportunity of assisting the Municipality of North Cowichan in future decisions pertaining to the stewardship and ecological integrity of this unique Valley we live in.

Should you have any additional questions or concerns, please contact our Program Manager, Elodie Roger.

Kind regards,

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