Michael W. Klemens
14 Red Mountain Road
Lakeville, CT 06039
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Mr. Larry Burcroff, Chair
Salisbury Inland and Wetlands and Watercourses Commission
27 Main Street
Salisbury, CT 06068

In RE: Salisbury Winter Sports Association #2024-IW-027

Dear Chair Burcroff and Members of the IWWC:

After attending your Commission's public hearing last night, I am offering my expertise to both your Commission, as well at the Salisbury Winter Sports Association. To date, I have been constrained on commenting on this project because if the excavation is to occur, it will need to come before Salisbury's Planning and Zoning Commission (PZC), which I chair, for a Special Permit. This afternoon I met with the Planning and Zoning Commission's attorney to discuss how I could become more substantively engaged in this matter as a private citizen. Therefore, for the record, I will be recusing myself from any Planning and Zoning Commission review of this application AND will not provide any testimony to the PZC if and when they will review the SWSA project. My comments are as a private citizen with expertise in the matter before you. In order to establish my credentials to provide testimony to your agency my CV has been submitted into the record.

The Salisbury Winter Sports Association is a well-respected and much beloved part of our community. Last night we heard testimony about the history of SWSA and the affection and high regard that many of our residents have for this organization. I share those sentiments, but recognize like the PZC, the IWWC regulates the use, not the user. Taken at its dispassionate face value, the Applicant is requesting permission to significantly alter and destroy a complex forested wetland. Your Commission has been very protective of Salisbury's wetlands. The proposal before you sets a regressive precedent for the Town. The scope (size) of the project is unlike anything that has been proposed in Salisbury since the regulation of inland wetlands, excluding pond creation and wetland modifications that are "as of right" under the Agricultural Exemption. Precedent matters. How can the IWWC approve this project, and subsequently deny others the equivalent (or even lesser) impacts to wetlands? Mr. Fain opined last night that the resolution (ostensibly for approval) could address the unique circumstances that would allow for this unprecedented amount of wetland disturbance, thereby insulating the IWWC from approving other applications for disturbance and filling of wetlands. I would recommend that you confer with your legal counsel to determine whether this is a viable (defensible) strategy.

Even should you choose to go down this pathway (approval), what has been submitted into the record does not enable you to evaluate the impacts of this application nor prudent and feasible alternatives to this application.

Wetland Functions and Analysis

A threshold consideration for the IWWC is whether you accept the concept of "wetland conversion", which implies that there will be no adverse impacts of the proposed action, as one will merely be trading off one wetland for another. This implies that all wetlands have equivalent functions and values. Forested wetlands are complex ecosystems. They are stratified into layers, each layer has its own unique functions and attributes. From the concentration of organic materials (colloquially termed muck) which supports an invertebrate community, the very base of the food chain, a diverse emergent herbaceous layer grows upward. Some of this herbaceous up-growth creates tussocks. These tussocks are teaming with life, including invertebrates and small vertebrates such as salamanders and shrews. For instance, the diminutive four-toed salamander has evolved to depend entirely on these tussocks for egg deposition and larval development. The next layer is woody growth, notably wetland shrubs. This layer is heavily used by songbirds and smaller mammals. Over time these shrubs produce wetland mounds (hummocks). These mounds serve as hibernacula for various reptiles and are used by a variety of small mammals including aquatic species such as the water shrew and star-nosed mole. These hummocks also serve as aestivation (summer dormancy) sites for various turtle species including both wood and spotted turtles. Finally, the trees form the forest canopy which is another layer. The trees (living and dead) are critical habitat for bats, birds, and arboreal tree frogs. Taken as a unit this multi-layered ecosystem provides a myriad of valuable services including carbon and pollution sequestration, flood water detention, maintenance of cool water temperatures, and as previously mentioned habitat for a wide variety of species, many which are wetland dependent.

Excavating a pond into this wetland habitat is a conversion, but a conversion that yields a much diminished and simplified wetland system lacking many of the functions and values that I have just described. The functions of a forested wetland are lost. Open water ponds are simplified systems providing habitat for a variety of animals, however many of these are species that are associated with disturbed habitats. While wood ducks and mergansers may use the pond, more likely inhabitants will be Canada geese. The diverse amphibian fauna will be replaced by bullfrogs, a predatory species associated with open water habitats that prey upon other small animals and quickly reach numbers that impact the biodiversity of the pond and even spill over into the surrounding wetlands. The pond will become a warm water habitat supporting certain fish species adapted to low oxygen warm aquatic environments. Deposition of geese feces will enrich the pond with nutrients and result in eutrophication. In my professional opinion, there is a large reduction in wetland function by the proposed conversion, whether or not it has a perimeter planting shelf.

***Phragmites* (Giant Reed)**

Much has been made of the *Phragmites* that has become established in a portion of the wetland. It's being used as a justification for digging out the wetland. The amount of wetland infested by *Phragmites* is inconsistent in the Applicant's various presentations. By the Applicant's own testimony the establishment of *Phragmites* is a direct result of ongoing land use practices, notably disturbance and fill.

Unlike *Hydrilla* or Japanese knotweed, *Phragmites* is not devoid of positive ecological functions (i.e., effective pollution sequestration) and habitat value. There is a growing body of literature that is promoting a more balanced view of the role of *Phragmites* in conservation and land management. The presence of *Phragmites* is not a compelling reason to destroy a wetland, especially as its presence is a result of ongoing land use practices of the Applicant. *Phragmites* can be managed and controlled to acceptable levels within wetlands systems. Commissioner Grace is correct that you need to know a lot more about which herbicides will be used in the wetlands, including the proposed pond, and how they will be applied.

Wood Turtles

Commissioner Spillane inquired about the State-listed wood turtles which are also a "candidate species" for listing under the federal Endangered Species Act. Fortunately the proposed action lies in Zone 3 of the wood turtle habitat. Management guidelines (embraced by DEEP) for the wood turtles focus on no disturbance in Zone 1 (the stream) and Zone 2 which is a 300 foot area **on each** side of the stream. Zone 3 is beyond Zone 2 and can extend up to 1,000 feet. Given the topography of the site, I would anticipate that wood turtle seasonal use extends to the toe of the steep slope. That includes the wetland proposed for excavation. That wetland could serve as habitat for wood turtles from late April through October. Wood turtles often spend summer months in or near cool shaded wetlands which provide cover, thermal protection, and food. Excavation of the wetland, should it occur, will need to be timed to avoid the incidental take (killing) of wood turtles in the process. Mr. Fain mentioned some of the other techniques that will need to be employed to protect wood turtles including exclusion fencing and monitoring of the exclusion fence during construction. As part of any review for a diversion permit, the DEEP's Natural Diversity Data Base will be consulted and will factor in the presence of wood turtles in their review. I have prepared a document in partnership with DEEP that describes the distribution of wood turtles within Salisbury and discusses how we can partner with DEEP in conserving this species through our land-use decision-making process. That document as well as other references mentioned can be provided by the Land Use Office.

Vernal Pool

A highly productive vernal pool was recently documented by the Conservation Commission just above the SWSA property line on land owned by the National Park Service. Not only did this pool have a significant biomass of amphibians, there was a large population of the State-listed Jefferson salamander in that pool. 95% of the amphibian population of a vernal pool lives within 750 feet of the pool (Calhoun and Klemens, 2002). I believe that Mr. Hackett will be mapping that pool and determining if the area of proposed secondary fill deposition will intrude on the 750-foot critical habitat zone of that vernal pool. Ideally, no fill should be placed in that 750-foot critical habitat zone.

Analysis of Alternatives

This is at the heart of any action (approval or denial) you may take. Simply stated, the data provided by the Applicant does not rise to the standard of a feasible and prudent alternatives analysis to base a decision upon. I agree with Mr. Fain's statement that "Cost may be considered, however, a mere

showing of expense will not necessarily mean an alternative is imprudent." This is especially relevant in Salisbury which has a long tradition of generously supporting our civic organizations. Given SWSA's standing in the community, public and private funds could be readily obtained.

SWSA has made the case that they need to increase the water holding capacity of their site in order to manufacture snow for once-a-year seasonal event of several days duration. SWSA is facing a variety of challenges most linked to climate change. These include warm winter temperatures and alternating patterns of heavy rainfall and drought, the latter which we are currently experiencing. That SWSA needs to secure additional water is well established, what is not well established is how that should occur. All-too-frequently project proponents become so invested in a particular outcome that they fail to adequately explore the full range of possibilities.

For example in discussing the "water tank", the wooden water tank from the Shady Rest (from the TV series Petticoat Junction) was shown. While I appreciate that this may have been done to interject some humor into Mr. Hackett's presentation, it also may reflect a lack of seriousness of the Applicant's thorough exploration of the water tank/cistern alternative. Mr. Fain discussed the maintenance challenges of mowing grass and trees beneath an elevated water tower. However, have they considered a tank (cistern) built on a foundation in the borrow pit they are planning to fill with wetland material? Have they considered having that tank full and when it's time to make snow draw from both the tank and the wells simultaneously?

Feasible and prudent alternatives are not statements that the wetland is degraded to the point that one should allow it to be excavated. And certainly a reduction in the size of a dug out pond may not be an appropriate alternative. If a dug pond is determined to be injurious an alternative of a smaller pond is not a true alternative. I have seen developers propose for instance a 15-lot subdivision, and then withdraw it and propose a 7-lot subdivision as a prudent and feasible alternative. But before one begins to discuss the value of a smaller alternative (7 versus 15 lots) one needs to ask the question of whether that site is appropriate for a subdivision at all? Likewise, you first need to determine if a dug pond is the only way to get the water storage needed by SWSA before you can discuss the merits of a big pond versus a small pond in terms of alternatives.

I hope that this analysis will prove useful to both the IWWC and SWSA.

Michael W. Klemens, PhD in Ecology and Conservation Biology