



Connecticut River Coastal Conservation District, Inc.

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MEMO

To: Christine Nelson, AICP, Old Saybrook Town Planner

From: Wendy Goodfriend, Natural Resource Specialist *wlg*

Date: December 2, 2004

Re: The Preserve – Preliminary Open Space Subdivision Plan – Review #2

This memorandum provides comments and recommendations from Richard Snarski, CPWS, Geoffrey L. Jacobson, PE, and me on the documents entitled “The Preserve, Response to Town Comments, Application for Special Exception Use, Planning Commission, Old Saybrook, CT” dated November 10, 2004 and “The Preserve, Response #2, Application for Special Exception Use, Planning Commission, Old Saybrook, CT” dated November 17, 2004 prepared for River Sound Development, LLC (RSD).

Specifically, this memorandum addresses the responses provided by the applicant to our October 27, 2004 joint review of the Preliminary Open Space Subdivision Plan.

Species of Special Concern (page 14-15 in 11/10/04 Response and Section III in 11/17/04 Response)

1. Based on a 11/28/04 field inspection by Rich Snarski of the area where Eastern box turtle was observed, we concur that the escarpment in the vicinity of proposed lots 3 and 5 and Road B is a vertical barrier impeding box turtle passage. Therefore, previous recommendations to extend the open space in the vicinity of lots 3-5 and Road B in this area can be disregarded.
2. **To ensure conservation of the two plant species of special concern, *Opuntia humifusa* and *Carex lupuliformis*, observed populations and individuals should be protected by inclusion in the publicly owned open space.** We maintain this recommendation because there is no law prohibiting private landowners or associations from removing or destroying these species if they so choose.
3. Clearing and disturbance of existing vegetation can alter the characteristics of the habitats where the plant species occur, and can detrimentally affect the population. Individual plant species are not always easily propagated, and **to best preserve species of special concern the naturally occurring habitat where they are found should be preserved to the greatest extent practical.**
4. On 11/25/04 Rich Snarski inspected Vernal Pool 17 and found several dozen *Carex lupuliformis* (False Hop Sedge) plants. This finding is in contrast with Michael Kleins assertion that *C. lupuliformis* was not found in Vernal Pool 17 after a number of inspections during 2003 and 2004. The specimens of *C. lupuliformis* from Vernal Pool 17 collected by R. Snarski were submitted to Ken Metzler, State Biologist, for confirmation. The observation was confirmed and the occurrence was added to the Natural Diversity Database. Nationally, *C. lupuliformis* is rare throughout its range. In New England, Connecticut is a stronghold for this species, yet there are only twenty known sites where this plant occurs. Since the applicant’s biologist did not find *C. lupuliformis* in Vernal Pool 17, an area with a previously confirmed observation, we question whether this species of special concern could exist in other vernal pools or wetlands on the property. **To best protect this species more thorough study of this species distribution on the subject property should be conducted under the supervision of the Commission’s consultants.**

Conflict with snake den (page 16 in 11/10/04 Response letter from RSD)

Snake dens provide shelter for winter hibernating snakes. Leading up to and after the winter hibernation season snakes will congregate near the den and will be found migrating to and from the den. While appropriate education can be beneficial to snakes and snake dens like the den found on the property, we do not believe education alone is an effective or realistic long term solution to conserving this snake den.

1. **A forested buffer around the snake den should be maintained** in order to protect the den location and to decrease the potential for conflicts between residents and snakes (e.g. in the vicinity of proposed lots 26 and 27).

Pequot Swamp (page 15 in 11/10/04 Response from RSD)

Retaining a 100-foot undisturbed, vegetated slope to the east of Pequot Swamp (wetland #19) is critical to preserving the water quality, hydrology, and ecological integrity of this large and unique wetland resource. Very steep slopes ranging from 30 to 50% are common within the 100 foot Upland Review Area on the east side of the swamp. Undisturbed vegetated buffers protect downgradient water resources from nonpoint source pollution such as sediments, nutrients, chemicals, and heat. The width of buffer required to protect resources varies with slope, soils, and vegetation characteristics. It is also important to consider the nature of the downgradient water resource. It is our opinion that Pequot Swamp is a large and unique wetland resource that should be conserved.

1. **All of Pequot Swamp and a 100 foot undisturbed vegetated buffer should be included in the publicly owned open space** to provide for the long term preservation and protection of this unique and large wetland resource.
2. While we concur that the suggested buffer on the west side of Pequot Swamp is extensive, the rationale for this buffer is to preserve intact, woodland habitat around the swamp. Although the applicant has stated that they will include many Best Development and Management Practices, we believe that these alone cannot protect the integrity of this large and unique water resource. Extensive development for residential and golf course uses is proposed on all sides of this wetland resource. It is our opinion that although golf course tees, greens, and fairways can in some cases enhance wildlife habitat for certain species, they are not commensurate with Pequot Swamp's natural habitat and will not preserve the exiting ecological integrity of swamp. **We believe that preserving a 400-600 foot wooded buffer on the west side of the swamp is advisable in order to provide intact natural habitat and help buffer the swamp from surrounding land uses.**

Vernal Pool 18 (page 15 in 11/10/04 Response from RSD)

Based on Michael Klemen's analysis Vernal Pool 18 is the most productive amphibian breeding pool on the property. As noted in the herpetological survey, 1,200 spotted salamander egg masses, a raft of wood frog egg masses so large that egg masses could not be counted, and marbled salamanders were observed in this pool. Vernal Pool 18 is not only the most productive vernal pool on the property it is the most productive vernal pool Rich Snarks has ever seen in fifteen (15) years of observing vernal pools.

Golf Hole #7 is proposed west of Vernal Pool 18, between the pool and the largest Red Maple swamp on property (wetland 18). Construction of Golf Hole #7 will require extensive clearing and earthwork (grading) up to 100 feet from Vernal Pool 18 to create the fairway, green, and tee. This activity will permanently destroy significant areas of upland habitat directly between the Vernal Pool 18 and the Red Maple Swamp. Wood frogs and spotted salamanders using vernal pools migrate between wetland resources such as this pool and flooded swamps. The proposed clearing will adversely impact the migratory routes and habitats used by the large number of amphibians breeding in Vernal Pool 18.

Preserving a natural connection of intact upland woodland between the vernal pool and the Red Maple Swamp is essential to the continued productivity and vitality of Vernal Pool 18.

1. There is a feasible and prudent alternative to proposed Golf Hole #7. Some of the estate lots at the southern end of Road E/G could be eliminated, allowing Golf Hole #6 to be shifted northerly and Golf Hole #7 to be relocated to the north of the Red Maple swamp. The grades in the southern portion of the estate lots appear to be no steeper than other areas used for fairways. Golf Hole #7 could be oriented east to west, with a walkway over the narrowest portion of the Red Maple Swamp to connect to Golf Hole #8 which would be reoriented further east-west and shortened in length.
2. We recommend that the **upland area between Vernal Pool 18 and south side of the Red Maple Swamp is included in the publicly owned open space.**

Preservation of Vernal Pool Envelopes (page 15 in 11/10/04 Response from RSD)

As noted in the herpetological survey, many of the thirty-one vernal pools identified on the property are ranked “Tier I” pools based on the methodology provided in Calhoun and Klemens (2002) *Best Development Practices, Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeast United States*. As noted in Calhoun and Klemens (2002), Tier I pools are exemplary pools and the Management Recommendations detailed in the *Best Development Practices* manual should be applied for the Vernal Pool Depression, Envelope, and Critical Terrestrial Habitat.

We concur that prioritizing vernal pools on the property relative to each other is a useful tool for developing a long term vernal pool conservation strategy. However, for some pools additional information on egg mass numbers is missing, and for pools with marbled salamanders, data on the relative abundance of larvae (e.g. few, common, many) would greatly inform the prioritization process. We also acknowledge that development of the property will necessarily impact some of the on-site wetland resources. It is our opinion, however, that based on the data provided and Rich Snarks’s first hand knowledge of the vernal pools on the property **almost all are of high enough quality to warrant protecting the 100-foot Vernal Pool Envelope as recommended in Calhoun and Klemens (2002)**. The exception is Vernal Pool 2, which had low numbers of egg masses and no marbled salamanders.

As noted in Calhoun and Klemens (2002), the integrity of the Vernal Pool Envelope is not only critical to maintaining the water quality and hydrology of the pool, it is also the staging area for emerging frog and salamander juveniles before they migrate into surrounding uplands. As such, the Vernal Pool Envelope provides critical shade, moisture, and food resources to ensure juvenile amphibian survival.

1. **No development, clearing or grading should be allowed within 100 feet of vernal pools**, except for Vernal Pool 2, which is recognized as a marginal, low quality pool.
2. **Clearing in and adjacent to vernal pools should not be allowed.** In particular, to construct the proposed golf course clearing, trimming, and removal of vegetation (including trees) will be required in and adjacent to Vernal Pools 3, 9, 12, 21, and 27.
3. A golf course maintenance building is proposed approximately 120 feet upgradient of Vernal Pool 20. **It is our opinion that even with Best Management Practices applied, this location for a building where chemicals will be stored and equipment maintained, including refueling and washing, is not prudent.** Based on the amount and type of activities conducted in and around golf course maintenance buildings chemicals have the potential to leave the site and contaminate downstream receiving areas, in this case, a vernal pool. Recent experience at a newly constructed high end golf course in Eastern Connecticut demonstrated that even with Best Management Practices in place contamination of downgradient areas can and will occur near maintenance facilities.

Preservation of Vernal Pool Critical Terrestrial Habitats (page 15 in 11/10/04 Response from RSD)

The 750-foot Critical Terrestrial Habitat provides upland habitat to support vernal pool breeding amphibians during the non-breeding season. Adequate partially shaded upland habitat with deep, moist, uncompacted litter and coarse woody debris is necessary to conserve vernal pool breeding amphibian populations. **Calhoun and Klemens (2002) recommend preservation of at least 75% of the Critical Terrestrial Habitat.** Twelve of the thirty-one vernal pools will have 75% or more of the Critical Terrestrial Habitat preserved (no residential or golf course disturbance) and six will have 70% preserved (see herpetological survey report by M. Klemens). These eighteen vernal pools include all twelve pools identified as “Conserved” in the herpetological survey report.

Based on the data provided in the herpetological survey, a number of the vernal pools identified as “Not Conserved” are of high enough quality to warrant applying the Management Recommendation of preserving 75% of the Critical Terrestrial Habitat. Specifically, these include:

1. **Vernal Pools 19 and 23** had high spotted salamander egg mass counts, 131 and 103 respectively.
2. **Vernal Pool 14** had relatively low spotted salamander egg masses (29) but relatively high wood frog counts (81), and all four vernal pool obligate species were present (spotted salamander, wood frogs, marbled salamander, and fairy shrimp).
3. Additional data is required to determine the relative quality of **Vernal Pools 26, 27, 30 and 31**. Due to a lack of information on egg mass numbers we are unable to recommend the appropriate level of conservation for these pools.

Vernal Pool Interconnectedness (page 16 in 11/10/04 Response from RSD)

It is our opinion that clearing, grading, and replacement of wooded habitat with golf course fairways does not provide sufficient continuity between vernal pools. **In particular, Vernal Pools 9, 10, and 11 (two of which were noted to be of relative high quality in the herpetological survey) are bisected by proposed Golf Course Hole 12.**

From personal experience and discussions with experienced herpetologists, we are unaware of scientific documentation demonstrating that migrating juvenile amphibians (metamorphs) are unimpeded by golf course fairways. Researchers from the University of Rhode Island are currently conducting a study of metamorph amphibian migration across fairways at two recently constructed 18-hole golf courses in Eastern Connecticut owned by the Mashantucket Pequot Tribe. This study will provide information on whether metamorphs will freely cross golf course fairways. However, without current, reasonable scientific evidence that metamorphs will freely cross fairways it is prudent to provide intact upland corridors to connect vernal pools on the property.

1. **Elimination or relocation of Golf Course Hole #12 should be considered** in order to conserve the upland/wetland complex that includes Vernal Pools 9, 10, and 11.