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June 8, 2021

Town of Newbury Conservation Commission
12 Kent Way, Suite 101
Byfield, MA 01922

Subject: Environmental Review of Proposed "Village at Cricket Lane" Newbury/Byfield, MA

Dear Commission Members:

On behalf of several neighbors and abutters[1], I have conducted an environmental review of the proposed 40B development titled "Village at Cricket Lane." My review is based upon plans by Ranger Engineering Group, Inc., including:

- ANRAD Plan, Byfield Estates, dated 01-05-19;
- The current Notice of Intent (NOI); and
- The 2021 "Village at Cricket Lane" plans by Ranger Engineering Group, Inc. submitted to the Conservation Commission.

Overview
The 2019 ANRAD plans identified wetland resources defined under the state Wetlands Protection Act (WPA), and included a vernal pool (VP), Bordering Vegetated Wetlands (BVW), an intermittent stream within the northerly BVW, and an area of Isolated Land Subject to Flooding (ILSF). The 2021 Village at Cricket Lane plans indicate the proposed residential development will include 24 homes and a cul-de-sac road approximately 900 feet in length that originates off Pearson Drive.

The ANRAD was submitted to the Conservation Commission on 05-13-19. An ORAD was subsequently issued by the Commission. Wetland resources on site are extensive and comprise roughly 50 percent of the land area. BVW lies both along the northern boundary and occupies most of the southern half of the site. The BVW is a wooded shrub-swamp.

There is a VP within a portion of the northerly BVW that has been certified by the state; the pool is listed by Natural Heritage (NHESP) and is shown on the MassDEP GIS data layer. The ANRAD plans include the VP edge at elevation 54.3. The pool is unusually large, extending offsite to the north and northeasterly through the site for more than 250-feet. Its extent offsite is unknown as the plans do not provide that information.

[1] Bart Bracken, 69 Pearson Drive; Melissa Goldner, 19 Pearson Drive; Peter Franggos, 41 Pearson Drive; Daniel Linden, 68 Pearson Drive; and Brad Smith, 6 Pearson Drive, all of Byfield, MA 01922.

The intermittent stream is noted on the ANRAD plans as existing within the northerly BVW. Its reference is by note only, and the stream is not graphically shown on the plans. Based on topography, the stream is presumed to flow southerly through said BVW and then continue offsite.

An area of ILSF lies along the midpoint of the southern property line (which is the rear property line for homes along Pearson Drive). Its edge is denoted on the ANRAD plans and lies at approximately elevation 55.0. The ILSF itself is bordered by BVW which roughly follows the edge of the ILSF.

Technical Comments

Regulations
Under the WPA, certain resource areas have a 100-foot buffer.[2] On this site they include

- the intermittent stream, and
- BVW.

The ILSF has no buffer zone, but it is surrounded by BVW which has a buffer. In addition, the certified VP has a vernal pool habitat zone that extends 100-feet beyond its outermost edge, to the extent it is also within a protected resource area.[3]

The proposed 40B development proposes extensive work within the 100-foot buffer to BVW, as well as within 30 feet of the certified VP. In addition, the proposed work includes a road crossing over BVW and wetland replication to mitigate the loss of wetlands.

Impacts to Resource Areas
Wetland resources on site that are potentially affected by the proposed 40B development include BVW, ILSF, the stream and the VP. I discuss each of those below.

Of consequence, the area of ILSF has been identified as a potential second VP. Far more than the minimum number of egg masses required for certification were observed in the spring of 2021 and documented (obligate species found included Wood frogs and Spotted salamanders). An application for certification of this second pool was filed with NHESP at the end of March this year by a resident of Pearson Drive. Given the robustness of species and the physical characteristics of the pool, I

2. WPA: 310 CMR 10.04, "Buffer Zone means that area of land extending 100 feet horizontally outward from the boundary of any area specified in 310 CMR 10.02(1)(a)."

3. WPA: 310 CMR 10.04, "Vernal Pool Habitat means confined basin depressions which, at least in most years, hold water for a minimum of two continuous months during the spring and/or summer, and which are free of adult fish populations, as well as the area within 100 feet of the mean annual boundaries of such depressions, to the extent that such habitat is within an Area Subject to Protection under M.G.L. c. 131, § 40 as specified in 310 CMR 10.02(1). These areas are essential breeding habitat, and provide other extremely important wildlife habitat functions during non breeding season as well, for a variety of amphibian species such as wood frog (Rana sylvatica) and the spotted salamander (Ambystoma macultum), and are important habitat for other wildlife species."

will assume for the purposes of this report that certification is forthcoming.

BVW

As noted above, BVW has a 100-foot buffer. The 40B development proposes extensive work within the buffer zone. The proposed work should be reviewed to ensure that it does not directly impact the adjacent BVW resource area. As stated in a 2016 Office of Appeals and Dispute Resolution (OADR) decision, In the Matter of Bosworth (Dighton, Mass.):

> Work in the buffer zone of a bordering vegetated wetland that will alter the wetland, including any vernal pool habitat within the wetland, is subject to regulation.... Projects that have an adverse impact on wetland vernal pool habitat have been denied wetlands permits.... **As a consequence, work in the Buffer Zone to BVW may not impair the capacity of the vernal pool habitat to function as wildlife habitat**.

Matter of Bosworth, OADR Docket No. WET-2015-015, Recommended Final Decision (February 17, 2016) (emphasis added). The Commission should ensure that the proposed project does not impair the BVW, including the capacity of the vernal pool habitat to function as wildlife habitat.

In addition, the proposed road crosses portions of the BVW, creating a wetland loss. The WPA allows for up to 5,000 sq. ft. of loss if the wetland is replicated in like-kind. Based on the plan notes, there is both proposed fill, historic fill and temporary fill. Quantities follow.

- 1,564 s.f. -- "historic fill"
- 1,730 s.f. – "proposed fill" for the road crossing
- 495 s.f. "temporary fill" associated with road construction
- 350 s.f. "temporary fill" associated with wetland replication

Total "temporary" fill equals 845 s.f. Between "historic fill" and fill due to proposed road construction, another 3,294 s.f. will lost. The total from both temporary and permanent fill equals 4,139 s.f., a quantity under the 5,000 s.f. normally allowed under the WPA.

The plans indicate that replication is proposed to compensate for the loss. The location of the replication lies along the northerly property line (and across the northerly BVW). Total proposed replication equals 5,660 s.f., which is 1,521 s.f. more than the total lost.

That said, in my decades of designing and reviewing wetland projects, I have never seen a designer propose to ***cross*** a wetland to create wetlands, thereby destroying further wetlands (350 s.f. in this case).

This is extremely poor practice and should not be permitted by the Commission. Every designer's goal regarding wetland protection is to *avoid* all possible impacts. If there were no alternate areas available to otherwise replicate lost wetlands, an argument could be made to justify this design. That is not the case here, as this site has abundant uplands available elsewhere for wetland replication.

ILSF

The Isolated Land Subject to Flooding has been shown on the ANRAD plans and falls within BVW. The 40B plan indicates no direct impacts. However, I note that an ILSF associated with a VP is "significant to the protection of wildlife habitat,"[4] which is the case on this site (see discussion below).

VP

Both the certified VP and the second pool that is now under review for certification have associated wildlife habitat that extends 100 feet from the pool edge, to the extent that it is also within a protected resource area. In addition, as noted directly above, the second VP lies within an ILSF.

Vernal pool habitat areas[5] are critical, but the scientific community is in concurrence that this regulatory zone is inadequate to maintain the necessary upland areas used by the obligate species found in vernal pools. For instance, wood frogs roam up to 800 feet from a VP during their seasonal activity. Spotted salamanders roam more than 1200 feet.

Therefore, to provide minimum protection to VPs, project designs must preserve wildlife habitat. 310 CMR 10.60(1)(a) Wildlife Habitat Evaluations states in part, that:

> To the extent that a proposed project on inland Banks, Land under Water, Riverfront Area, or Land Subject to Flooding will alter vernal pool habitat or will alter other wildlife habitat beyond the thresholds permitted under 310 CMR 10.54(4)(a)5., 10.56(4)(a)4., 10.57(4)(a)3. and 10.58(4)(d)1., such alterations may be permitted only if they will have no adverse effects on wildlife habitat. Adverse effects on wildlife habitat mean the alteration of any habitat characteristic listed in 310 CMR 10.60(2), insofar as such alteration will, following two growing seasons of project completion and thereafter (or, if a project would eliminate trees, upon the maturity of replanted saplings) substantially reduce its capacity to provide the important wildlife habitat functions listed in 310 CMR 10.60(2)....

In this case, the designer proposes multiple impacts as close as 30 feet to the VP edge. These impacts occur around the perimeter of both VPs, and include clearing, grading (including extensive fill), and construction of permanent structures. For instance, near the certified VP:

- Building 21 lies approximately 45 feet from the VP edge.
- Building 22 lies approximately 80 feet from the VP edge.
- A retaining wall is proposed behind Build 21 and 22 lying approximately 30 to

4. WPA: 310 CMR 10.57(1)(b)1. "Isolated Land Subject to Flooding is an isolated depression or a closed basin which serves as a ponding area for run-off or high ground water which has risen above the ground surface. Such areas are likely to be locally significant to flood control and storm damage prevention. In addition, where such areas are underlain by pervious material they are likely to be significant to public or private water supply and to ground water supply. Where such areas are underlain by pervious material covered by a mat of organic peat and muck, they are also likely to be significant to the prevention of pollution. *Finally, where such areas are vernal pool habitat, they are significant to the protection of wildlife habitat*." [Emphasis added].

5. WPA: 310 CMR 10.57(2)(b)5. "The boundary of vernal pool habitat is that certified by the Massachusetts Division of Fisheries and Wildlife … Vernal pool habitat shall include the area within 100 feet of the boundary of the vernal pool itself, insofar as such area is contained within the boundaries of this resource area."; 310 CMR 10.57(2)(a)6.

45 feet from the VP edge.
- Decks associated with these same buildings are within the 100 foot buffer.
- Roof drains for the same buildings discharge into the VP.
- Grading intended to support a large septic system intrudes into the 100-foot buffer and lies within 35 to 90 feet of the VP edge along a distance of more than 175 feet, representing another significant habitat alteration.

Impacts in the vicinity of the second VP are more egregious. For instance,

- Buildings 2, 3 and 5 through 10 all lie within 100-foot buffer.
- Grading alterations behind these same buildings extend *down to the edge of the BVW* that surrounds the VP, and essentially eliminate all natural habitat for a distance around the VP edge of more than 350 feet.
- The driveways for Buildings 2 and 9 lie within the 100 foot zone.
- Decks associated with these same buildings are within the 100 foot buffer.
- Roof drains for the same buildings discharge into the VP.

In sum, the proposed design would *significantly* impact the fragile habitat for both VPs.

VP Water Budget

The plans provide no analysis of pre- and post-development changes to the hydroperiod of either VP, otherwise known as the "water budget" of the VP. Such analysis examines surface and groundwater inputs into a VP and measures whether change occurs post-development.

An OADR adjudicatory decision, In the Matter of Bosworth (Dighton, Mass.), determined that significant impacts to the existing water budget of VPs was sufficient cause to deny a 40B development. The Bosworth decision stated that:

> It is well known that vernal pool habitat is particularly susceptible to impacts from certain work in the buffer zone because of the habitat's relative fragility. Vernal pool habitat is sensitive to changes in water, light, and chemical influences. **Generally, in order for vernal pool habitat to continue to function and co-exist with nearby development its water budget must be sustained post-development.** If surface runoff is redirected or groundwater recharge in proximity to the vernal pool is reduced by impervious surfaces, then the vernal pool water budget could be adversely impacted, potentially resulting in adverse impacts to the vernal pool habitat. Land use changes, such as clearing, increases in impervious surfaces, and changes in the watershed can increase or decrease water runoff, which could alter the amount of water received by a vernal pool, destroying the water budget that is necessary to sustain the habitat of that pool. Vernal pools with a significantly disturbed watershed generally have a higher pH, more mineral substrate, and more algae, which negatively impacts the habitat.... **This susceptibility to changes in light, chemicals, or water is why in similar cases project applicants have performed detailed assessments to determine how work in the buffer zone will impact the vernal pool habitat, particularly its water budget.**

Matter of Bosworth, OADR Docket No. WET-2015-015, Recommended Final Decision (February 17, 2016) adopted by Final Decision (March 14, 2016) (emphasis added, internal citations omitted); see also Matter of Scott Nielsen and The Levi-Nielsen Company, Inc. (April 12, 2010) (improperly-designed stormwater system that

deprives a vernal pool of its water budget would fail to meet the Act's performance standard for BVW under 310 CMR 10.55(4)).

If impacts to a pool's hydroperiod are pronounced, the pool's ability to sustain sufficient water during the breeding season of obligate species may decrease (or increase) enough to impact biological functions.

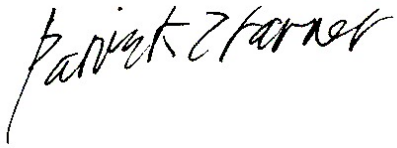
A water budget measuring potential impacts has not been included with the NOI. Given that alterations to subcatchment areas are extensive — and that multiple roof drains discharge into both VPs — the Commission should require a robust water budget analysis to ensure the water budget of the VPs would be sustained post-development. The water budget should be peer reviewed, as well.

Summary
The NOI is deficient.

- The location of the proposed wetland replication is inappropriate, as constructing it requires further impacts to BVW. The location should be moved.
- The intermittent stream is not shown on the plans. Potential impacts to it from both stormwater and septic leachate cannot be determined based on current plans.
- Siting of buildings, grading, retaining walls, decks and driveways is extensive throughout the 100-foot buffer zone for both VPs; and
- The failure to include a water budget for the VPs leaves the Commission unable to evaluate probable impacts.

My professional opinion is that the plan, as submitted to the Commission, cannot be permitted under the requirements of the WPA.

Very truly yours,



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