

SOUTH RIVER ENVIRONMENTAL

61 Meetinghouse Lane, Marshfield, MA 02050 Phone: 978-697-0854

June 26, 2018

Town of Hingham
Zoning Board of Appeals
210 Central Street
Hingham, MA 02043

Re: Supplemental Report – Potential Vernal Pool
River Stone Development
Off Ward Street & Viking Way

Dear Board Members:

Per the request of the Town of Hingham Zoning Board of Appeals (ZBA), South River Environmental (SRE) has reviewed the June 12, 2018 submittal by Environmental Consulting & Restoration, LLC (ECR) on behalf of the applicant with respect to the potential vernal pool (PVP) located within the bordering vegetated wetland (BVW) located within the property. The letter, addressed to the Massachusetts Natural Heritage and Endangered Species Program (NHESP), details the results of field reviews of the PVP and concludes that, based on the physical and biological characteristics, the area does not meet the requirements for certification under the NHESP's *Guidelines for Certification of Vernal Pool Habitat* (2009). SRE respectfully disagrees with this determination.

Biological Criteria

During the April 5, 2018 field investigation of the PVP, the presence of adult fairy shrimp (*Eubranchipus* sp.) was documented (Please refer to April 9, 2018 letter from SRE to ZBA). In addition, a subsequent field review conducted by ECR on May 14, 2018 also documented the presence of fairy shrimp; however no photographic documentation of this was provided within the June 12, 2018 letter to NHESP. Fairy shrimp eggs hatch in late winter to early spring, and all stages of the life cycle from egg hatching, to numerous molts of immature instars, to adult reproduction and finally female egg laying can occur in as few as 16 days (Peckarsky 1990). Therefore, the biological criteria for certification under the *Guidelines* has been met.

Peckarsky, B.L et al. 1990. Freshwater Macroinvertebrates of the Northeastern North America. Cornell University Press

Physical Criteria

ECR states that the physical criteria is not met for the PVP because it was not documented to hold water for a minimum of two months based on ECR's observations of the area which began on April 5, 2018 and ended on May 31, 2018. SRE began its field review of the project and the BVW on February 16, 2018 and documented the presence of standing water in the PVP. ECR's precipitation data that was presented in the letter to NHESP documented above-average volume for the period between January and May 2018. Based on this information, SRE makes the reasonable assumption that the PVP held standing water for a minimum of four months between February and May 2018. This hydro-period would be more than sufficient for fairy shrimp to complete their life cycle. Therefore, the physical criteria for certification under the *Guidelines* have also been met.

Consultation with MA NHESP

On June 26, 2018, SRE conducted informal consultation with NHESP staff with respect to interpretation of the *Guidelines* based on ECR's letter. Email correspondence with Mr. David Paulson (attached) confirms that the *Guidelines* do not have a specific requirement for a PVP to hold water for two or more months during the breeding season but do need to have a sufficient hydro-period for the obligate breeding species to complete their reproductive cycle. He also states that, given the information provided, the PVP appears to meet the requirements for certification under the *Guidelines*.

Recommendations

Based on the information collected during the field review of the bordering vegetated wetland, South River Environmental has updated the recommendations provided previously within the letter dated April 9, 2018:

- The applicant should delineate the limits of the vernal pool habitat within the bordering vegetated wetland and depict the limits on the site plans; **No changes.**
- The applicant or applicant's representative should conduct additional field investigations in April and May 2018 to determine the presence or absence of obligate vernal pool breeding amphibians within the pool and provide documentation to the ZBA regarding the findings. If obligate vernal pool breeding amphibians are present, the associated upland dispersal habitat within the buffer zone to the vernal pool will likely be significant to the protection of the wildlife habitat interest associated with the vernal pool resource area. Fairy shrimp do not immigrate to or emigrate from the vernal pool and do not typically depend upon the upland habitat within the 100-foot buffer zone; **The applicant has conducted the requested field investigations during the 2018 breeding season and documented that no obligate vernal pool breeding amphibians were observed within the PVP.**
- The applicant should provide a narrative discussion regarding as to how the vernal pool habitat will be protected against adverse impacts associated with the proposed Project including the removal of buffer zone vegetation, modifications to hydrologic regime of the vernal pool and best management practices to be implemented during construction; **No changes.**
- The applicant should provide a list of specific waiver requests, if applicable, from the vernal pool performance standards within the HWR. **No changes.**

SRE appreciates the opportunity to provide this information. Should you have any questions regarding this report, please do not hesitate to contact me at 978-697-0854 or via email at southriverenvironmental@gmail.com.

Sincerely,
South River Environmental



John Zimmer
Wetland Scientist

Attachment

J Zimmer <southriverenvironmental@gmail.com>

Jun 26, 2018, 8:50 AM



to Jesse ▾

Hey Jesse - looks like Jake's out this week. Anyone else I can chat with about this? Quick summary - confined basin depression with fairy shrimp. Project proponent is stating that the area does not hold water for 2+ months so does not meet certification requirements. My read of the cert. guidelines is that it just needs evidence of obligate species, be a confined basin depression that holds water and become dry during the summer. Didn't see where it specifies 2+ months with water. If it has an adult pop. of fairy shrimp, it holds water for a sufficient amount of time to provide breeding habitat. Any thoughts or direction would be appreciated. Thanks.

John



Paulson, David (FWE) <david.paulson@state.ma.us>

Jun 26, 2018, 9:31 AM



to Jacob, Jesse, me ▾

John,

Thanks for reaching out. Jake is away from the office, however, your read of the certification process appears to be accurate. Based on the information:

- 1) Physical: [A defined depression with no inlets or outlets that seasonally dries](#)
- 2) Photo or Video documentation: the [presence of fairy shrimp](#), in this case in the adult stage of their life cycle.

Given these facts, sounds like a certifiable pool. In theory, 2.5 months is enough time to meet the life history needs for this species.

<https://www.mass.gov/files/documents/2017/01/uw/vpcert.pdf>

All the best,

Dave

From: Leddick, Jesse (FWE)

Sent: Tuesday, June 26, 2018 8:52 AM

To: Paulson, David (FWE)

Subject: FW: Vernal Pool Contact

Dave – Can you look at this quickly and see if you can address John's questions?

... Jes

From: J Zimmer [mailto:southriverenvironmental@gmail.com]

Sent: Tuesday, June 26, 2018 8:50 AM

To: Leddick, Jesse (FWE)

Subject: Re: Vernal Pool Contact



J Zimmer <southriverenvironmental@gmail.com>

Jun 26, 2018, 9:37 AM



to david.paulson, Jacob, Jesse ▾

Thanks very much Dave. Appreciate the quick response. Just to confirm, a depression does not need to hold water for 2+ months to be able to be certified. It just needs to hold water long enough for the particular species to complete its breeding cycle (in this case fairy shrimp).

John



Paulson, David (FWE) <david.paulson@state.ma.us>

Jun 26, 2018, 9:49 AM





to me, Jesse, Jacob ▾

In the case of an obligate species:

Obligate Species (ex. Fairy Shrimp): vertebrate and invertebrate species that require vernal pools for all or a portion of their life cycle and are unable to successfully complete their life cycle without vernal pools.

Obligate species serve as direct indicators of vernal pool habitat because they require at least two months of flooded conditions and the absence of established, reproducing fish populations. When breeding evidence of obligate species is documented, it is not necessary to prove there is no established fish population.

By this understanding, the presence of fairy shrimp and the physical conditions described, would indicate a hydro-period that supports a portion or all of this species life cycle (which is needed for certifying a vernal pool with obligate species).

All the best,

Dave