

# Memo

**To:** Rockland Conservation Commission

From: Lori Macdonald, MS, Certified Wildlife Biologist

Sr. Environmental Scientist

cc: Marta Nover, BETA

**Date:** February 23, 2021

**Re:** Impacts to Wetland F's Functions and Values Associated with Work in the

100-Foot Buffer Zone

Notice of Intent Supplemental Documentation (DEP File # 273-0408) Shingle Mill Multi-Family Development, 0 Pond Street, Rockland, MA

Under the MA WPA (M.G.L. c. 131, § 40) and its associated regulations as specified in 310 CMR 10.00, Vernal Pool habitat features exist within Wetland F but will not be impacted by the project.

Under the Rockland Wetland Bylaw (Chapter 407, Section 407-02 (D)), Vernal Pool habitat features exist within Wetland F but will not be impacted by the project. The Vernal Pool will still provide breeding habitat and habitat for sedentary Vernal Pool species. Wetland F's 100-foot Buffer Zone provides Vernal Pool habitat; however impacts will have a negligible effect on wildlife habitat. Overwintering, dispersal, and migrating habitat within Wetland F's 100-foot Buffer Zone is poor and these features are not as important as onsite wetland features that provide the same function. Impacts within the 100-foot Buffer Zone will have negligible effects on wood frog and other amphibian species that use the Vernal Pool for breeding.

#### MA WPA AND ROCKLAND WETLAND REGULATIONS

#### MA WPA 310 CMR 10.55 Bordering Vegetated Wetland and Associated Buffer Zone

The project involves work within the 100-foot Buffer Zone of a Bordering Vegetated Wetland labeled as Wetland F on the attached plans. No direct filling of Wetland F will occur.

According to 310 CMR 10.55 of the MA Wetlands Protection Regulation: "Bordering Vegetated Wetlands are likely to be significant to public or private water supply, to ground water supply, to flood control, to storm damage prevention, to prevention of pollution, to the protection of fisheries and to wildlife habitat."

In addition, any Activities Within the Buffer Zone other than minor activities identified in 310 CMR 10.02(2)(b)2. proposed or undertaken within 100 feet of an area specified in 310 CMR 10.02(1)(a) (hereinafter called the Buffer Zone) which, in the judgment of the issuing authority, will alter an Area Subject to Protection under M.G.L. c. 131, § 40 is subject to regulation under M.G.L. c. 131, § 40 and requires the filing of a Notice of Intent. (See also 310 CMR 10.05(3)(a)2.).

# MA WPA Vernal Pool Habitat Definition and Protection of "Important" Wildlife Habitat Functions

Under the Massachusetts Wetlands Protection Act regulations, "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."

The MA Wetland Protection Act requires the protection of "important" wildlife habitat functions of a resource area rather than wildlife. Wildlife habitat important to wildlife is to be protected from a regional or statewide perspective. Small amounts of wildlife habitat impacts are allowed under the MA WPA regulations. In particular, a one-time alteration of up to 10% of the remaining wildlife habitat on a lot is considered to not harm "important" wildlife habitat functions. Temporary disruptions of other wildlife habitat are allowed provided important wildlife habitat functions are restored or replicated.

# Rockland Wetland Protection Bylaw's Vernal Pool Definition (Chapter 407, Section 407-02 (D))

The Rockland Wetland Protection Bylaw has stricter regulations defining Vernal Pools than does the WPA. It should be noted that the project is a 40B project and as such local regulations and bylaws may be waived.

Under Chapter 407 of the Rockland Wetland Protection Bylaw, section 407-2 (D) defines the term Vernal Pools as

"in addition to scientific definitions found in the regulations under the Wetlands Protection Act, any confined basin or depression not occurring in existing lawns, gardens, landscaped areas or driveways which, at least in most years, holds water for a minimum of two continuous months during the spring and/ or summer, contains at least 200 cubic feet of water at some time during most years, is free of adult predatory fish populations, and provides essential breeding and rearing habitat functions for amphibian, reptile or other Vernal Pool community species, regardless of whether the site has been certified by the Massachusetts Division of Fisheries and Wildlife. The boundary of the resource area for Vernal Pools shall be 100 feet outward from the mean annual high-water line defining the depression, but shall not include existing lawns, gardens, landscaped or developed areas.

#### **ANALYSIS**

It is anticipated that the proposed work within Wetland F's 100-foot Buffer Zone <u>will not alter</u> Wetland F or the wildlife habitat values of Wetland F.

#### **EXISTING CONDITIONS**

Wetland F is a state regulated 47,752 square foot Bordering Vegetated Wetland located at the end of Colby Street, at the southern limits of the project. Without the consent of the property owner, Wetland F, up to the Mean High-Water Mark (MHWM), was certified as a Vernal Pool by MNHEP on January 1, 2017 (Certified Vernal Pool #201701097720). Certification of the Vernal Pool was based on auditory recognition of chorusing Wood Frogs (*Lithobates sylvatica*). The MHWM of the Vernal Pool was not delineated as a part of the certification.

The MHWM of the certified Vernal Pool was flagged in the field in April 2020 and surveyed in November 2020 by Coneco Engineers and Scientists. The elevation of the MHWM was determined using evidence of long - term hydrology such as staining of leaves, presence of water marks on trees and shrubs, breaks in slope and water staining of tree falls. The Vernal Pool consists of two isolated areas of ponding: a smaller pool at the end of Colby Street that overflows to the west, into an adjacent larger pool. The two pools are separated by a small rise in elevation.

The smaller pool is approximately 6,273 square feet (0.14 acres) with an approximate depth of 0 to 12 inches. The average MHWM of the smaller pool is approximately elevation 135.44 feet. The larger pool is approximately 38,714 square feet (0.89 acres) with depth of 0 to approximately 12 inches. The average MHWM of the larger pool is approximately elevation 134.76 feet. As this smaller pool fills, it overflows to the larger pool. The larger pool elevation is controlled by an under-sized 12" RCP located between flag numbers MHW-14 and MHW-15. Surface water flows through the 12" RCP under a dirt road from Wetland F to Wetland B. The invert elevation of the 12" RCP exiting the larger pool is at elevation 133.84 feet. The pipe outlet at Wetland B is at elevation 133.53 feet. Water within the larger pool is held back by the 12" RCP, restricting flow out of the pool. In addition, the 12" RCP has been partly buried due to lack of maintenance which further restricts flow out of the pool. The bottom contours of the larger pool consist of pit and mound topography. In the southern part of the larger pool, the lower bottom elevations of the pool are approximately 133.8 feet. At the time of the certification, the larger pool was able to hold water to a depth of at least 6" and long enough during the growing season, to support a population of wood frogs. In November 2020, during a drought year, both the larger and smaller pool held water and there was no flow out-letting from the 12" RCP or flowing between the two pools. The 12" RCP inlet and outlet were buried at the time of the April 2020 MHWM delineation and November 2020 survey and have since been clear in order to restore flow from Wetland F to Wetland B. No fish were observed in the pools during the April and November site visits. Chorusing wood frogs were not heard during the April 2020 site visit.

# EXISTING VEGETATED COVER TYPES AND VERNAL POOL HABITAT WITHIN WETLAND F'S 100-FOOT BUFFER ZONE

Existing Vegetated Cover Types within the Wetland F's 100-foot Buffer Zone have been mapped and quantified using MassGIS topography. Vegetated Cover Types and quantities within the

buffer are shown on the attached figure entitled "Existing Vegetative Cover Types within Wetland F's 100-foot Buffer Zone".

#### Forested Swamp

Approximately 7,701 square feet of Forested Swamp is located within 100-feet of Wetland F and its associated Vernal Pool. The wetland consists of red maple (*Acer rubrum*), highbush blueberry (*Vaccinium corymbosum*), viburnums, and winterberry (*Ilex verticillate*). The wetland consists of pit and mound topography and is flooded during part of the year. The Forested Swamp is directly connected to Wetland F via a 12" RCP located under the existing dirt path.

Forested Swamp may provide migratory, dispersal, overwintering, and foraging habitat for wood frog and potentially migratory, dispersal and foraging habitat for other Vernal Pool amphibians.

The project will not impact Forested Swamp within Wetland F's 100-foot Buffer Zone.

# Central Hardwood / White Pine Upland Forest

Approximately 67,067 square feet of Central Hardwood / White Pine Upland Forest is located within Wetland F's 100- foot Buffer Zone. The terrestrial forest natural community is that of "Successional Northern Hardwood Forest". Tree species within the 100-foot Buffer Zone are variable and include Oaks (Quercus sp.), white pine (Pinus strobus), cedar (Chamaecyparis thyoides), Eastern hemlock (Tsuga canadensis), birch (Betula sp.), and willow (Salix sp.). The existing Upland Forest surrounding Wetland F is relatively flat, with the exception of an elevated area to the southwest of Wetland F. The area southwest of Wetland F appears to be historic fill that has become overgrown with vegetation. Several mammal burrows were located within this elevated area. The 100-foot Buffer Zone is historically littered with debris, rusty metal, buried tires, and leaf and grass clippings. The southern edge of the wetland, adjacent to the existing residences on Turner Road, is actively used as a dumping area for yard waste, asphalt, lawn furniture and other materials.

Coneco documented evidence of high groundwater such as weeping and soil redoximorphic features within 3" to 47" below grade in upland areas on site. According to geologic soil investigations completed in upland areas, subsurface water elevations were generally encountered at approximately elevations 132 to 133 in October 2019. On June 3, 2020, Tighe and Bond found similar subsurface water elevations at 133 ft. These subsurface water elevations are similar to surface water elevation of the adjacent wetland resource area. The test pits completed by Coneco document that the site consists of historic fill, which appears to date back to before approximately 1936. This is consistent to the NRCS's Soil Survey's mapping.

The mammal burrows found to the southwest of Wetland F are suitable for overwintering Vernal Pool amphibians. The rest of the Upland Forest within the 100-foot Buffer Zone has a high ground water table and does not provide overwintering habitat for mole salamanders and provides poor overwintering habitat for wood frog.

Upland Forest habitat may provide migratory and dispersal habitat for Vernal Pool amphibians.

#### **Disturbed Areas**

Approximately 6,815 square feet of the 100-foot Buffer Zone is disturbed, with sparse or no vegetation. These disturbed areas consist of an existing dirt road / path located that separates Wetland F from Wetland B and a large, sparsely vegetated, partly cleared area north of Wetland F

Because these areas have limited vegetation and cover, they do not provide adequate overwintering habitat for Vernal Pool amphibians but may be used during nighttime dispersal and migration.

# IMPORTANT VERNAL POOL HABITAT ASSOCIATED WITH WETLAND F AND WETLAND F'S BUFFER ZONE AND PROJECT IMPACTS

The project will not directly or indirectly impact state-protected Vernal Pool habitat on site. The project will not affect the MHWM of the Vernal Pool, result in the degradation of the Vernal Pools' water quality or result in an impact to adjacent wetland resource areas. The stormwater system has been designed to maintain similar flow to the Vernal Pool. The proposed groundwater wells will be managed to avoid a drawdown of onsite wetland resource areas.

The project will impact the locally-regulated Vernal Pool resource area which is defined as 100 feet from the MHWM elevation of the pool. These impacts will be to previously disturbed 100-foot Buffer Zone, degraded Buffer Zone and Upland Forest Habitat that provide poor overwintering, dispersal, and migratory habitat for wood frogs.

#### Overwintering Habitat

Wood frogs are a common Vernal Pool species with no protection status from MNHESP. Wood frogs are able to withstand freezing due to the presence of glucose and urea within their cells and tissue which protect them from damage. Wood frogs use both upland habitat and wetland habitat to overwinter. Wood frogs have been documented overwintering below the MHWM in dried up Vernal Pools, within 2 meters of the Vernal Pool edge, and more than 100 meters from their breeding pools. Massachusetts studies have documented some breeding wood frogs in a population overwinter more than 65 meters from the breeding pond (Regosin et al 2003) with one study showing 40-46% of the population of wood frogs wintering more than 100 meters from their breeding pond (Regosin et al 2005). Wood frogs have frequently been observed under Upland Forest leaf litter, however terrestrial habitats are not preferred habitats and are only used after the pool or wetlands have dried (Heatwole, 1961).

Of the approximately, 67,067 sf of upland forest within Wetland F's 100-foot Buffer Zone, approximately 50% of the area will be developed. Upland forest that will be impacted is relatively dry, is littered with debris, and has few mammal burrows given the shallow depth to subsurface water on site.

Although approximately 50% of forested upland within Wetland F's 100-foot Buffer Zone could potentially be used as wood frog overwintering habitat, the habitat quality is poor and would only be used for overwintering should the pools and adjacent wetland habitat dry. It is anticipated that wood frogs would select overwintering sites in more mesic environments such as along the edge

of the Vernal Pool or in other wetland areas within and outside Wetland F's 100-foot Buffer Zone. Wood frogs may also be found overwintering within the boundaries of the Vernal Pool itself, where mounds are above the MHWM. A total of 735,532 sf of wetland exists on site and will remain upon completion of construction. Wetlands located on site are a preferred overwintering habitat and would be selected before using Wetland F's 100-foot upland Buffer Zone. Impacts within Wetland F's 100-foot Buffer Zone will result in a loss of less than 10% of the remaining wetland overwintering habitat present on site.

Little to no overwintering habitat is found on site for mole salamanders and there is no record of mole salamanders using the vernal pool. Mole salamanders are not freeze tolerant and overwinter in deep vertical burrows in forested upland areas. The only suitable ground burrows identified within the 100-foot Buffer Zone are located in a mounded area to the southwest of Wetland F where there is enough burrow depth below the frost line and above the water line to provide overwintering habitat. It is not anticipated that any other uplands within the 100-foot Buffer Zone would provide suitable overwintering habitat for mole salamanders due to the shallow depth to subsurface water and depth of the frost layer. In addition, the remaining upland areas to be impacted, beyond 100-feet from Wetland F, are generally cleared and unvegetated with similar subsurface water elevations. There will be no loss to important mole salamander overwintering habitat.

### Migrating and Dispersal Habitat

Wood frogs are often observed crossing roads during the breeding season to reach their breeding pools or when dispersing from the pools after breeding and the pools have dried. It is anticipated that wood frogs will continue to move between Wetland B and Wetland F once the stormwater facility and paved path are constructed. The majority of impacts within Wetland F's 100-foot Buffer Zone are adjacent to sparsely vegetated or cleared areas with little to no leaf litter and understory to provide adequate migrating and dispersal habitat. Impacted areas north of Wetland F are along the edge of disturbed, sparsely vegetated upland forest that opens up to a large unvegetated, disturbed interior part of the site, which would not likely be crossed by amphibians.

#### **Shading Impacts**

Removal of tree and shrub cover within Wetland F's 100-foot Buffer Zone will not impact the shading of the Vernal Pool or surface water temperatures since vegetation proposed for removal is located north of the Vernal Pool.

# Breeding Habitat and Habitat for Sedentary Vernal Pool Species

The MHWM of the Vernal Pool will not be impacted by the project. The Vernal Pool below the MHWM provides important breeding habitat for amphibians and reptiles and could provide habitat for sedentary, pool dependent species such as common fairy shrimp (*Eubranchipus vernalis*), fingernail clams, amphibious snails, and caddisfly larvae, none of which have been observed within the pools on-site. The project will not impact amphibian or reptile breeding habitat or habitat for other pool dependent species to complete their lifecycle. The post stormwater volume reaching the Vernal Pool will be similar to the existing volume of water reaching the Vernal Pool during the 1 year 24-hour storm of 2.6 inches. The proposed groundwater wells will be managed to avoid a drawdown of onsite wetland resource areas. Stormwater will be managed in

accordance with MA Stormwater Standards and will not degrade the water quality of the Vernal Pools. Erosion controls will be installed and maintained prior to construction to avoid sedimentation.

#### **Summary**

Overwintering, dispersal and migrating habitat within Wetland F's 100-foot Buffer Zone is poor and these features are not as important as onsite wetland features that provide the same function. Impacts within the 100-foot Buffer Zone will have negligible effects on wood frog and other amphibian species that use the Vernal Pool for breeding.

#### PROJECT IMPACTS TO WETLAND F'S FUNCTIONS AND VALUES

## Public or Private Water Supply

The proposed work within Wetland F's 100-foot Buffer Zone will not impact public water supply functions of Wetland F. Stormwater on site will be pretreated and infiltrated in accordance with the MA Stormwater Management Standards. After pretreatment of the 1", stormwater will be discharged to an underground infiltration system located within the parking lot. Stormwater during high flows will discharge to a lined stormwater wetland where water will be stored in the vegetation and soils and discharged to Wetland F.

# **Ground Water Supply**

It is not anticipated the proposed work within Wetland F's 100-foot Buffer Zone will impact groundwater supply associated with the wetland. The entire site is interconnected via ground water. Groundwater is generally found at approximately elevation 132 to elevation 133 feet +/-throughout the project area. Stormwater volume discharging to Wetland F will be the slightly lower during the 1 year, 24-hour storm event (2.6-inch storm). Currently during the 2.6-inch storm, the Vernal Pool receives 9,317 cubic feet (cf) of overland flow. Post construction volume reaching the Vernal Pool will be 9,093 cf. The project will result in a 2% reduction of stormwater volume reaching the Vernal Pool, which is an insignificant change.

Stormwater on site will be pretreated and infiltrated in accordance with the MA Stormwater Management Standards. After pretreatment of the first 1", stormwater will be discharged to an underground infiltration system located within the parking lots. Within the Wetland F's 100-foot Buffer Zone, stormwater during high flows will bypass the infiltration systems and discharge a lined stormwater wetland where water will be stored in the vegetation and soils and then discharged to Wetland B (or it will outlet to a level spreader located just north of Wetland F).

A minor amount of water may be lost from the system due to evaporation and transpiration however, it is anticipated that this loss of water is minor.

#### Flood Control

There is no fill of the 100-year floodplain associated with the project. The 100-year floodplain boundary has been adjusted to match the 2020 revised Preliminary Floodplain Map. As a result, Wetland F is now outside of the 100-year floodplain. Wetland F will continue to accommodate overland flow associated with storm events. The outlet between flag MHW 14 and flag MHW 15 will be maintained and stormwater will flow from Wetland F to Wetland B as under existing conditions.

Stormwater volume discharging to Wetland F will be the slightly lower during the 1 year, 24-hour storm event (2.6-inch storm). Currently during the 2.6-inch storm, the Vernal Pool receives 9,317 cf of overland flow. Post construction volume reaching the Vernal Pool will be 9,093 cf. The project will result in a 2% reduction of stormwater volume reaching the Vernal Pool.

#### Storm Damage Prevention

Impacts to Wetland F's 100-foot Buffer Zone will not impact the ability of Wetland F to provide storm damage prevention. Wetland F will continue to accommodate overland flow and provide flood protection similar to existing conditions. The outlet between flag MHW 14 and flag MHW 15 will be maintained and stormwater will flow from Wetland F to Wetland B as under existing conditions

### Prevention of Pollution

Impacts to Wetland F's 100-foot Buffer Zone will not impact the ability of Wetland F to withhold and detain pollutants. Wetland F will continue to retain pollutants in vegetation and organic soils, protecting surface and groundwater from contamination. The project will not alter wetland soils and their ability to absorb and detain pollutants. Wetland vegetation will continue to uptake and store nutrients and heavy metals in its biomass. Wetland organic soils will continue to adsorb nutrients, heavy metals, oils, and grease.

No added pollutants are anticipated to be directed to Wetland F as a part of the project. Deep sump hooded catch basins and proprietary oil water separators will pretreat the first 1" of runoff and remove TSS and associated nutrients, pollutants and heavy metals. Dissolved nutrients, heavy metals and other metals will be directed to Stormwater Wetlands where they will be stored in the stormwater wetlands' organic soils and vegetation. Nitrogen will be detained in soils, converted to usable forms of nitrogen for uptake by vegetation or off gassed. Oils and greases that make it past the primary BMPs will be held back by vegetation in the Stormwater Wetlands and be broken down by sunlight over time.

The Operations and Maintenance Plan & Long-Term Pollution Prevention Plan includes measures to protect adjacent wetland resource areas. Stormwater wetland inspection and maintenance schedules are included in the post construction operation and maintenance plan. Stormwater facilities will be inspected, and accumulated sediments and trash will be removed and disposed of off-site in accordance with the site operation and maintenance schedule. Other items include a ban on the use of salt on site during snow and ice operations and removing stockpiled plowed

snow from the site. Copies of the Operation and Maintenance Plan and Long-Term Pollution Prevention Plan are attached to the revised Stormwater Management Report.

During construction, the contractor will be required to prepare and adhere to a Stormwater Pollution Prevention Plan in accordance with the National Pollution Discharge and Elimination System (NPDES) Construction General Permit. Erosion and sedimentation controls will be installed and maintain during construction to avoid impacting adjacent wetland resource areas.

#### Protection of Fisheries

There are no known fisheries resources on site.

#### **AVOIDANCE, MINIMIZATION AND MITIGATION MEASURES**

Avoidance, minimization, and mitigation measures have been employed to the maximum extent feasible.

The project was designed to avoid and minimize impacts to resource areas. The site access road has been designed to a minimum width of 24 feet which includes the width of cape cod berms. Typically roadway width is 24 feet with a 1 to 2 foot offset to granite curbs. A sidewalk on one side of the access road is proposed rather than sidewalks on each side of the roadway. In addition, walls are proposed along each side of the site entrance and in other areas adjacent to wetland resource areas in order to avoid permanent direct impacts to Bordering Vegetated Wetland.

During the permitting process, impacts to resource areas have been avoided and reduced to protect the Wetland F and the associated Vernal Pool. The changes to the layout include the relocation of the proposed 1/2 basketball court and a new access path to more than 25 feet from Wetland F.

Resource protection measures will be put into place to avoid and minimize impacts to wetland resource areas during construction.

Impact avoidance and minimization measure include clearing, grubbing and earth disturbance and the installation of erosion controls in the spring, when wood frogs are breeding within the Vernal Pool. Silt fencing will be installed along the limits of work within Wetland F's 100-foot Buffer Zone in order to keep any dispersing or migrating amphibians or reptiles from entering the construction area and to protect adjacent resource areas from siltation and erosion. Silt fencing will be monitored daily and repaired immediate if a breach is discovered.

Long term impact avoidance and minimization measures include maintenance of stormwater systems, special snow and ice operations measures, and property storage and use of hazardous materials, fertilizers, and herbicides.

Overall, no significant adverse effects to Wetland F or its associated Vernal Pool will occur as a result to permanent or temporary work within the 100-foot Buffer Zone.

### **REFERENCES**

Heatwole, H. 1961. *Habitat Selection and Activity of the Wood Frog, Rana sylvatica Le Conte.* American Midland Naturalist 66:301-313.

Regosin, J. V., B. S. Windmmiller, and J. M. Reed. 2003. *Terrestrial Habitat Use and Winter Densities of the Wood Frog (Rana sylvatica)*. Journal of Herpetology, Vol. 37, No. 2, pp. 390-394.

Regosin, J. V., B. S. Windmiller, R.N. Homan and J.M. Reed. 2005. *Variation in Terrestrial Habitat use by Four Pool-Breeding Amphibian Species*. The Journal of Wildlife Management, Vol. 69, No. 4., pp. 1481-1493.

