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June 21, 2021

Kara Campbell, Conservation Agent
Newbury Conservation Commission
12 Kent Way, Suite 200
Newbury, MA 01922

Re: The Villages at Cricket Lane
55R Pearson Drive

Dear Ms. Campbell:

This letter and the attached copies of review letters concerning the Villages at Cricket Lane are being submitted to the conservation commission for their review.

The letters from Anne Marton at LEC Environmental were generated at the request of the zoning board as the project moved through their approval process and as stated in the first memo the purpose was as follows.

"LEC received and has reviewed the following materials for compliance with the Massachusetts Wetlands Protection Act (M.G.L. c. 131, s. 40, the Act) and the implementing regulations at 310 CMR 10.00 (the Act Regulations), the DEP Stormwater Management Policy relative to protection of Wetland Resource Areas, and other Best Management Practices for design and construction"

The applicant and the zoning board were concerned that waiting to have the town's peer review consultant review the plans relative to the wetland protection act until after the zoning approval when the plans were submitted to the conservation commission, there could be a need for additional hearings to modify the approved plan. For that reason, the applicant posted the fees for the review and the review was performed for the town.

In addition to the LEC review, the towns peer review civil engineer, Joseph Serwatka, performed his review of "the submitted material relative to the Town of Newbury Zoning Board of Appeals Comprehensive Permit Rules and Regulations, MassDEP Stormwater Management Standards, and common engineering practice."

Both of these review engineers were satisfied that the design met the requirements of the Wetland Protection Act, Stormwater Management Standards, the towns bylaws, and good engineering practice.

We understand that the commission has not been involved with the process to date, which is why we have provided this documentation.

Our team will be on the zoom meeting tomorrow night to continue the commissions review of this matter.

Sincerely,

Benjamin C. Osgood, Jr., PE

# MEMORANDUM

**DATE:** April 29, 2020

**TO:** Newbury Zoning Board of Appeals

**FROM:** Ann M. Marton, Director of Ecological Services

**RE:** Comprehensive Permit Application and Site Plan Peer Review
Village at Cricket Lane, Newbury, Massachusetts

**LEC File#:** ToNEW\17-300.02

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LEC received and has reviewed the following materials for compliance with the *Massachusetts Wetlands Protection Act* (M.G.L. c. 131, s. 40, the *Act*) and the implementing regulations at 310 CMR 10.00 (the *Act Regulations*), the DEP Stormwater Management Policy relative to protection of Wetland Resource Areas, and other Best Management Practices for design and construction:

- The Village at Cricket Lane 55 Rear Pearson Drive, Newbury, MA Comprehensive Permit Application (24 Units of Home Ownership) dated February 2020, with internal cover letter dated February 12, 2020;
- 40B Comprehensive Permit The Villages at Cricket Lane, Byfield, MA Plan Set (Sheets 1-18) prepared by Ranger Engineering Group, Inc., dated January 22, 2020; and
- Open Space Plan The Village at Cricket Lane Byfield (Newbury), MA 01922 (Assessor's Map R-20 Lot 75) prepared by Ranger Engineering Group, Inc., dated January 22, 2020.

LEC provided comments in two prior Peer Review Memorandums and a Working Session Recap & Summary for Byfield Estates which are listed below and incorporated into this review as Attachments A-C.

- Site Plan Review, Byfield Estate Comprehensive Permit Application, Newbury, Massachusetts dated February 8, 2018 (Attachment A);
- Working Session Recap and Summary Byfield Estate Comprehensive Permit Application, Newbury, Massachusetts dated February 16, 2018 Attachment B); and
- Initial Peer Review of Revised Site Plans/Written Materials, Byfield Estate Comprehensive Permit Application, Newbury, Massachusetts dated March 15, 2018 (Attachment C).

The following restates or clarifies comments provided in Attachment C and/or provides additional comments beyond those contained in Attachments A-C. Please note that a number of our below

comments refer back to Attachments A-C or other previously reviewed or submitted documents, since based on our peer review, it *appears* that the Village at Cricket Lane essentially picked up the proposed project where Byfield Estates was left off.

1. The footprint and amount of historic wetland filling referenced in Mary Rimmer's March 7, 2018 Response Letter and attachments (Attachment D) do not appear to correlate to the Site Plans. Sheet 3 of the Site Plans graphically depicts a gray shaded area encompassing 1,565 square feet (SF) of historic filling between flags D21 and E19.1. This amount of filling is based on the historic topo from the original subdivision plan.

   The 1980 Aerial Image attached to Ms. Rimmer's Response Letter depicts historic wetland filling between Flags E15 and E19 that is not shown on the Ranger plan.

   Please add to Plan Sheet 3 the filling between flags E15 and E19 (970 SF estimated by Ms. Rimmer) and revise the total historic wetland fill to 2,535± SF (1,565 + 970 =2,535).

   Please add this corrected historic wetland fill on all other plan sheets (e.g. Sheets 5, 6, 7, 8, 9, 15, and 17). This also will affect the total amount of required Wetland Replication/Restoration.

   The Index of Drawings on the 24x36 paper Plan Set Cover Page does not correspond to several of the plan sheet numbers and titles in the 24x36 paper plan set and do not correspond to the electronic plan set. For example, the Index of Drawings lists plan Sheet 15 as Wetland Details, but the 24x36 paper plan sheet 15 in the set of plans is labeled Utilities.

2. During the February 15, 2018 Working Session for Byfield Estates, we discussed relocating the Wetland Replacement Area north of the wetland system in the vicinity of wetland flags E8 through E12. Instead, the plans depict a 3,300 SF Wetland Replacement Area south of the E Series Wetland, directly behind the dwelling at 55 Pearson Drive within 20± feet of the driveway and 25± feet of the dwelling.

   Based on the history of filling on this site, and the presence of a retaining wall in the wetland (presumably to create the backyard), this does not appear to be an appropriate location for Wetland Replacement. The shape of the Replacement Area also does not appear to correlate to any existing grades or the shape of the adjacent wetland system.

   Please explain your rationale for this new location and consider more appropriate alternative locations including the vicinity of wetland flags E8 through E12.

   No grading, planting or other Wetland Replacement details has been provided on the Grading and Drainage Plan as referenced in Ms. Rimmer's Response #13. Nor has such detail been provided on the Wetland Details (Sheet 15). Please provide such details.

3. Item #7 of Ms. Rimmer's March 7, 2018 Response Letter for Byfield Estates discusses changes to Basin P3-2 and states that "This change will create a minimum 10± feet setback from the toe of the grading to the wetland edge making it easier to construct..."

   The actual limit-of-work/erosion control line for Basin P3-2 extends very close (varies from 3-8 feet) to the BVW between flags C7 to C9; flags C11 to C13; and C18 to C22. LEC recommends increasing the setback between this Basin and the BVW. Otherwise, it does not seem feasible to construct this basin that close to the BVW without impairing or otherwise destroying portions of the BVW.

   Based on the current Basin P3-2 limit of work, the clearing of natural vegetation and soil disturbance is likely to alter the physical characteristics of the adjacent BVW by changing the soil composition, topography, hydrology, temperature, and the amount of light received (see 2005 Preamble to the Act Regulations). In accordance with 310 CMR 10.53 (1) the Issuing Authority shall impose conditions to protect the interests of the Act...and may consider the characteristics of the Buffer Zone, such as the presence of steep slopes…and conditions may include limitations on the scope and location of work in the Buffer Zone as necessary to avoid alteration of the Resource Area…including the preservation of natural vegetation adjacent to the Resource Area.

   LEC Recommends reconsidering the close proximity of Basin P3-2 to the BVW.

4. The limit-of-work line for Basin P1-2 extends very close (within 3-7 feet) of the BVW between flags D14 to D19 and requires clearing of vegetation along a <u>southern exposure</u>. LEC recommends increasing the setback between this Basin and the BVW. See above comment #3.

   As currently depicted on the plans, tree clearing also extends *into* the BVW between flags D14 and D19. Please correct this on <u>all plan sheets</u>.

5. Ms. Rimmer's Response #8 (Attachment D) does not provide a convincing argument relative to minimizing or preventing short-term construction related impacts or long-term wetland function impacts to the adjacent BVW relative to construction of Basins P1-2 and P3-2 (see LEC February 8, 2018 Memorandum comments #7 and #8).

6. Detail 11—Modular Retaining Wall on Sheet 10 has not been revised to show a stone footing base as referenced in Ms. Rimmer's Response #10 (Attachment D).

7. The Comprehensive Permit only refers to 55 Rear Pearson Drive, labeled on the plans as Parcel B Assessor's Map R-20 Lot 75 at 15.08 acres. Assessor's Map R-20 Lot 75 also includes the parcel labeled on the plans as 55 Pearson Drive as 1.28 acres. The Applicant is clearly proposing work, including the entrance road and proposed Wetland Replacement, on <u>both</u> of these 'parcels.' The filing should be corrected to include both parcels at a total of 16.36± acres.

8. The former Byfield Estates plans depicted the actual leaching beds for Leaching Area System 1 and Leaching Area System 2, but the Village at Cricket Lane plans only depict the outer limits or a 'box' for these two systems. This 'box' sits right on the 100-foot Title 5 Offset to Vernal Pool. This appears extremely tight and leaves no room for flexibility during construction. Please explain why the leaching beds have been removed and consider providing more of an offset from the Vernal Pool.

9. Please provide detailed information relative to the residence time of standing water within each of the stormwater basins during storm events. It is important to avoid standing water for any extended period of time within the basins to prevent vernal pool species from attempting to breed within the stormwater basins.

10. Prior existing condition and design plans for Byfield Estates acknowledge the presence of the Vernal Pool conterminous with the boundary of Isolated Wetland A and associated with Isolated Land Subject to Flooding. The Byfield Estates plans also depicted the 100-foot Title 5 Offset to this Vernal Pool. Please explain why this has been removed from the Village at Cricket Lane site plans. It appears that grading now extends to the edge of the Isolated Wetland/Vernal Pool and roof infiltration is proposed within 100-feet of the Vernal Pool.

11. LEC concurs with the comments provided by Joseph J. Serwatka and adds the following additional comments:

    a. The Open Space Plans depict a 'parcel' of land to be deeded to the Commonwealth of Massachusetts Division of Fish and Game. Please clarify on the plans the limits and acreage of this 'parcel.' The Applicant also should clarify whether this deeding of land has been discussed with the Division of Fish and Game and report on their willingness or desire to accept.

    b. Sheet 7 depicts a walking path near the base of the slope for connection to the adjacent Martin H. Burns Wildlife Management Area (WMA) under the care and custody of the Division of Fish and Game. Has the Applicant discussed this connection with the Division of Fish and Game and have they confirmed that such connection is consistent with the use and management of the WMA? As noted by Mr. Serwatka, the grading plans and detail sheets do not account for this trail. Please revise the plans accordingly.

    c. All proposed features or work must be depicted on all plans including, but not limited to, retaining wall elevations and construction means and methods, decks, patios or other residential amenities described in the application, all site drainage, and required details for construction.

       Of particular constructability concern is Mr. Serwatka's comment #12 regarding the setback between the dwellings and retaining walls, and the geosynthetic reinforcement required for construction of the retaining walls (see detail on Sheet 11). These setback distances do not

appear to be adequate to accommodate the geosynthetic reinforcement. Please review and clarify or modify the plans.

Uncovering all the subtle, but in some circumstances, significant changes to the plans between the original filing for Byfield Estates and this new filing for the Village at Cricket Lane has proven challenging. LEC looks forward to a thorough and detailed Public Hearing presentation noting all such changes.

**Attachment A**

Site Plan Review, Byfield Estate Comprehensive Permit Application,
Newbury, Massachusetts, dated February 8, 2018

# MEMORANDUM

**DATE:** February 8, 2018

**TO:** Newbury Zoning Board of Appeals

**FROM:** Ann M. Marton, Director of Ecological Services

**RE:** Site Plan Review
Byfield Estates Comprehensive Permit Application
Newbury, Massachusetts

**LEC File#:** ToNEW\17-300.02

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I have reviewed the 40B Comprehensive Permit Byfield Estates Plan Set (Sheets 1-17) dated March 22, 2017, and last revised January 3, 2018 prepared by Ranger Engineering & Design, LLC, and offer the following comments and recommendations.

Follow-Up

1. During the December 18, 2017 Public Hearing, Ben Osgood of Ranger Engineering & Design, LLC confirmed that the Applicant was willing to submit data to the Natural Heritage and Endangered Species Program (NHESP) for certification of the on-site Vernal Pool contained within Wetland "A" as requested in my December 15, 2017 Vernal Pool Site Visit Recap Memorandum. I contacted Mary Rimmer on January 31, 2018 and February 6, 2018 to confirm whether she had submitted these data. Ms. Rimmer submitted her data on February 7, 2018 and was assigned NHESP observation #V1687.

   As also discussed during the December 18, 2017 Public Hearing, Pat Huckery, Northeast District Manager, MA Division of Fisheries and Wildlife, was willing to submit to NHESP the data she collected to certify the Vernal Pool contained within Wetland "D." These data have been submitted to NHESP via the Vernal Pool & Rare Species Reporting System (VPRS) and been assigned observation #1612.

2. Ben Osgood and Mary Rimmer have been in contact with me via email regarding the means and methods, and potential outcomes for establishing the extent of historic illegal fill on R-20, Lot 75 and R-20, Lot 76. This issue remains under discussion and has not been completely resolved.

3. During the December 18, 2017 Public Hearing, a concern was raised by a resident for the proper protection of the Northern Long-Eared Bat (*Myotis septentroinalis*), a Threatened Species under the federal Endangered Species Act (ESA, 50 CFR 17.11) and Endangered under the *Massachusetts Endangered Species Act* (MESA, M.G.L. c. 131 A).

Projects that result in tree removal activities shall comply with the 4(d) rule under the ESA (effective 2/16/2016), which states: "Incidental take resulting from tree removal is prohibited if: 1) Occurs within 0.25 mile radius of known northern long-eared bat hibernacula or 2) cuts or destroys known occupied maternity roost trees, or any other trees within a 150-foot radius from the known maternity tree during the pup season (June 1 through July 31)." NHESP follows the 4(d) rule.

Based on information available on the NHESP web site, last updated November 30, 2016 (see Attachment A), there are no known hibernacula within 0.25 miles, and no known occupied maternity roost trees on or within a 150-foot radius of the site. As noted on the NHESP web site, this information is updated as new information is received.

The Applicant must rely on the most current data available when applying for an EPA Construction General Permit and documenting ESA compliance for commencement of construction. If known hibernacula or maternity roost tree sites are discovered on or near the site and reported to the federal Fish and Wildlife Service (FWS) or NHESP, further consultation with these agencies would be required.

Design Considerations

4. The Site Plans depict construction of Stormwater Best Management Practices (BMPs), such as Detention Pond P1-2, outfall structures and conveyances, and the associated Emergency Overflow Weir within 100 feet of the Vernal Pool contained within Wetland "D." Standard 6 of the Massachusetts Stormwater Handbook (Handbook, Chapter 1, Pages 15-16) and Table CA2: Standard 6 (Chapter 1, Page 18) specifically prohibit Stormwater BMPs within 100 feet of Vernal Pools. Item 3 of Table CA2 states "Stormwater BMPs must be set back 100' from a certified vernal pool and comply with 310 CMR 10.60." See Attachment B containing excerpted sections of the Handbook.

5. Item 4 under Table CA2 also states that "Proponents must perform a habitat evaluation and demonstrate that all stormwater BMPs meet the performance standard of having no adverse impact on the habitat functions of a certified vernal pool." This information has not been provided by the Applicant.

6. I have been working with Cammett Engineering to evaluate whether the proposed project impacts the hydrology of the vernal pools contained in Wetland "D" and Wetland "A" and/or the hydrology of the adjacent wetland systems. Please cross-check my below concerns with the Cammett Engineering peer review comments.

   6a. Balanced pre- and post-development watersheds contributing to the two vernal pools/wetland systems.

   6b. Changes to groundwater hydrology contributing to the vernal pools relative to significantly impacting the location and distribution of water infiltrating into the ground that ultimately contributes to and affects the hydrology of the vernal pools. For example, consolidating

infiltration at one location within the footprint of the cul-de-sac versus spreading it out across the site to more closely mimic existing conditions. We also recommend evaluating other options including Low Impact Development (LID) techniques.

7. The Applicant is proposing construction right up to the boundary of and/or very close to Wetland "C" and Wetland "D." I encourage the Applicant to review the following sections of the *Massachusetts Wetlands Protection Act Regulations* (310 CMR 10.00, the *Act Regulations*) to assist them in designing the project in a manner that will ensure proper protection of the adjacent wetlands (See Attachment C containing the below excerpted sections of the *Act*):

   - Preface to the Wetlands Protection Act Regulations, 2005 Revisions (pages 317 and 318);
   - Definition of Alter (page 338); and
   - 310 CMR 10.53 General Provision (1) for work in the Buffer Zone (page 412).

8. The Applicant should review the extent and proximity of proposed clearing in the Buffer Zone to Wetlands "C" and Wetland "D." The Applicant should consider the physical, chemical, and biological impacts to these wetlands and vernal pools associated with vegetation clearing, soil disturbance, and grading very close to the wetlands, including changes in soil composition and litter that filter runoff; topography; hydrology; temperature; changes in the amount of light, including loss of shading; and reduction in nutrient inputs that can result in impacts to the wetlands and/or vernal pools.

<u>Plan Content</u>

9. Sheet 3 depicts the 100-foot Title 5 and Stormwater Setback to Vernal Pools and the 100-foot Buffer Zone to Wetlands. Please include these setbacks/buffer zones on all subsequent plans sheets (e.g. Sheets 4-8, 14, and 16).

10. Detail 11-Modular Retaining Wall on Sheet 10 does not provide sufficient detail relative to the required footing for construction of such a wall. This is of particular importance in any locations where walls are proposed proximate to the wetland boundaries. The footing typically extends beyond the wall and therefore would result in greater temporary impacts for construction of the wall.

11. The Applicant is proposing to construct the above Modular Block Retaining wall along the northwestern edge of the entrance roadway, roughly between stations 1+00 and 2+50. Plan Sheet 14 notes 350 sf of temporary BVW alteration, measuring 5 feet wide along the wall (although when I scale it on the plan it appears to scale as 4 feet). Plan 16 shows silt fence erosion controls snug to the base of the wall. In my direct experience monitoring installation of such walls, 5 feet is an extremely tight construction footprint. The Applicant needs to reconcile these differences and provide realistic limits-of-work for construction of this retaining wall.

12. Detail 3-Silt Fence/Hay Bale Barrier is not sufficient. The bottom 6-inches of the silt fence must be entrenched. It cannot rest on the ground surface. Hay bales must also be entrenched.

13. No detail or information relative to means, methods, design or construction of the proposed wetland replication area has been provided. We are assuming that the Applicant will provide this detail as part of their filing with the Conservation Commission. The Zoning Board of Appeals (the Board) should determine whether the current level of detail is acceptable for their review.

14. If helpful and acceptable to the Board, a working session amongst the Applicant's technical advisors and the Board's technical peer reviewers might prove helpful to keep the process moving forward and resolve technical issues.

## Attachment A

Northern Long-Eared Bat
NHESP Web Site Information

Mass.gov

# The Northern Long-eared Bat

**The Northern Long-eared Bat (Myotis septentrionalis) (NLEB) is one of the species of bats most impacted by the disease White-nose Syndrome (WNS).**

Due to severe population declines caused by WNS, the U.S. Fish & Wildlife Service (USFWS) listed the Northern Long-eared Bat as a Threatened species under the Endangered Species Act (ESA, 50 CFR 17.11) on April 2, 2015. NLEB is also listed as Endangered under the Massachusetts Endangered Species Act (MESA, M.G.L. c. 131 A).

*Northern Long-eared Bat, Endangered. Photo by USFWS*

## Prohibited tree removal

Projects that result in tree removal activities shall comply with the 4(d) rule under the ESA (effective 2/16/2016), which states:

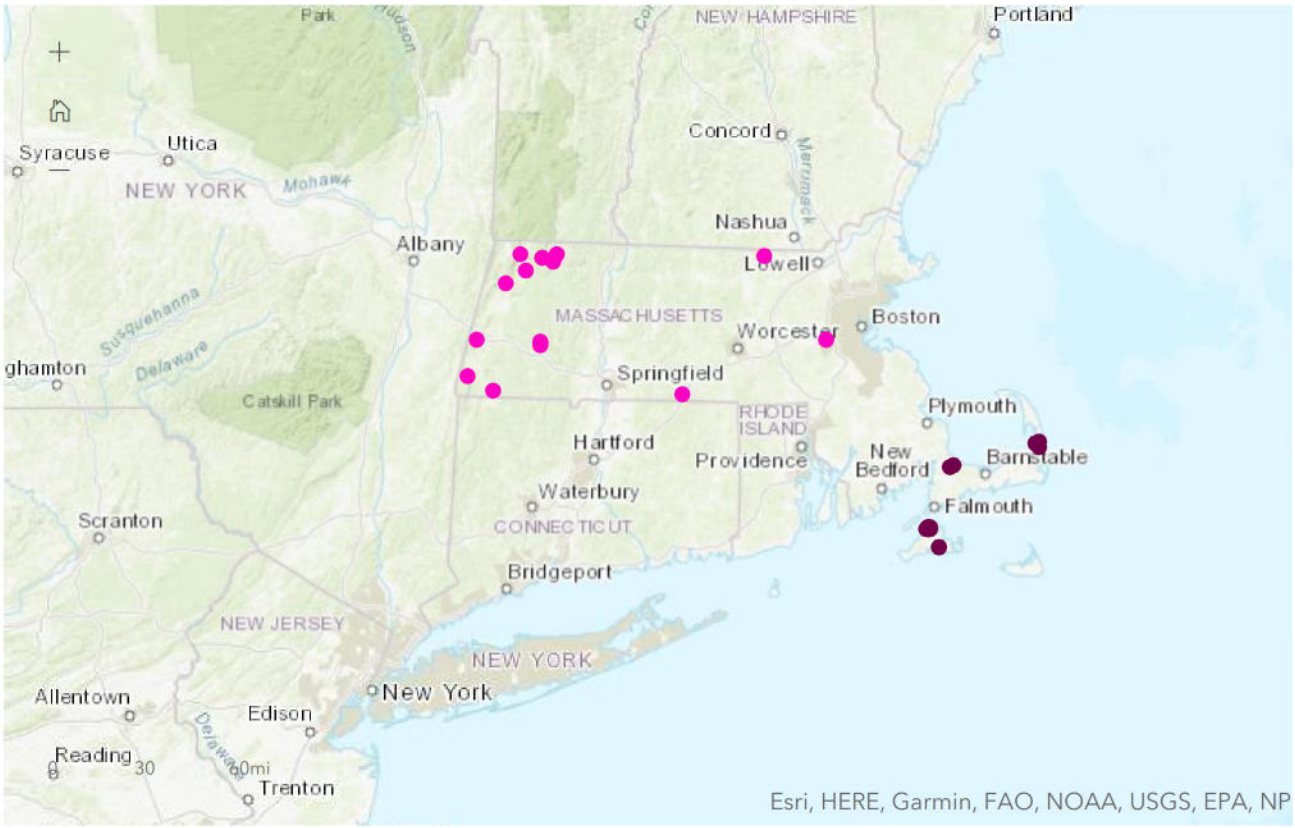
"Incidental take resulting from tree removal is prohibited if: 1) Occurs within 0.25 mile radius of known northern long-eared bat hibernacula or 2) cuts or destroys known occupied maternity roost trees, or any other trees within a 150-foot radius from the known maternity tree during the pup season (June 1 through July 31)."

For more information on the Northern Long Eared Bat and the 4(d) rule, please visit: **http://www.fws.gov/midwest/endangered/mammals/nleb/**. Please note that if your proposed project or activity is also within Priority Habitat as codified under the MESA, a separate **MESA review will be required**.

To assist project proponents with the review processes described above, we are providing the following map for known locations of winter hibernacula and maternity roost trees. Please contact **USFWS** for additional information on project compliance with the ESA for the Northern Long-eared Bat.

A **full screen map** is also available and contains additional information, including the type of habitat (hibernacula or maternity roost tree) and whether the location is mapped as Priority Habitat.

*Please note this map is updated as new information is received.* ***Last Updated November 30, 2016.***




CONTACT

## Natural Heritage & Endangered Species Program

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Natural Heritage staff directory →

## Attachment B

Massachusetts Stormwater Handbook Excerpts

**Standard 6:** Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2)(a)1. or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. [24] Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of the public water supply.

Critical areas are Outstanding Resource Waters as designated in 314 CMR 4.00, Special Resource Waters as designated in 314 CMR 4.00, recharge areas for public water supplies as defined in 310 CMR 22.02 (Zone Is, Zone IIs and Interim Wellhead Protection Areas for groundwater sources and Zone As for surface water sources), bathing beaches as defined in 105 CMR 445.000, cold-water fisheries as defined in 314 CMR 9.02 and 310 CMR 10.04, and shellfish growing areas as defined in 314 CMR 9.02 and 310 CMR 10.04.

Cold-water fisheries are waters in which the mean of the maximum daily temperature over a seven-day period generally does not exceed 68°F (20°C) and, when other ecological factors are favorable (such as habitat), are capable of supporting a year-round population of cold-water stenothermal aquatic life. Waters designated as cold-water fisheries by the Department in 314 CMR 4.00, and waters designated as cold-water fishery resources by the Division of Fisheries and Wildlife, are cold-water fisheries. Waters where there is evidence based on a fish survey that a cold-water fish population and habitat exist are also cold-water fisheries.

A shellfish growing area is land under the ocean, tidal flats, rocky intertidal shores and marshes and land under salt ponds when any such land contains shellfish. Shellfish growing areas include land that has been identified and shown on a map published by the Division of Marine Fisheries as a shellfish growing area, including any area identified on such map as an area where shellfishing is prohibited. Shellfish growing areas shall also include land designated by the Department in 314 CMR 4.00 as suitable for shellfish harvesting with or without depuration. In addition, shellfish growing areas shall include shellfish growing areas designated by the local shellfish constable as suitable for shellfishing based on the density of shellfish, the size of the area, and the historical and current importance of the area for recreational and commercial shellfishing.

A list of Outstanding Resource Waters is published in the Surface Water Quality Standards, 314 CMR 4.00[25]. This list includes Class A public water supplies approved by MassDEP and their tributaries, active and inactive reservoirs approved by MassDEP, certain waters within Areas of Critical Environmental Concern, certified vernal pools, and wetlands bordering Class A waters. Wetlands bordering other Class B, SB, or SA ORWs are also Outstanding Resource Waters. Pursuant to the Surface Water Quality Standards, 314 CMR 4.00, MassDEP may designate as Special Resource Waters certain waters of exceptional significance such as waters in national or state parks and wildlife refuges.

Bathing beaches include public and semi-public bathing beaches as defined by the Massachusetts Department of Public Health in 105 CMR 445.000[26]. The Department of Public Health maintains an inventory of public and semi-public bathing beaches.

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[24] If an NPDES Construction General Permit or Multi-Sector General Permit is required for a discharge to an ORW, DEP must approve the Stormwater Pollution Prevention Plan (SWPPP).
[25] Surface Water Quality Standards – http://www.mass.gov/eea/agencies/massdep/water/regulations/314-cmr-4-00-mass-surface-water-quality-standards.html
[26] Standards for Bathing Beaches – http://www.mass.gov/eohhs/docs/dph/regs/105cmr445.pdf

Recharge areas for public water supplies are defined in the Drinking Water Regulations, 310 CMR 22.02[27], and include the Zone A for surface water supplies and the Zone II and Interim Wellhead Protection Areas for groundwater supplies. The Zone A means the land area between the surface water source and the upper boundary of the bank, the land area within a 400-foot lateral distance from the upper boundary of the bank of a Class A surface water source as defined in the Surface Water Quality Standards, 314 CMR 4.05(3), and the land area within a 200-foot lateral distance from the upper boundary of the bank of a tributary or associated surface water body. The Zone II means the area of an aquifer that contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated. The Interim Wellhead Protection Area is used for groundwater sources for public water supplies that lack a Zone II that has been approved by MassDEP.

Source control and pollution prevention are particularly important for critical areas. All projects that have the potential to impact critical areas shall implement a source control and pollution prevention program that includes proper management of snow and deicing chemicals. To protect critical areas, road salt must be properly stored within a Zone II or Interim Wellhead Protection Area or near an Outstanding Resource Water, Special Resource Water, shellfish growing area, bathing beach or cold-water fishery. The use of salt for the deicing of impervious surfaces must be minimized within water supply protection areas and any area near an Outstanding Resource Water, Special Resource Water, fresh water beach, or cold-water fishery. The long-term pollution prevention strategies for sites near critical areas must also incorporate designs that allow for shutdown and containment where appropriate to isolate the system in the event of an emergency spill or other unexpected event. Proponents of MassHighway projects may satisfy this requirement by implementing the containment procedures outlined in the Mass Highway Stormwater Handbook[28] .

A stormwater discharge within a Zone II or Interim Wellhead Protection Area or near or to an Outstanding Resource Water, a Special Resource Water, a bathing beach, shellfish growing area, or cold-water fishery requires the use of a treatment train that provides 80% TSS removal prior to discharge. This treatment train must use the structural BMPs determined by MassDEP to be suitable for such areas as set forth in Tables CA 1 through CA 4.[29] With the exception of runoff from a non-metal roof, and runoff from metal roofs located outside the Zone II or Interim Wellhead Protection Area of a public water supply or an industrial site, the treatment train shall provide for at least 44% TSS removal prior to discharge to the infiltration structure. For discharges within a Zone II or Interim Wellhead Protection Area or near or to an Outstanding Resource Water, a Special Resource Water, a shellfish growing area, a bathing beach, or a cold-water fishery, the treatment BMPs must be designed to treat the required water quality volume, a volume equal to one inch times the total impervious surfaces at the post-development site. All BMPs must be designed, constructed, operated and maintained in accordance with the specifications set forth in Volume 2 of the Massachusetts Stormwater Handbook.

[27] Recharge Areas – http://www.mass.gov/eea/docs/dep/water/ccdefreg.pdf
[28] Mass Highway Stormwater Handbook - http://www.mhd.state.ma.us/default.asp?pgid=content/publicationmanuals&sid=about
[29] To make sure that they have the most up-to-date list of these BMPs, proponents should consult the MassDEP web site.

**Table CA 2: Standard 6**

| **Stormwater Discharges Near or To Outstanding Resource Waters including Vernal Pools and Surface Water Sources for Public Water Systems** | |
|---|---|
| 1. Construction Sites of 1 acre or more must file a Notice of Intent (WM 09) with MassDEP requesting approval of the Stormwater Pollution Prevention Plan (SWPPP), if they discharge to an ORW.<br>2. Stormwater discharges to ORWs must be set back from the receiving water or wetland and receive the highest and best practical method of treatment.<br>3. Stormwater BMPs must be set back 100' from a certified vernal pool and comply with 310 CMR 10.60[31]. Proponents must perform a habitat evaluation and demonstrate that the stormwater BMPs meet the performance standard of having no adverse impact on the habitat functions of a certified vernal pool.<br>4. Unless essential to operation of a public water system, stormwater BMPs are prohibited within the Zone A.<br>5. BMPs must be designed according to the specifications and sizing methodologies in Volumes 2 and 3 of the Massachusetts Stormwater Handbook.<br>6. Required Water Quality Volume = 1.0 inch times impervious area.<br>7. At least 44% TSS must be removed prior to discharge to infiltration BMP.<br>8. For discharges near or to ORWs, proprietary BMPs may be used for pretreatment only unless verified by TARP or STEP for other uses. For the purpose of this requirement, subsurface structures, even those that have a storage chamber that has been manufactured are not proprietary BMPs, since the pretreatment occurs in the soil below the structure, not in the structure itself. See Volume 2. | |
| **Pretreatment BMPS** | Deep Sump Catch Basin<br>Oil Grit Separator<br>Proprietary Separators: See Volume 2<br>Sediment Forebay<br>Vegetated Filter Strip |
| **Treatment BMPs**<br>Sand Filters, Organic Filters, Proprietary Media Filters, Filtering Bioretention Areas, and Wet Basins must be lined and sealed unless at least 44% TSS has been removed prior to discharge to the BMP. | Filtering Bioretention areas including rain gardens<br>Constructed Stormwater Wetlands *(do not use near certified vernal pool)*<br>Gravel Wetlands (*do not use near certified vernal pool)*<br>Proprietary Media Filter (*Proprietary Media Filters may not be used for terminal treatment for discharges near or to critical areas, unless the filter has been verified for such use through the TARP or STEP process. See Volume 2. Proprietary Media Filters do not include Catch Basin Inserts.)*<br>Sand /Organic Filters<br>Wet Basins (*do not use near certified vernal pool*) |
| **Infiltration BMPs** | Exfiltrating Bioretention areas including rain gardens<br>Dry wells *(runoff from non-metal roofs and runoff from metal roofs located outside the Zone II or Interim Wellhead Protection Area of a public water supply or an industrial site only.)*<br>Infiltration Basins *(highly recommended)*<br>Infiltration Trenches *(highly recommended)*<br>Subsurface Structures |

For information on vernal pools, see MassDEP's Wildlife Habitat Guidance:
http://www.mass.gov/eea/docs/dep/water/laws/i-thru-z/wldhab.pdf

[31] Wildlife Habitat – http://www.mass.gov/eea/docs/dep/service/regulations/310cmr10a.pdf

## Attachment C

Massachusetts Wetlands Protection Act Excerpts

Note: The following is a preface to, but does not form a part of, the Wetlands Protection Act regulations (310 CMR 10.00).

## PREFACE TO THE WETLANDS PROTECTION ACT REGULATIONS, 2005 REVISIONS

### General Approach

The Department revised the wetlands protection regulations in part to respond to recent data showing greater than expected loss of wetlands, particularly from unpermitted alterations of resource areas. By reallocating resources from issuing permits for work in the outer portion of the buffer zone, the Department can increase its outreach and enforcement efforts to address illegal filling of wetlands. In addition, the Department sought an approach to work in the buffer zone that would increase protection by requiring a setback and placing limitations on eligible work, combined with a more efficient review process. The revisions are intended to allow a reduction of time spent by both conservation commissions and the Department in reviewing proposed activities in the buffer zone more than 50 feet from wetlands. Clarifications to the regulations governing work in resource areas, particularly the review of work in the buffer zone under a Notice of Intent and the exercise of discretion in allowing alteration of bordering vegetated wetlands, will improve consistency and strengthen the protection of resource areas.

The Department convened an advisory committee consisting of development, conservation commission, and environmental interests. After exploring several options, the Department decided to pursue the concept of a simplified review process for eligible projects. The regulations create incentives for applicants to construct projects further away from wetlands. In return for the additional protection to wetlands from moving projects further from resource areas, the procedural aspects of approval and the opportunities for appeals are reduced. In particular, the requirement that projects seeking simplified review stay more than 50 feet from resource areas will increase protection over what is currently approved under the existing regulations. The Department received extensive public comment on the regulations and responded by tightening the eligibility requirements, limiting refiling for subsequent work closer to resource areas, requiring verification of some eligibility requirements, clarifying procedures, and adding a sunset clause.

### Background on Buffer Zones

Since the buffer zone was adopted as a regulatory mechanism in 1983, research on the functions of buffer zones and their role in wetlands protection has clearly established that buffer zones play an important role in preservation of the physical, chemical and biological characteristics of the adjacent resource area. Although jurisdiction over work in the buffer zone remains contingent upon a conclusion by the issuing authority that work near resource areas will result in their alteration, review of work in the buffer zone is likely to contribute to the protection of the interests of the Act. The potential for adverse impacts to resource areas from work in the buffer zone increases with the extent of the work and the proximity to the resource area.

Extensive work in the inner portion of the buffer zone, particularly clearing of natural vegetation and soil disturbance is likely to alter the physical characteristics of resource areas by changing their soil composition, topography, hydrology, temperature, and the amount of light received. Soil and water chemistry within resource areas may be adversely affected by work in the buffer zone. Alterations to biological conditions in adjacent resource areas may include changes in plant community composition and structure, invertebrate and vertebrate biomass and species composition, and nutrient cycling. These alterations from work in the buffer zone can occur through the disruption and erosion of soil, loss of shading, reduction in nutrient inputs, and changes in litter and soil composition that filters runoff, serving to attenuate pollutants and sustain wildlife habitat within resource areas.

Preface: continued

**Simplified Review for Work in the Buffer Zone**

The Department has established a simplified review for eligible activities in the buffer zone using an Order of Resource Area Delineation. The purpose of these revisions is to steer development further from resource areas and to ease the administrative burden on commissions and the Department. The revisions are designed to preserve the existing jurisdiction and standards of the wetlands regulations, while relying on certification by applicants of their project's eligibility.

To qualify for the simplified review, work in the buffer zone must be outside of and more than 50 feet from a resource area and located away from other sensitive areas, incorporate stormwater management, and provide erosion controls during construction. In response to concerns raised during the public comment period, the Department added several eligibility requirements. The slope within the buffer zone must be no steeper than 15%. No more than 40% of the buffer zone between 50 and 100 feet may be impervious surface. Simplified review is available only for buffer zones of inland resource areas. Finally, many commenters expressed concern about the potential for later filings for work in the first 50 feet of the buffer zone after taking advantage of the simplified review process. The Department has responsed by adding a provision that prevents applicants from filing a Notice of Intent in the first 50 feet during the three year term of the Order of Resource Area Delineation and by adding a provision that explicitly requires the extent of prior work in the buffer zone to be taken into account in any subsequent filing.

An applicant must submit an Abbreviated Notice of Resource Area Delineation, with the fee and abutter notification, to confirm the extent of resource areas and the buffer zone and to certify eligibility. The conservation commission will confirm the delineation through an Order of Resource Area Delineation, which will be recorded. A commission may require a Notice of Intent if the Stormwater Management Plan does not meet Department standards. To address concerns raised during public comment about the lack of opportunity for conservation commissions to verify eligibility, commissions now may declare a site ineligible if it contains steep slopes; sensitive water resources, or rare species habitat.

In response to additional concerns about oversight, the Department has retained its protocol of conducting site visits if a project is appealed. The Department has also added a sunset clause of three years, which will require the Department to evaluate the simplified review process. The revisions will enhance wetlands protection by allowing reallocation of resources to enforcement and review of projects with greater impacts.

**Standards for Work in the Buffer Zone under a Notice of Intent**

The revised regulation establishes a narrative standard for work in the buffer zone performed under a Notice of Intent. Conditions on work in the buffer zone may include erosion controls, a clear limit of work, preservation of natural vegetation adjacent to the resource area, and design review to avoid alteration of wetlands. Characteristics of the buffer zone at a particular site, such as the presence of steep slopes or the absence of natural vegetation, may increase the potential for adverse impacts on resource areas. The review and conditioning of activities in the buffer zone should be commensurate with the extent and location of the work in the buffer zone and its potential to alter resource areas. The standard is intended to provide better guidance to applicants, conservation commissions and DEP by identifying the measures that will ensure that adjacent resource areas are not adversely affected during or after completion of the work.

**Minor Activities**

Minor activities are categories of work that are not subject to review. The proposed regulations would have allowed the expansion of single family homes of up to 20% as a minor activity and also would have allowed minor activities in the flood plain. In response to public comment in opposition, these proposals have been withdrawn.

10.04: continued

d. the squaring-off of fields and bogs, provided that the activity does not alter a Bordering Vegetated Wetland, there is no increase in the amount of land in production beyond the minimum increase necessarily resulting from making the boundary of any field or bog more regular, and no fill is placed within Bordering Land Subject to Flooding;

e. the construction of by-pass canals/channels and tail water recovery systems;

f. a change in commodity other than from maple sap production or forest products to any other commodity, provided that there is no filling of Bordering Vegetated Wetland and drainage ditches or the subsurface drainage system are not increased or enlarged;

g. the construction of a water management system such as a reservoir, farm pond, irrigation system, field ditch, cross ditch, canal/channel, grass waterway, dike, sub-surface drainage system, watering facility, water transport system, vent, or water storage system, or of a livestock access; and

h. the construction of composting and storage areas.

For the activities described in 310 CMR 10.04: Agriculture(c)(1)d. through h. there shall be no net loss of flood storage capacity; and

2. the reconstruction of existing dikes, the reconstruction and expansion of existing ponds and reservoirs, and the construction of tailwater recovery ponds and by-pass canals/channels occurring partly or entirely within a Bordering Vegetated Wetland, when directly related to production or raising of the agricultural commodities referenced in 310 CMR 10.04: Agriculture(a), in accordance with the following:

a. Prior to performing the work, the person claiming the exemption shall submit to the conservation commission for its review at a public meeting that portion of a certified farm Conservation Plan (CP) which relates to the work to be conducted in a Bordering Vegetated Wetland. The CP must be prepared in cooperation with the U.S.D.A. Natural Resource Conservation Service (NRCS), Memorandum of Understanding (MOU) between the Department and NRCS concerning CPs;

b. The conservation commission may, within 21 days of receiving the CP, provide the person claiming the exemption with written notification containing specific comments detailing the manner in which the CP has not been prepared in compliance with the terms of the MOU;

c. The person claiming the exemption shall provide SCS with a complete copy of the notification;

d. All revisions to the CP that relate to the delineation of Bordering Vegetated Wetlands shall be submitted to the conservation commission in accordance with 310 CMR 10.04: Agriculture(c)2.;

e. All work shall be done in accordance with the CP; and

f. The maximum amount of Bordering Vegetated Wetland which may be altered by the above activities is:

i. 5,000 square feet for reconstruction of an existing dike;

ii. 10,000 square feet for expansion of an existing pond or reservoir;

iii. 10,000 square feet for construction of a tailwater recovery pond; and

iv. 5,000 square feet for construction of a by-pass canal/channel.

Alter means to change the condition of any Area Subject to Protection under M.G.L. c. 131, § 40. Examples of alterations include, but are not limited to, the following:

(a) the changing of pre-existing drainage characteristics, flushing characteristics, salinity distribution, sedimentation patterns, flow patterns and flood retention areas;

(b) the lowering of the water level or water table;

(c) the destruction of vegetation;

(d) the changing of water temperature, biochemical oxygen demand (BOD), and other physical, biological or chemical characteristics of the receiving water.

Provided, that when the provisions of 310 CMR 10.03(6) and 10.05(3) or 333 CMR 11.03(9) have been met, the application of herbicides in the Buffer Zone in accordance with such plans as are required by the Department of Food and Agriculture pursuant to 333 CMR 11.00: *Right of Way Management*, effective July 10, 1987, is not an alteration of any Area Subject to Protection under M.G.L. c. 131, § 40.

10.53: General Provisions

(1) If the Issuing Authority determines that a Resource Area is significant to an interest identified in M.G.L. c. 131, § 40 for which no presumption is stated in the Preamble to the applicable section, the Issuing Authority shall impose such conditions as are necessary to contribute to the protection of such interests. For work in the Buffer Zone subject to review under 310 CMR 10.02(2)(b)3., the Issuing Authority shall impose conditions to protect the interests of the Act identified for the adjacent Resource Area. The potential for adverse impacts to Resource Areas from work in the Buffer Zone may increase with the extent of the work and the proximity to the Resource Area. The Issuing Authority may consider the characteristics of the Buffer Zone, such as the presence of steep slopes, that may increase the potential for adverse impacts on Resource Areas. Conditions may include limitations on the scope and location of work in the Buffer Zone as necessary to avoid alteration of Resource Areas. The Issuing Authority may require erosion and sedimentation controls during construction, a clear limit of work, and the preservation of natural vegetation adjacent to the Resource Area and/or other measures commensurate with the scope and location of the work within the Buffer Zone to protect the interests of M.G.L. c. 131, § 40. Where a Buffer Zone has already been developed, the Issuing Authority may consider the extent of existing development in its review of subsequent proposed work and, where prior development is extensive, may consider measures such as the restoration of natural vegetation adjacent to a Resource Area to protect the interest of M.G.L. c. 131, § 40. The purpose of preconstruction review of work in the Buffer Zone is to ensure that adjacent Resource Areas are not adversely affected during or after completion of the work.

(2) When the site of a proposed project is subject to a Restriction Order which has been duly recorded under the provisions of M.G.L. c. 131, § 40A, such a project shall conform to both the provisions contained in that Order and 310 CMR 10.51 through 10.60.

(3) Notwithstanding the provisions of 310 CMR 10.54 through 10.58 and 10.60, the Issuing Authority may issue an Order of Conditions and impose such conditions as will contribute to the interests identified in M.G.L. c. 131, § 40 permitting the following limited projects (although no such project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.59). In determining whether to exercise its discretion to approve the limited projects listed in 310 CMR 10.53(3), the Issuing Authority shall consider the following factors: the magnitude of the alteration and the significance of the project site to the interests identified in M.G.L. c. 131, § 40, the availability of reasonable alternatives to the proposed activity, the extent to which adverse impacts are minimized, and the extent to which mitigation measures, including replication or restoration, are provided to contribute to the protection of the interests identified in M.G.L. c. 131, § 40.

(a) Work on land to be used primarily and directly in the raising of animals, including but not limited to dairy cattle, beef cattle, poultry, sheep, swine, horses, ponies, mules, goats, bees and fur-bearing animals or on land to be used in a related manner which is incidental thereto and represents a customary and necessary use in raising such animals; and work on land to be used primarily and directly in the raising of fruits, vegetables, berries, nuts and other foods for human consumption, feed for animals, tobacco, flowers, sod, trees, nursery or greenhouse products, and ornamental plants and shrubs; or on land to be used in a related manner which is incidental thereto and represents a customary and necessary use in raising such products, provided they are carried out in accordance with the following general conditions and any additional conditions deemed necessary by the issuing authority:

1. there shall occur no change in the existing topography or the existing soil and surface water levels of the area;

2. all fertilizers, pesticides, herbicides and other such materials shall be used in accordance with all applicable state and federal laws and regulations governing their use; and

3. all activities shall be undertaken in such a manner as to prevent erosion and siltation of adjacent water bodies and wetlands as specified by the U.S.D.A. Soil Conservation Service, *Guidelines for Soil and Water Conservation*. A plan prepared by the U.S.D.A. Soil Conservation Service through a county conservation district for the improvement of land for agriculture shall be deemed adequate to prevent erosion and siltation.

**Attachment B**

Working Session Recap and Summary Byfield Estate Comprehensive Permit Application, Newbury, Massachusetts, dated February 16, 2018

# MEMORANDUM

**DATE:** February 26, 2018

**TO:** Newbury Zoning Board of Appeals

**FROM:** Ann M. Marton, Director of Ecological Services

**RE:** Working Session Recap and Summary
Byfield Estates Comprehensive Permit Application
Newbury, Massachusetts

**LEC File#:** ToNEW\17-300.02

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The following provides a brief recap and summary of the February 15, 2018 Working Session.

**Attendance:**

Ann Marton, LEC Environmental Consultants, Inc.—ZBA Peer Reviewer
Robert Blanchett, W.C. Cammett Engineering, Inc.—ZBA Peer Reviewer
Mary Rimmer, Rimmer Environmental—Applicant's Environmental Consultant
Ben Osgood, Ranger Engineering & Design, LLC—Applicant's Engineer

**Working Session:**

We had a very productive working session that included the following:

1. Review and discussion of the LEC February 8, 2018 Site Plan Review Memorandum.
2. Review and discussion of the Cammett February 9, 2018 Peer Review Letter.
3. Reviewed in detail the MADEP Stormwater Management Policy with a particular focus on compliance with the set back requirements contained in Standard 6 and (see Cammett Recap for additional discussion of stormwater compliance).
4. Discussed means and methods for determining the extent of historic illegal filling on parcels R-20, Lot 75 and R-20, Lot 76 and the need for the Applicant (through Mary Rimmer) to prepare and submit to the Zoning Board of Appeals (ZBA) their findings in a formal document (versus our informal email dialogue to date) for the ZBA to review and for LEC to formally respond. The purpose of this exercise is to confirm the total amount of fill and confirm the total amount of required replication (historic fill plus that proposed as part of the Comprehensive Permit Application).

5. Based discussions during the Working Session, Mr. Osgood committed to relocating all stormwater Best Management Practices (stormwater basins, roof infiltration, piping, outfalls, swales, etc.) greater than 100-feet from the two Vernal Pools contained in the A-Series and D-Series Wetlands.
6. Discussed the prudence in pulling Stormwater Basin P3-2 further away from the boundary of the C-Series BVW to avoid direct wetland alteration resulting from clearing, grubbing, and grading up to the edge of the BVW. While not completely solidified in our discussions, we are expecting Ms. Rimmer to submit a written report responding to LEC Comments 7 and 8 from our February 8, 2018 Site Plan Review Memorandum.
7. We discussed the practicalities of installing modular retaining walls and the required footings. Mr. Osgood is going to review the plans, clarify the type of wall, limits of work, and footing requirements. This should address LEC Comments 10 and 11 from our February 8, 2018 Site Plan Review Memorandum.

The above commitments will require the Applicant to re-assess their stormwater design, infiltration assumptions, and produce updated plans and stormwater calculations as well as prepare and submit written documentation relative to historic wetland filling and compliance with the performance standards for work in the Buffer Zone to ensure protection of adjacent BVWs.

I hope this recap proves helpful to the ZBA as they review the proposed project and to the Applicant's Representatives as they prepare revised plans and supporting documentation. I will continue my review of the project upon receipt of updated plans and supporting information.

**Attachment C**

Initial Peer Review of Revised Site Plans/Written Materials,
Byfield Estate Comprehensive Permit Application,
Newbury, Massachusetts dated March 15, 2018

# MEMORANDUM

**DATE:** March 15, 2018

**TO:** Newbury Zoning Board of Appeals

**FROM:** Ann M. Marton, Director of Ecological Services

**RE:** Initial Peer Review of Revised Site Plans/Written Materials
Byfield Estates Comprehensive Permit Application
Newbury, Massachusetts

**LEC File#:** ToNEW\17-300.02

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LEC is in receipt of and in the process of reviewing the following materials:

- Byfield Estates, Comprehensive Permit Application, Peer Review Response Letter prepared by Ranger Engineering & Design, LLC (Ranger), dated March 1, 2018 (received on March 5, 2018);
- 40B Comprehensive Permit Byfield Estates Plan Set (Sheets 1-17) prepared by Ranger Engineering & Design, LLC, dated March 22, 2017, and last revised March 1, 2018 (received on March 5, 2018);
- Stormwater Management Report 40B Development at 55 Pearson Drive, prepared by Ranger Engineering & Design, LLC, dated November 15, 2017, and last revised March 1, 2018 (received on March 5, 2018); and
- Site Plan Review-Byfield Estates Comprehensive Permit Application Response to Reviewer Comments Feb. 8, 2018 prepared by Rimmer Environmental Consultants, LLC (Rimmer) dated March 7, 2018 (received March 9, 2018).

While I have not completed my full review, to keep the process moving forward, I offer the following initial preliminary comments and recommendations to enable the Applicant's representatives to begin evaluating and modifying their plans/reports as soon as possible.

1. The footprint and amount of historic wetland filling referenced in Ms. Rimmer's March 7, 2018 Response Letter and attachments do not appear to correlate to the Ranger Plans.

   Sheet 3 of the Site Plans graphically depicts as a gray shaded area 1,565 square feet (s.f.) of historic filling between flags D21 and E19.1. This amount of filling is based on the historic topo from the original subdivision plan.

   The 1980 Aerial Image attached to Ms. Rimmer's Response Letter depicts historic wetland filling

between Flags E15 and E19 that is not shown on the Ranger plan.

Please add the filling between flags E15 and E19 (970 s.f. estimated by Ms. Rimmer) to plan Sheet 3 and revise the total historic wetland fill to 2,535± s.f. (1565 + 970 =2,535).

These changes also will affect sheets 3, 6, and 14 and the total amount of required Wetland Replication/Restoration.

2. During the February 15, 2018 Working Session we discussed relocating the Wetland Replacement Area north of the wetland system in the vicinity of wetland flags E8 and E12. The revised plans depict a 3,300 s.f. Wetland Replacement Area South of the E Series Wetland, directly behind the dwelling at 55 Pearson Drive within 20± feet of the driveway and 25± feet of the dwelling.

   Based on the history of filling and the presence of a retaining wall in the wetland presumably to create a backyard, this does not appear to be an appropriate location for wetland replacement. The shape of the replacement area also does not appear to correlate to any existing grades or the adjacent wetland system.

   No general grading of the Wetland Replacement Area has been depicted on the Grading and Drainage Plan (sheet 7) as referenced in Ms. Rimmer's Response #13.

   Please explain the change in location, your rationale for this new location, and consider alternative locations.

3. During the February 15, 2018 Working Session we discussed Ranger's conservative assumptions in the stormwater design and calculations that may have resulted in over-sizing of the Basin P3-2 and or other proposed stormwater management systems. I have asked Cammet Engineering to consider this in their peer review of the updated materials as it appears that such conservative assumptions could be affecting Ranger's ability to accommodate our concerns relative to potential wetland impacts.

4. Item #7 of Ms. Rimmer's March 7, 2017 Response Letter discussing changes to Basin P3-2 states that "This change will create a minimum 10 +/- feet setback from the toe of the grading to the wetland edge making it easier to construct…."

   The actual limit-of-work/erosion control line for Basin P3-2 extends very close (within 3-5 feet) of the BVW between flags C6 to C9; flags C9 to C13; and C18 to C22. LEC recommends increasing the setback between this Basin and the BVW.

5. The limit-of-work line for the newly located Basin P1-2 extends very close (within 3-7 feet) of the BVW between flags D14 to D19 and requires clearing of vegetation along a <u>southern exposure</u>. LEC recommends increasing the setback between this Basin and the BVW.

   As currently depicted on the plans, tree clearing also extends *into* the BVW between flags D14 and D19. Please correct this on all plan sheets.

6. Ms. Rimmer's Response #8 has not provided a convincing argument relative to minimizing or preventing short-term construction related impacts or long-term wetland function impacts to the adjacent BVW relative to construction of Basins P1-2 and P3-2 (see LEC February 8, 2018 Memorandum comments #7 and #8).

7. Detail 11—Modular Retaining Wall on Sheet 10 has not been revised to show a stone footing base as referenced in Ms. Rimmer's Response #10.

**Attachment D**

Mary Rimmer's March 7, 2018 Response Letter and Attachments

REC
Rimmer Environmental Consulting, LLC

57 Boston Road ◦ Newbury, MA 01951 ◦ Tel 978-463-9226 ◦ Fax 978-463-8716

March 7, 2018

Town of Newbury Zoning Board of Appeals
Municipal Offices
12 Kent Way, Suite 200
Byfield, MA 01922

**Re: Site Plan Review - Byfield Estates Comprehensive Permit Application**
**Response to Reviewer Comments Feb. 8, 2018**

Dear Members of the ZBA:

Rimmer Environmental Consulting, LLC (REC) was retained by the applicant to assist with environmental compliance issues relating to the proposed development. REC performed wetland delineations and vernal pool evaluations on the site and have been advising the applicant on relevant performance standards under the Massachusetts Wetlands Protection Act (MGL Ch. 131 s. 40).

The following are responses to comments from your environmental peer reviewer, Ann Marton of LEC, dated February 8, 2018. The responses are ordered similarly to Ms. Marton's letter, with the subject of each comment paraphrased in italics.

1. *Vernal Pools:* REC has no further response to comments regarding the status of two vernal pools on the property, other than to report that Mass. Natural Heritage and Endangered Species Program confirmed receipt and processing of an electronic request for certification of the vernal pool within Wetland A submitted on February 7. As soon as information on certification is available it will be forwarded.

2. *Historic Filling on Lots R-20, Lot 75 and R-20 Lot 76:* REC has reviewed historic aerial photographs of the site provided by Col-East dated 1975 and 1980 (see Figures 1 and 2 attached). These photos were taken before and during site preparation for construction of the house at 57 Pearson Drive respectively. In order to compare the wetland signature on the photos with the current conditions, the current wetland boundary was overlaid onto the aerials. Based on this method, it was determined that some wetlands were likely filled or altered on the 55 Pearson Drive lot from construction activities at 57 Pearson Drive, between the current wetland flags D21 and E21 during the period between 1975 and 1980. The area of filling was estimated by Ranger Engineering based

on these figures to be 651 square feet. This alteration occurred prior to the effective date of the relevant Wetland Protection Act Regulations (310 CMR 10.00) in 1983[1].

The house at 55 Pearson Drive was constructed in approximately 1983. At some time after that date, a small concrete block and timber retaining wall was constructed and some grading was done in the rear yard close or possibly within the limits of a regulated wetland between. Based on the aerial images, current field inspection, and review of the topographic plan from the original Pearson Drive Subdivision (Plan Book 152 Plan 63) this encroachment appears to have occurred in the vicinity of wetland flags E15-E19 and was estimated by Ranger Engineering to be approximately 970 square feet.

The combination of the two alterations is estimated to be 1,621 square feet. While it can be argued that the statute of limitations limits the ability to enforce the unauthorized alteration which occurred in 1980 by a prior owner (or likely the original contractor), the applicant has agreed to incorporate mitigation for both of these alterations into its project plans by expanding the proposed wetland replication area that is required for mitigation of impacts associated with the roadway crossing by the amount of the estimated historic alterations so that there is no long term net loss of wetland resource areas.

3. *Northern Long- Eared Bat:* REC agrees with LEC's assessment and has no further comment.

*Design Considerations*

4. *Stormwater Best Management Practices:* As recommended by LEC, plans have been revised so that all BMPs located within 100 feet of the Vernal Pool boundaries recently established within the D-series wetland will be relocated more than 100 feet from the Vernal Pool boundary. The stormwater structure identified as Detention Pond P1-2 was originally located within 100 feet of this Vernal Pool. This structure was designed to control the rate of runoff prior to discharge only and was not designed to provide treatment and renovation of stormwater runoff, as treatment was being fully provided as required by the Stormwater Regulations by other upstream structures, so the quality of discharge from this structure was presumed under the Regulations to be clean. However, since it is technically a stormwater structure that is described in the Stormwater Regulations, its location has been revised so that it is entirely outside of the vernal pool buffer zone.

5. *Design Considerations – Wildlife Habitat Evaluation:* As described above, revised plans locate all stormwater structures greater than 100 feet from Vernal Pool boundaries, including Detention Pond P1-2 closest to the Vernal Pool in the D-series wetland and the infiltration chambers in the rear of the houses that were proposed within 100 feet of the Vernal Pool within the A series wetland. The infiltration chambers are proposed to simply enhance the recharge to the groundwater table of clean roof runoff. While the original proposed location of these structures would have had no adverse effect on the

[1] The Regulations to the Mass. Wetlands Protection Act were originally promulgated in 1974 but contained little detail on types of wetlands or protection measures until 1983.

function of the Vernal Pool within the A-series wetland, a strict reading of the Stormwater Regulations suggests these structures may be permitted within 100 feet of a Vernal Pool only upon completion of a Wildlife Habitat Evaluation. By relocating all of these BMPs, a Wildlife Habitat Evaluation is no longer triggered. The revision will allow the project to be in full compliance with this provision of the Stormwater Regulations and compliance presumes that the work will not result in an adverse impact to wetlands or their ability to continue to provide wildlife habitat.

6. *Project Impacts to Vernal Pool Hydrology:* The project has been designed to balance pre- and post-development hydrology contributing to the vernal pools/wetland systems. The pre and post-development watersheds contributing to the two vernal pools was calculated by Ranger Engineering on Figures 3 and 4 attached. The vernal pool abutting state land in wetland D has an approximately 18 acre watershed and the project will reduce that contributing watershed area by .9 acres or 5%. This change occurs at the most downstream end of the wetland where the pool is located, where the change has the least potential for impact to the hydro-period of the pool. In addition, groundwater contributions from the immediately adjacent watershed are likely to be greater due to infiltration from the septic treatment areas, more than off-setting any change in the watershed area. All discharge from the septic system is presumed under Title V to be clean.

   The contributing drainage area to the vernal pool in Wetland A is much smaller, at 2.81 acres. It is being reduced by 0.46 acres or 16%. Groundwater contributions are expected to be similar to existing conditions by infiltrating roof runoff in this area, resulting in no significant change to the hydrology of this pool.

7. *Construction up to the boundary of and very close to Wetlands C and D:* The relocation of BMPs described in item 4 above will result in significantly expanded undisturbed buffer zone in the vicinity of Wetland D and will consolidate buffer zone impacts to the southern portion of the site. Plans have been revised at Detention Pond P3-2 to limit the extent of grading in close proximity to Wetland C. This change will create a minimum of 10+/- feet setback from the toe of grading to the wetland edge making it easier to construct without accidental incursion into the wetland providing a natural vegetated buffer to the wetland. In addition, the outer slope of the detention basin facing the wetland is proposed to be planted with a variety of native, berry-producing shrubs to further expand the undisturbed buffer zone upon completion of work by another 15+/- feet. This change will improve the wildlife habitat quality of the buffer zone beyond the typical loam and seeding that is traditionally specified on the back slope of these basins. A planting plan detailing the types, numbers and density of plantings will be provided as part of the Notice of Intent filed with the Conservation Commission and MassDEP.

8. *Review the extent and proximity of proposed clearing in the Buffer Zone:* These comments have largely been addressed under item 7 above. The changes described above will greatly minimize potential for short term construction related impacts to wetlands, including sedimentation from erosion of exposed soils, inadvertent cutting and clearing of vegetation too close too or beyond the limit of work. They will also protect long-term wetland function by minimizing loss of shade and cover near the

wetland boundary that can affect surface water and forest floor temperatures, and minimize loss of nutrient inputs from changes in vegetative communities.

*Plan Content:*

9. *Sheet 3:* Setbacks and Buffer Zones will be added to Sheets 4-8, 14 and 16.

10. *Detail 11- Modular Retaining Wall, Sheet 10*: The proposed wall does not require a footing other than the stone base indicated on the detail. A heavy duty siltation fence detail has been added to the detail sheets for use in this area.

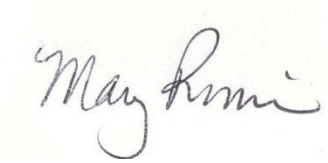
11. *Construction of Modular Block Retaining Wall:* The temporary wetland impacts associated with construction of the retaining wall required to support construction of the access road were reviewed and the 5-foot width estimated for construction was determined to be reasonable to allow construction for this wall due to the absence of a poured footing. Equipment will be operated from the upland side of the wall and the proposed construction methods do not require heavy equipment access within the temporary impact area. The location of the erosion control barrier has been adjusted on the plan to reflect this temporary disturbance.

12. *Detail 3-Silt Fence/Hay Bale Barrier*: This detail will be revised as recommended to depict entrenchment of siltation fence.

13. *Detail on Wetland Replication Area*: General grading of the wetland replication area is depicted on the revised Grading and Drainage Plan. Details on wetland replication construction, plant types, sizes and densities as well as post-construction monitoring will be prepared and submitted to MassDEP and the Conservation Commission as part of a Notice of Intent for this project.

14. *Working Session among Applicant's and Town's Technical Advisors:* At LEC's recommendation, a working session among the applicant's and Town's representatives was conducted at LEC on February 15, 2018 to further discuss comments and potential responses. This session was extremely useful in understanding reviewers' concerns and obtaining feedback on the applicant's proposed responses.

Very truly,



Mary Rimmer, M.A., P.W.S.
Principal/Sr. Wetland Scientist

VERNAL POOL DRAINAGE AREA - D SERIES WETLAND

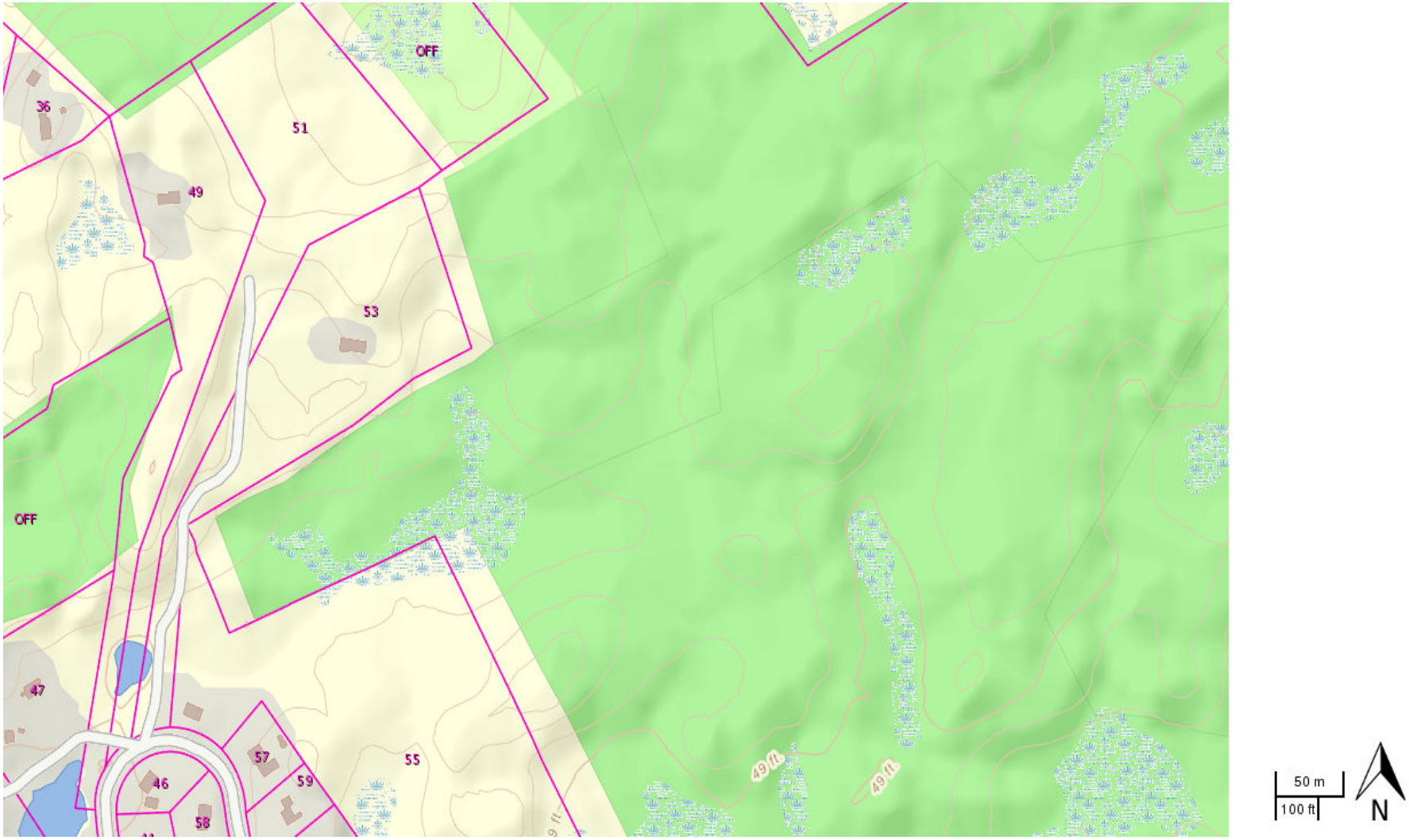



FIGURE 3

VERNAL POOL DRAINAGE AREA - A SERIES


FIGURE 4

# MEMORANDUM

**DATE:** October 9, 2020

**TO:** Newbury Zoning Board of Appeals

**FROM:** Ann M. Marton, Director of Ecological Services

**RE:** Comprehensive Permit Application and Site Plan Peer Review
Village at Cricket Lane, Newbury, Massachusetts

**LEC File#:** ToNew\17-300.02

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LEC received and has reviewed the following materials for compliance with the *Massachusetts Wetlands Protection Act* (M.G.L. c. 131, s. 40, the *Act*) and the implementing Regulations at 310 CMR 10.00 (the *Act Regulations*), the DEP Stormwater Management Policy relative to protection of Wetland Resource Areas, and other Best Management Practices for design and construction:

- The Village at Cricket Lane 55R Pearson Drive, Peer Review Response Letter prepared by Ranger Engineering Group, Inc. dated July 2, 2020; and
- 40B Comprehensive Permit The Village at Cricket Lane, Byfield, MA Plan Set (Sheets 1-19) prepared by Ranger Engineering Group, Inc., dated January 22, 2020, last revised August 17, 2020.

LEC restates and incorporates by reference our prior April 29, 2020 Peer Review Memorandum and provides the following clarifications or responses to the aforementioned peer reviewed materials.

1. Sheet 3 of the Site Plans has been updated to depict the extent of historic wetland filling estimated by Mary Rimmer between flags D21 and E19.1 encompassing 1,565[1]± square feet (SF) and between the westerly property boundary and flag E19 encompassing 475± SF for a total of 2,040± SF of unauthorized historic filling.

   The Applicant has declined to depict this historic wetland filling on the other plan sheets (e.g. Sheets 5, 6, 7, 8, 9, 15, and 17) as requested in my April 29, 2020 Peer Review Memorandum claiming that it would be confusing. At a minimum, plan sheets 7 and 16, which depict the required wetland filling for the access road, must depict both the historic and new wetland filling. Furthermore, sheets 7 and 13 should cross-hatch the footprint of the historic filling that also occurs within the Limits of Work for the proposed access road and revise the plan to account for the full amount of historic and proposed wetland filling within the proposed Limits-of-Work (LOW).

[1] Sheet 3 refers to 1,565 SF while all other plan sheets refer to 1,564 SF. Please reconcile this difference on all the plan sheets including the impact tables on plan sheet 16-Wetland Details.

2. As requested in my April 29, 2020 Peer Review Memorandum, the Applicant has relocated the wetland replacement area north of the D/E wetland series, roughly between flags E3 and E10 as discussed during the February 15, 2018 Working Session for Byfield Estates.

   The Wetland Details plan (sheet 16) depicts a proposed 5,050 SF Wetland Replacement Area with grading, tree protections to the presumed drip line for 3 existing trees, a Wetland Replacement Planting Table, Wetland Seed Mix, and Performance Specifications. While this is a vast improvement, the Wetland Replacement Table omits the number of required trees and shrubs to confirm proper planting densities, and includes eastern white pine (*Pinus strobus*) which is not a wetland plant. Please add tree and shrub quantities and either remove *P. strobus* or replace with a more appropriate tree species. Additionally, see Attachment A for LEC's markup comments on Sheet 16.

3. Please explain your rationale for continuing to provide 610 SF of Wetland Replacement south of flags E19 and E16 in the backyard of the existing dwelling. The proposed Wetland Replacement Area north of the D/E Series appears large enough to cover all of the historic and newly proposed wetland filling. As stated in my April 29, 2020 Peer Review Memorandum, based on the history of filling on this site, and the presence of a retaining wall <u>in</u> the wetland (presumably to create the backyard), the backyard of the existing dwelling does not appear to be an appropriate location for Wetland Replacement.

4. Please provide a means, methods, and proposed protections to reduce impacts associated with the 12-foot wide, 290 SF of temporary wetland crossing to access the Wetland Replacement Area. Depending on the vegetative composition within this 290 SF area (has anyone evaluated the viability of crossing at this location?) and the proposed means, methods, and protections, restoration plantings may be required.

5. Please provide proposed woody plantings, seed mix, and performance specifications for the 495 SF of wetland restoration at the base of the roadway retaining wall between stations 1+25 and 2+15.

6. I herein restate my April 29, 2020 Peer Review Comment #3:

   > "The actual limit-of-work/erosion control line for Basin P3-2 extends very close (varies from 3-8 feet) to the BVW between flags C7 to C9; flags C11 to C13; and C18 to C22. LEC recommends increasing the setback between this Basin and the BVW. Otherwise, it does not seem feasible to construct this basin that close to the BVW without impairing or otherwise destroying portions of the BVW.
   >
   > Based on the current Basin P3-2 limit of work, the clearing of natural vegetation and soil disturbance is likely to alter the physical characteristics of the adjacent BVW by changing the soil composition, topography, hydrology, temperature, and the amount of light received (see 2005 Preamble to the Act Regulations). In accordance with 310 CMR

10.53 (1) the Issuing Authority shall impose conditions to protect the interests of the Act...and may consider the characteristics of the Buffer Zone, such as the presence of steep slopes…and conditions may include limitations on the scope and location of work in the Buffer Zone as necessary to avoid alteration of the Resource Area…including the preservation of natural vegetation adjacent to the Resource Area.

LEC Recommends reconsidering the close proximity of Basin P3-2 to the BVW."

LEC encourages the Applicant to reconsider the close proximity of the toe of slope to the Series C Wetland coupled with the clearing necessary to construct this basin. The Applicant has not adequately responded to our concerns relative to the clearing of natural vegetation and soil disturbance so close to the wetland and the likelihood that it will alter the physical characteristics of the adjacent BVW by changing the soil composition, topography, hydrology, temperature, and the amount of light received.

7. The Ranger Engineering Group, Inc. July 2, 2020 letter states that "Additional plantings can be included along the toe of the slope.", but has not offered any actual proposal that can be peer reviewed.

8. I herein restate my April 29, 2020 Peer Review Comment #4:

   "The limit-of-work line for Basin P1-2 extends very close (within 3-7 feet) of the BVW between flags D14 to D19 and requires clearing of vegetation along a <u>southern exposure</u>. LEC recommends increasing the setback between this Basin and the BVW. See above comment #3" [now comment #6].

9. I herein restate my April 29, 2020 Peer Review Comment #5:

   "Ms. Rimmer's Response #8 (Attachment D) does not provide a convincing argument relative to minimizing or preventing short-term construction related impacts or long-term wetland function impacts to the adjacent BVW relative to construction of Basins P1-2 and P3-2 (see LEC February 8, 2018 Memorandum comments #7 and #8)".

10. The Applicant has added a "Heavy Duty Silt Fence Barrier" to Detail Sheet 19 and differentiated two types of erosion control along the limit of work, "SF" and "HDSF," but the legend designates both of these as silt fence/silt sock. Please correct the legend to designate "HDSF" as Heavy Duty Silt Fence/Silt Sock.

11. I herein restate my April 29, 2020 Peer Review Comment #7:

    "The Comprehensive Permit only refers to 55 Rear Pearson Drive, labeled on the plans as Parcel B Assessor's Map R-20 Lot 75 at 15.08 acres. Assessor's Map R-20 Lot 75 also includes the parcel labeled on the plans as 55 Pearson Drive as 1.28 acres. The Applicant is clearly proposing work, including the entrance road and proposed Wetland

Replacement, on both of these 'parcels.' The filing should be corrected to include both parcels at a total of 16.36± acres."

12. Thank you for explaining the placement of the primary and reserve septic systems and the typical process for system reconstruction. However, this does not respond to my question, nor does it address the requirement for the leaching beds to be offset at least 100 feet from the Vernal Pool boundary. Based on overlaying plan sheet 9 (depicting the 100-foot setback) onto plan sheet 11 that does not depict the 100-foot setback, both Presby System 1 and Presby System 2 extend at least 5 feet into the setback. Please locate the *entire* septic system outside the 100-foot setback to the Vernal Pool.

13. The Comprehensive Permit only refers to 55 Rear Pearson Drive, labeled on the plans as Parcel B Assessor's Map R-20 Lot 75 at 15.08 acres. Assessor's Map R-20 Lot 75 also includes the parcel labeled on the plans as 55 Pearson Drive as 1.28 acres. The Applicant is clearly proposing work, including the entrance road and proposed Wetland Replacement, on both of these 'parcels.' The filing should be corrected to include both parcels at a total of 16.36± acres.

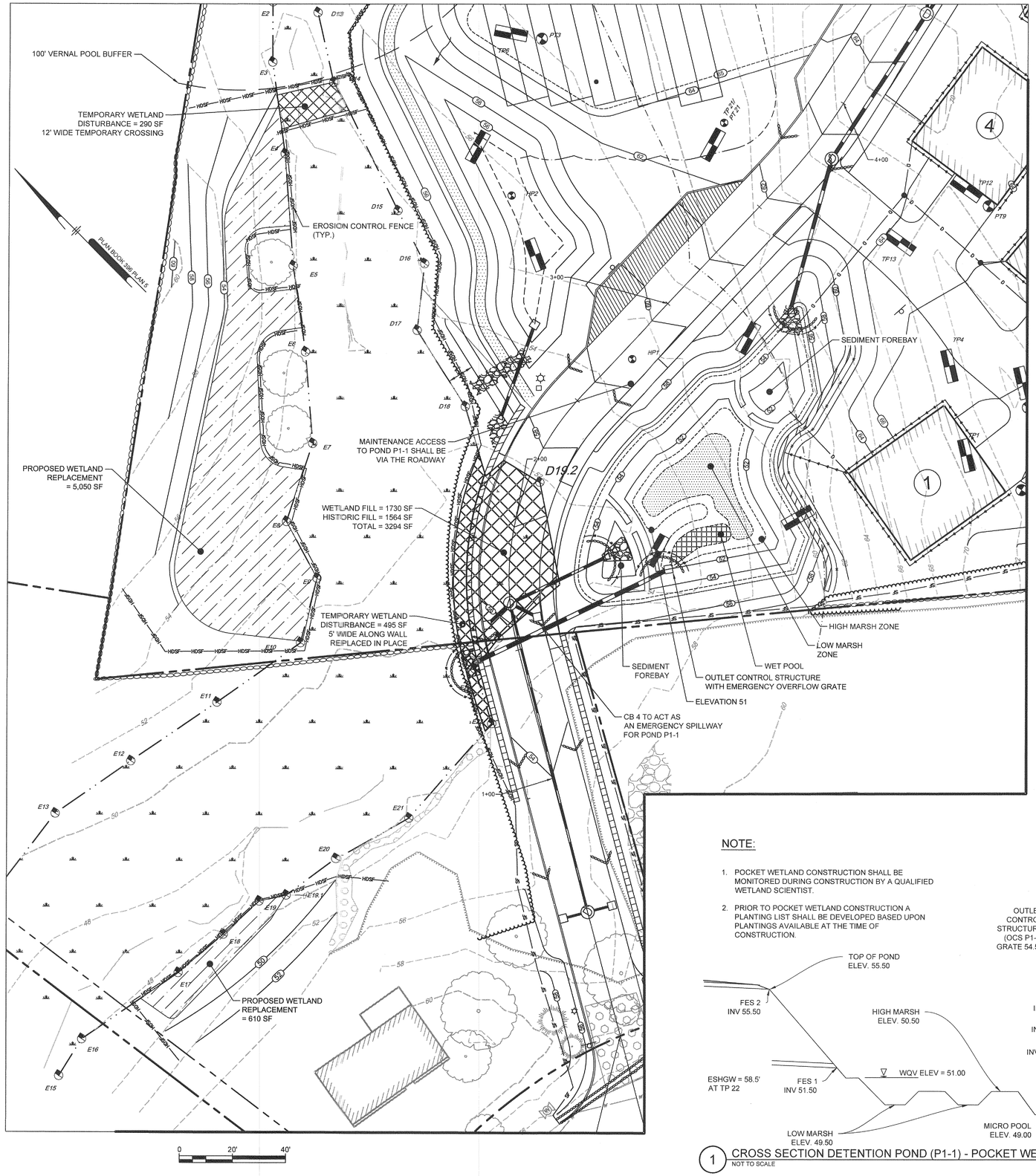
14. LEC remains concerned that the Applicant has designed Pond P1-1 as a wet pond to hold water at all times to provide stormwater treatment. It is important to avoid standing water for any extended period of time within the stormwater basins to prevent vernal pool species from attempting to breed within the stormwater basins. Please explain why you have selected this type of design for Pond P1-1 versus a traditional extended detention basin that will drain following storm events.

15. Thank you for providing an updated Open Space Plan. Please clarify whether this deeding of land has been discussed with the Division of Fish and Game and report on their willingness or desire to accept the land.

16. Sheet 7 depicts a walking path near the base of the slope for connection to the adjacent Martin H. Burns Wildlife Management Area (WMA) under the care and custody of the Division of Fish and Game. Has the Applicant discussed this connection with the Division of Fish and Game and have they confirmed that such connection is consistent with the use and management of the WMA?

**Attachment A**

Peer Review Comments
The Village at Cricket Lane
Wetland Details (sheet 16)
Last revised 8/17/2020




| POCKET WETLAND DESIGN | |
|---|---|
| DRAINAGE AREA | 62,234 SF |
| WETLAND AREA | 1,570 SF |
| SURFACE TO WATERSHED RATIO | .03 |
| LENGTH | 90 ' |
| WIDTH | 10 ' |
| L TO W RATIO | 9:1 |
| SURFACE AREA ALLOCATION | |
| WET POOL | 165 SF (10.5%) |
| LOW MARSH | 710 SF (45.2%) |
| HIGH MARSH | 695 SF (44.3%) |
| WATER QUALITY VOLUME ALLOCATION | |
| WET POOL | 330 CF (18.9%) |
| LOW MARSH | 347.5 CF (19.9%) |
| HIGH MARSH | 1065 CF (61.1%) |
| ESHGW | 53.0' |

| WETLAND SEED MIX | | |
|---|---|---|
| COMMON NAME | AMOUNT | SUPPLIER |
| NEW ENGLAND WETMIX | 1.0 LB./2500 S.F. | NEW ENGLAND WETLAND PLANTS, INC |
| NEW ENGLAND LOGGING ROAD MIX | 1.0 LB./2200 S.F. | NEW ENGLAND WETLAND PLANTS, INC |

| ACCEPTABLE WETLAND REPLACEMENT PLANTINGS | | |
|---|---|---|
| | SCIENTIFIC NAME | COMMON NAME |
| | VACCINIUM CORYMBOSUM | HIGHBUSH BLUEBERRY |
| | ILEX VERTICILLATA | WINTERBERRY |
| | CLETHRA ALNIFOLIA | SWEET PEPPER BUSH |
| | ACER RUBRUM | RED MAPLE |
| | QUERCUS RUBRA | RED OAK |
| | QUERCUS ALBA | WHITE OAK |
| | PINUS STROBUS | WHITE PINE |
| | TSUGA CANADENSIS | EASTERN HEMLOCK |
| | | |

WETLAND REPLACEMENT NOTES:

| | |
|---|---|
| WETLAND FILL AREA: | 1,730 SF |
| HISTORIC FILL AREA: | 2,039 SF |
| TEMPORARY DISTURBANCE: | 785 SF |
| TOTAL REQUIRED REPLICATION AREA: | 4554 SF |
| PROPOSED REPLACEMENT AREA (x1.5): | 3,769 (5653) SF |

PLANTING NOTE:

1. NEW ENGLAND WETMIX TO BE USED WITHIN WETLAND REPLACEMENT / RESTORATION AREA.
2. NEW ENGLAND LOGGING ROAD MIX TO BE USED FOR UPLAND AREAS.
3. MULCH WITH STRAW IF SEEDING PERFORMED AFTER JUNE 15TH.
4. PLANTS TO BE 2'-3' TALL, 1.5" CALIPER CONTAINER GROWN (MIN. 5 GAL.)

## PERFORMANCE SPECIFICATIONS

1. Erosion Control Location and Delineation of Work Areas

   A silt fence shall remain as the lower limit of work until the restored area is stabilized. The upper limit of restoration shall be marked with stakes 20 feet apart prior to performing restoration activities.

2. Excavation and Stockpiling of Mineral Soil from Wetland Replication Area

   From the Wetland Replication Area as marked, all existing vegetation, with particular focus on invasive species, shall be cleared except for the individual species which are noted on sheet 15 and other native species. Existing vegetation to remain shall be protected by encircling with silt fence. All mineral soil shall be excavated to subgrade elevation, or as otherwise directed in the field. Excavated mineral soil may be stockpiled onsite. No heavy equipment shall pass the line of erosion control during this work.

3. Excavation of Topsoil from Wetland Crossing Area

   From the Wetland Crossing Area, all topsoil shall be excavated down to the elevation of the topsoil-subsoil boundary as determined in the field. All remaining vegetation shall be excavated with the topsoil. No heavy equipment shall pass the line of staked erosion control during this work. Topsoil removed from the wetland crossing area shall be reused in the wetland replication area.

4. Placement and Grading of Topsoil in Wetland Replication Area.

   The topsoil in the wetland replication area shall be graded roughly to the elevation of the adjacent wetland. Topsoil shall be finish graded by hand to elevations as shown on the sheet 15, or as otherwise directed in the field.

6. Revegetation with Indigenous Wetland Plant Species

   The excavated topsoil placed in the wetland replication area contains dormant seeds, roots and rhizomes of indigenous vegetation. When this soil is relocated and finish graded, germination and growth of the plant material within will result. In order expedite this natural process, container-grown wetland plant stock will be planted in the wetland replication area according to the plant list provided. Following planting of container grown stock, the wetland replication area will be seeded with a mixture of herbaceous wetland plant species to augment development of wetland vegetation and provide initial vegetative stabilization for erosion control. A light mulch of clean, weed free straw shall be spread on the surface of the seeded area to allow erosion control during the establishment period.

7. Relocation of erosion control
   Following planting and seeding of the wetland replication area, a second line of silt fencing with compost filter tubes shall be installed along the new limit of work. This work is intended to reduce or prevent erosion of the newly-planted replacement wetland. Upon installation of a second erosion control line, remove initial erosion control along wetland replication area perimeter.

8. Onsite Supervision

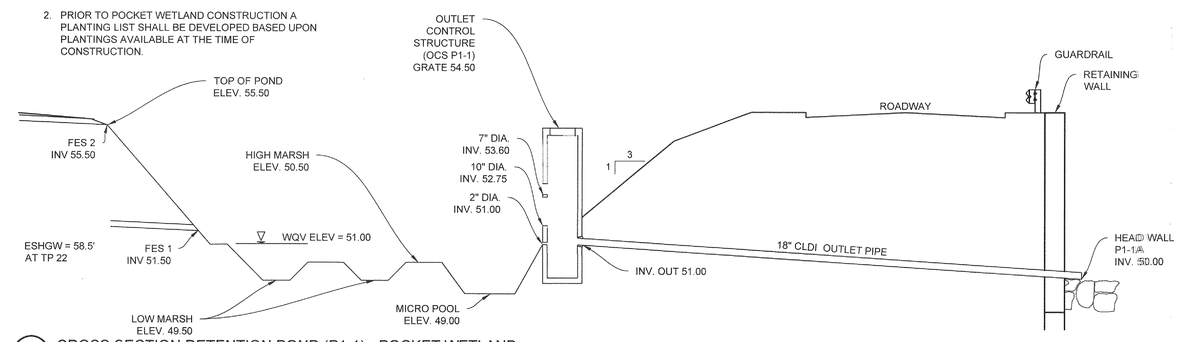
   During construction of the wetland replication area and the fill area, the work will be under the direct supervision of a registered professional engineer or wetland specialist.

9. Replacement of Unsatisfactory Plantings

   75% healthy foliage shall be assumed satisfactory evidence of growth after two growing seasons. All dead or unsatisfactory plants shall be removed and replaced in kind and size by the contractor with plants as originally established under this specification and planting plan. Any substitutions of plant material which may be necessary or desirable after the first growing season must be approved by the permit-issuing authority prior to replacement.

NOTE:

1. POCKET WETLAND CONSTRUCTION SHALL BE MONITORED DURING CONSTRUCTION BY A QUALIFIED WETLAND SCIENTIST.
2. PRIOR TO POCKET WETLAND CONSTRUCTION A PLANTING LIST SHALL BE DEVELOPED BASED UPON PLANTINGS AVAILABLE AT THE TIME OF CONSTRUCTION.




1 CROSS SECTION DETENTION POND (P1-1) - POCKET WETLAND
NOT TO SCALE

**NOT FOR CONSTRUCTION**


Ranger Engineering Group, Inc.
13 Branch Street, Suite 101
Methuen MA, 01844
Tel: 978-208-1762
rangereng.com


COMMONWEALTH OF MASSACHUSETTS BENJAMIN C. OSOGO JR. CIVIL No. 45881 REGISTERED PROFESSIONAL ENGINEER
8/19/20

THE VILLAGE AT CRICKET LANE
BYFIELD (NEWBURY), MA 01922
ASSESSOR'S MAP R-20 LOT 75

WETLAND DETAILS

CRICKET ROAD DEVELOPMENT, LLC
92 MIDDLESEX ROAD
TYNGSBOROUGH, MA 01879

| DATE | NO. | REVISIONS | BY |
|---|---|---|---|
| 08/17/2020 | 2 | REVIEW COMMENT REVISIONS | BCO |
| 06/26/2020 | 1 | REVIEW COMMENT REVISIONS | BJO |

| | |
|---|---|
| PROJECT | 15-1516 |
| DATE | 2020-08-10 |
| DRAWING SCALE | AS NOTED |
| DRAWN BY | OMR |
| APPROVED BY | BCO |

CS6031

# MEMORANDUM

**DATE:** December 17, 2020

**TO:** Newbury Zoning Board of Appeals

**FROM:** Ann M. Marton, Director of Ecological Services

**RE:** Comprehensive Permit Application and Site Plan Peer Review
Village at Cricket Lane, Newbury, Massachusetts

**LEC File#:** ToNew\17-300.02

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In response to LEC's October 9, 2020 Peer Review Memorandum and discussions during the Zoning Board of Appeals (ZBA) October 22, 2020 Public Hearing, LEC has reviewed serval rounds of the following materials submitted on November 20, 2020, December 10, 2020, and December 15, 16, and 17, 2020. The details of our review comments are contained in the attached email correspondence.

- The Village at Cricket Lane 55R Pearson Drive, Peer Review Response Letter prepared by Ranger Engineering Group, Inc. dated November 20, 2020;
- Wetland Restoration & Replication Report for The Villages at Cricket Lane, 55 Pearson Drive prepared by Norse Environmental Services, Inc. dated November 2020 (provided on December 10, 2020), revised December 15, 2020 and December 16, 2020 (Norse Report).
- 40B Comprehensive Permit The Village at Cricket Lane, Byfield, MA Plans (Sheets 1-19) prepared by Ranger Engineering Group, Inc., dated January 22, 2020, last revised August 17, 2020. These plan sheets were revised and received on November 20, 2020 even though the plan sheets did not include a revision date. Further revised plans were provided on December 10, December 15, December 16, and December 17, 2020. However, the December 17, 2020 final revised plans have a revision date of December 9, 2020 (Site Plans).

The nature of my review consisted of specifics surrounding the Wetland Restoration and Replication planting quantities, Wetland Replacement Notes, Planting Notes, Performance Specifications, Buffer Zone plantings of trees and shrubs at locations where Stormwater Basins P1-2 and P3-2 occur in close proximity to the BVW, accurately detailing the amount of impacts and mitigation on the Site Plans and in the Norse Report, and other incidental comments details in Attachments A-C.

The most recently revised December 16, 2020 Norse Report and the most recently revised Site Plans received today (PDF titled 2020-12-17_FINAL full set) appear to address all of my concerns.

Once Ranger Engineering submits the final signed and stamped Site Plans, with final revision dates, I will review the plans one last time to confirm completeness and accuracy relative to LEC's comments. At that time, I also will provide recommended conditions for issuance of a Comprehensive Permit.

**Attachment A**

Email Peer Review Comments

The Village at Cricket Lane

December 9-13, 2020

## Ann Marton

**From:** Ann Marton
**Sent:** Sunday, December 13, 2020 3:23 PM
**To:** bosgood@rangereng.com; 'Information Technology'
**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental'; 'Walter Eriksen'
**Subject:** RE: Status of Civil Eng Review - Joe Serwatka
**Attachments:** 2020-12-10 VILLAGES AT CRICKET LANE REVISED WITH RED LINES LEC Comments.pdf; Wetland Restoration  Replication Report LEC Comments.pdf

Ben,

Thank you for providing me with the November 2020 Norse Environmental Wetland Restoration & Replication Report, additional plan sheets, and for updating some of the information on the plan pages per our conversation on Wednesday December 9, 2020.

I have reviewed these materials and have the following final comments on the attached plans, your November 20, 2020 Ranger Engineering Response, and the November 2020 Norse Report.  I feel confident that if you and Norse address these items you will have satisfied all my comments.

1. The Ranger Report and the table on site plan sheet 16 state that wetland replication will be provided at a 1.5:1 ratio of impact (5,660), but the wetland replication area leader notes and the Norse Report both state 5,050 sf.  Please clarify the square footage of the wetland replication shown on the plans and the square footage you intend to provide.  Please ensure that the plans, the tables, and the Norse report correlate.
2. We have a few requested clarifications to the Norse Report on soil amendments and wetland scientist approval prior to placement in the wetland replication area.
3. Thank you for relocating the temporary access for creating the wetland replication area to reduce tree impacts and revising the means for access to reduce impacts to the footprint of the BVW.
4. Shrub plantings in the wetland replication area and the wetland restoration areas should be 5 feet on center, not 10 feet on center.  I have recommended increases in the number of shrubs for each of these areas on the attached plans and in the Norse Report.  At a minimum, please make these changes on the plans and in an updated Norse Report (see attached).
5. Norse should expand the text on page 8 of their report to include information on the approximate grading required for the wetland replication area and to include specifications for preparing the temporarily impacted wetlands for replanting (e.g. removal of incidental construction debris or crossing materials/matts, restoration of grades, and inspection by the wetland scientist prior to planting).
6. Thank you for performing additional field and survey work to depict existing trees that will remain along the limits of work that are tight to the BVW boundary and for proposing additional trees every 30 feet.  This is an improvement.  However, since you cannot shift Basins P1-2 and P3-2 further from the BVW,  please add understory shrubs between the toe of the slope and the BVW boundary.  We recommend species such as witch hazel, American hornbeam (if available from nurseries) sumac, and dogwood.  The quantities for these plantings can be based on plantings 8 feet on center.
7. Your response to my prior Comments #8, #9, and #16 refer to eliminating the trail that connects the proposed roadway to the state owned land, in particular #9 refers to creating a slightly larger buffer along the D-series wetland.  However, the plans still show the trail.  Please clarify if the trail will be remove or remain, and if removed, please provide revised plans.

8. Thank you for clarifying placement of the septic system outside the 100-foot setback to the Certified Vernal Pool.
9. The remainder of my plan or Norse Report comments should be self-explanatory.

Presuming that all of the above will be address, once the plans and the Norse Reported have been revised, I will prepare a final report to the ZBA, hopefully stating that the Applicant has satisfied all of my concerns.

Susan, once the ZBA is ready to issue a decision, I do have a number of recommended conditions.

Ann

Please note that I will be away on holiday December 23 – December 28, 2020.

Based on the collective Emergency Orders and guidance issued by the Governors of MA, RI, and NH for a phased reopening, LEC staff will continue working remotely until further notice and continue conducting field work and construction inspections while implementing federal, state, & local health and safety guidelines. I can be reached via email or my cell phone at 781-249-7777.

Ann M. Marton, President
Director of Ecological Services
LEC Environmental Consultants, Inc.
380 Lowell Street, Suite 101, Wakefield, MA 01880
Office: 781.245.2500

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**From:** bosgood@rangereng.com [mailto:bosgood@rangereng.com]
**Sent:** Thursday, December 10, 2020 11:57 AM
**To:** Ann Marton <AMarton@lecenvironmental.com>; 'Information Technology' <info@townofnewbury.org>
**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental' <norseenvironmental@verizon.net>; 'Walter Eriksen' <awc.walter@comcast.net>
**Subject:** RE: Status of Civil Eng Review - Joe Serwatka

Ann,

Attached is the wetland replication report from Norse Environmental along with the plan sheets that we revised to address your comments, with those items circled in red.

The full revised set is too large to email so we will send that by WeTransfer. The full set contains all of the changes to date to address your concerns as well as those that have been raised by Joe.

You should also know that the septic system has been approved by the Board of Health after a review by the manufacturer of the Presby System to verify that it meets the criteria of Title 5 and the Presby approval granted by DEP.

If you have any questions please do not hesitate to call. 978-3435-1324.

Ben

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**From:** Ann Marton <AMarton@lecenvironmental.com>
**Sent:** Wednesday, December 9, 2020 2:42 PM
**To:** Information Technology <info@townofnewbury.org>
**Cc:** doug@dfpclaw.com; 'joeserwatka@comcast.net' <joeserwatka@comcast.net>; Lisa Mead [lisa@mtclawyers.com] <lisa@mtclawyers.com>; 'bosgood@rangereng.com' <bosgood@rangereng.com>

**Subject:** RE: Status of Civil Eng Review - Joe Serwatka
**Importance:** High

Susan,

I just spoke directly with Ben Osgood regarding the letter and plan sheets he provided on November 20, 2020.

The November 20, 2020 Ranger Engineering Group letter responded in writing to a number of my comments, but the plan sheets he provided inadvertently were not revised and some plan sheets were excluded from his email (e.g. the plan sheet depicting the location of the Presby System). Furthermore, according to Ben, Norse Environmental also prepared a written response to my comments which I have not received to date. Ben and I discussed most of the overlooked items and he will be reviewing the plans and his written response over the next two days.

Hopefully Ben will be sending me revised plans and the Norse report no later than Friday, December 11 ,2020. So for now, I am in a holding pattern.

Ann

Based on the collective Emergency Orders and guidance issued by the Governors of MA, RI, and NH for a phased reopening, LEC staff will continue working remotely until further notice and continue conducting field work and construction inspections while implementing federal, state, & local health and safety guidelines. I can be reached via email or my cell phone at 781-249-7777.

Ann M. Marton, President
Director of Ecological Services
LEC Environmental Consultants, Inc.
380 Lowell Street, Suite 101, Wakefield, MA 01880
Office: 781.245.2500

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**From:** Information Technology [mailto:info@townofnewbury.org]
**Sent:** Wednesday, December 9, 2020 1:31 PM
**To:** 'bosgood@rangereng.com' <bosgood@rangereng.com>
**Cc:** doug@dfpclaw.com; 'joeserwatka@comcast.net' <joeserwatka@comcast.net>; Lisa Mead [lisa@mtclawyers.com] <lisa@mtclawyers.com>
**Subject:** Status of Civil Eng Review - Joe Serwatka

Ben:

At this juncture, Joe feels that all of the issues that the two of you have been discussing have been satisfactorily addressed. To solidify this, we would like an updated plan set to be reviewed one last time for confirmation. Certainly it seems to make sense to wait on the Wetlands piece to do that, I should have Ann's most recent comments available very soon to send over to you. Of course Joe and Ann will be on the Thursday, December 17th and we can ratify what the next steps are in the meeting.

Susan Noyes
IT & Communications Director/Webmaster
Notary Public/Justice of the Peace
Town of Newbury
12 Kent Way, Suite 200
Byfield, MA 01922

# Wetland Restoration & Replication Report

For

# The Villages at Cricket Lane
# 55 Pearson Drive

**Prepared For**

Cricket Road Development, LLC
92 Middlesex Road ~ Suite 3
Tyngsboro, MA 01879

**Prepared By**

Norse Environmental Services, Inc.
92 Middlesex Road ~ Suite 4
Tyngsboro, MA 01879

November 2020

## Narrative

The Village at Cricket Lane proposes a limited project roadway crossing, wetland alteration, wetland replication/restoration, (24) single family dwellings (including (6) affordable units), roadway, subsurface sewage disposal system, drainage, grading and associated utilities.

The previous owner of 55 Pearson Drive altered or filled 2039 s.f. of bordering vegetated wetland. This alteration occurred, at the rear of the property, between wetland flags E15-E23 & D21. The historic fill area was estimated by utilizing historical mapping and aerial photographs. Please see plan sheet 3 of 19 that highlights the historically filled wetland.

The limited project roadway crossing proposes to permanently alter 1730 s.f. and temporarily alter 495 s.f. of bordering vegetated wetland. The alteration is proposed between wetland flags D19-E22. The proposed 495 s.f. temporary wetland alteration is for the installation of the roadway retaining wall. The temporary wetland alteration will be restored, seeded, and planted.

The applicant is proposing to replicate the wetland at a 1:1.5 ratio. The total proposed wetland alteration is 1730 s.f. for the limited project roadway crossing and 2039 s.f. historic wetland alteration for a total 3769 s.f. of wetland. The applicant is proposing a 5050 s.f. of wetland replication north of the E-series wetland. This area will be accessed between wetland flags D14 and E3 and temporarily alter 360 s.f. of wetland. The temporary wetland alteration will be restored, seeded, and planted.

### Wetland Replication Requirements

Projects that impact bordering vegetated wetlands (BVW) require replication under 310 CMR 10.55(4)(b). The performance standards for BVW impacts include the requirement of wetland replication if a BVW is destroyed or otherwise impaired. The general conditions governing the replication of up to 5000 square feet of BVW set forth in 310 CMR 10.55(4)(b) is summarized as follows:

- Surface area must be equal to the lost area;
- The replication area must have similar ground water and surface elevation as the lost area;
- The replication area must have a similar location relative to the bank as the lost area;
- The replication area must have an unrestricted hydraulic connection to the same water body or waterway as the lost area;
- The location of the replication area must be in the same general area as the lost wetland;

- The replication area must have at least 75% cover of native wetland plants within two growing seasons, and there must be temporary stabilization of exposed soil to avoid erosion.

**Evaluation of Existing Conditions and Functions**

The wetland regulations presume that Bordering Vegetated Wetland's serve the following public interests identified in the WPA: public or private water supply, ground water supply, flood control, storm damage prevention, prevention of pollution, fisheries, and wildlife habitat (land containing shellfish pertains to coastal wetlands only).

**Existing Conditions**

The wetland replication area consists of 5050 s.f. and proposed along the northerly side of the E-series wetland, between flags E3.5-E10. The E-series wetland is a red maple swamp consisting of red maple, green ash (Fraxinus pennsylvanica), American elm (Ulmus americana) and American hornbeam (Carpinus caroliniana) in the overstory. The understory consists of common buckthorn (Rhamnus cathartica), spicebush (Lindera benzoin), northern arrow-wood (Viburnum recognitum) and winterberry (Ilex verticillata). The herbaceous layer consists of jewelweed, cinnamon fern (Osmunda cinnamomea), poison ivy (Toxicodendron radicans), false nettle (Boehmeria cylindrica) and marsh fern (Thelypteris thelypteroides)

**Soils**

The Web Soil Survey maps the wetland soils as a Maybid Silt Loam. Maybid soils are deep, nearly level, very poorly drained soil in depressions and low areas near large streams. The surface layer is friable, very dark gray silt loam about 7 inches thick. The subsurface layer is friable gray silty clay loam 4 inches thick. The subsoil is firm, mottled, greenish gray silty clay 8 inches thick. The substratum is greenish gray and dark greenish gray, firm silty clay to a depth of 60 inches or more. The permeability is slow or very slow. Available water capacity is high, and the rooting zone is restricted by a seasonal high-water table which is at or near the surface in winter and spring.

The adjacent uplands areas are mapped as a Charlton-Hollis-Rock Outcrop Complex consisting of well drained Charlton soils, somewhat excessively drained Hollis soils and rock outcrops that occur in such intricate patterns on the landscape, that it is not practical to separate them at the scale of mapping. Generally, these areas consist of about 50 percent Charlton soils, 15 percent Hollis soils, 10 percent rock outcrop and 25 percent other soils. Major limitations are related to rockiness and slope, and depth to bedrock in the Hollis soil.

**Replication Site Selection**

The wetland replication area is located near the lost wetland and will readily take because it is adjacent to the main wetland area. In addition, the adjacent natural wetland will aid in revegetation by opportunistic native species.

## Hydrology, Soils, and Vegetation

The hydrology at the replication site is critical in controlling the plant community that develops, and many of the ecological functions of the site. There will be unrestricted hydraulic connection between the replicated wetland and water source. The replication area will be excavated to the groundwater elevation and fed by the intermittent stream flow.

| Replication Area Characteristics | Existing | Proposed |
|---|---|---|
| Estimated Seasonal High-Water Table | varies from 2 ft or 4 ft | At grade |
| Duration of seasonal saturation | dry | year round |
| Expected seasonal inundation | dry | spring |

These conditions were determined by soil auguring within the proposed wetland replication area and visual examination of the surrounding wetland.

## Soil

An important factor in the success of a replication area is the proper use of soils either translocated (i.e. the relocation and reuse of hydric soils from the impacted resource area to the proposed replication area) from the impacted wetland or soil amendments brought from off-site. The development of hydric soils provides substrate for wetland plants, which in turn supports wildlife habitat. Hydric soil acts as a matrix to treat groundwater, adsorbs and absorbs pollutants, and supports vegetation that slows floodwaters. A minimum of four inches of topsoil will be required over the replication area.

## Soil Translocation

Soil translocation is the preferred methodology for obtaining replication soils. Wetland soils from the altered areas will be used for replication purposes. Since this will be insufficient for complete coverage, composted leaf litter will be mixed with soil as an amendment. A wetland scientist will inspect the soils prior to installation. Prior to placement of hydric soils in the replication area, all excavation of the replication area to appropriate sub grade elevations should be completed. Competent wetland/soil scientists will inspect the excavated area to ensure the area is excavated to the water table. Soil taken from areas where the invasive species are present should always be avoided.

## Soil Amendments

Composted leaf litter is to be mixed with topsoil as an amendment. The objective is to obtain approximately 50% organic material/topsoil. After the soil is managed for proper consistency (e.g. loose to friable), the soil consistency shall be tested. If the proper consistency has not been achieved, further efforts shall be undertaken to achieve proper consistency. Surveying of subgrades and finished elevations should be conducted frequently during construction.

To supplement organic material, course woody debris (e.g. logs) shall be scattered on the replication area in between plantings to add structure and a long-term source of decaying organic material, to cover at least five percent of the area.

Soils to be used at the mitigation site should be used immediately if possible or stockpiled for as little time as possible. While stockpiled, the soils should be kept wet and not be allowed to dry out. Contamination of these soils should be prevented. They should be transported in vehicles that have been washed so that no exotic/invasive seeds from other sites get mixed in with them.

**Vegetation**

In accordance with 310 CMR 10.55, at least 75% of the surface of the replacement area must be reestablished with indigenous wetland plant species within two growing seasons. In order to accomplish this, the hydrology and soils conditions must be appropriate for each type of wetland vegetation (i.e. emergent, shrub, forested etc.) that is proposed in the replication area.

**Wetland Replication Planting Plan**

The applicant shall plant the following tree and shrub species in the 5050 s.f. wetland replication area north of the E-series wetland. The trees shall be planted 15 ft. on center and the shrubs 10 ft. on center. A mixture of all the trees and a minimum of (5) different shrubs shall be planted. A total of (26) trees and (54) shrubs shall be planted Species selection shall be based on cost and avaiability.

| Common Name | Latin Name | Wildlife Benefits<br>Food, Cover & Nesting |
|---|---|---|
| **Trees:** | | |
| Red Maple | Acer rubrum | American robin, prairie warbler, American goldfinch, cardinal, grosbeaks, squirrels, chipmunk |
| American Elm | Ulmus americana | Wild turkey, ruffed grouse, pheasant, sparrow, cardinal, American goldfinch, woodpeckers, American robin |
| Eastern Hemlock | Tsuga canadensis | Ruffed grouse, rabbit, red squirrels, mice, deer and porcupines |
| **Shrubs:** | | |
| Arrow-wood | Viburnum dentatum | Ruffed grouse, brown thrasher, American robin, eastern bluebird & gray catbird |
| Swamp Azalea | Rhododendron viscosum | Waterfowl, deer, & small mammals |
| Silky Dogwood | Cornus amomum | Wild turkey, white tailed deer, & gray catbird |
| Spicebush | Lindera benzoin | Veery, ruffed grouse, American robin, gray catbird, wild turkey, thrushes, white tailed deer |
| High bush blueberry | Vaccinium corymbosum | Blue jay, chickadee, titmouse, thrasher, eastern bluebird, ruffed grouse, American robin, mourning dove. |
| Common Winterberry | Ilex verticillata | Red-winged blackbird, American crow, American robin, rabbit, squirrel |

These are all perennial species that should adapt to the conditions on site and provide a good basic wetland community. These species were chosen because they're native to the area and shall readily take.

**Wetland Restoration Planting Plan**

As mentioned above there are two areas of proposed temporary wetland alterations. The first area is located along the limited project roadway crossing and consists of 495 s.f. The temporary alteration is for the installation of the roadway retaining wall. The applicant is proposing to restore this area by planting shrubs (10) ft. on center and applying the New England Wetmix to the area. A total of (10) wetland shrubs shall be planted and a minimum of (3) different shrub species shall be selcted from the table below:

The second wetland restoration area is for the temporary wetland replication crossing and consists of 360 s.f. Once the 5050 s.f. wetland replication area is created, planted and work is finished the temporary wetland crossing will be restored. The restoration includes removing the ground protection mats, applying the New England Wetmix (provided by New England Wetland Plants, Inc.) to the area and plantings shrubs. The shrubs shall be planted 10 ft. on center and a total of (4) different shrubs shall be planted within the temporary wetland crossing. Please see the shrub planting table below:

**Wetland Restoration Shrub Plantings**

| **Common Name** | **Latin Name** |
|---|---|
| Arrow-wood | Viburnum dentatum |
| Swamp Azalea | Rhododendron viscosum |
| Silky Dogwood | Cornus amomum |
| Spicebush | Lindera benzoin |
| High bush blueberry | Vaccinium corymbosum |
| Common Winterberry | Ilex verticillata |

**Invasive Species**

If the following invasive species are found growing in replication areas, measures should be taken to eliminate them as soon as possible by hand weeding. Soils from existing wetlands containing these species should never be used in replication areas.

- Purple Loosestrife (*Lythrum salicaria*);
- Phragmites (*Phragmites australis);*
- Buckthorn, *(Rhamnus Frangula alnus);*
- Honeysuckles *(Lonicera spp.);*
- Garlic Mustard *(Alliaria petiolata);*
- Japanese Knotweed (*Polygonum cuspidatum or Fallopia Japonica);*
- Japanese Stilt Grass (Microstegium vimineum);
- Reed Canary Grass (*Phalaris arundinacea*);

- Bittersweet nightshade (*Celastrus Orbiculatus);*
- Black Swallow-wort (*Cynanchum nigrum);*
- Pale Swallow-wort (*Cynanchum rossicum).*

Trucks that have previously been on other sites should be washed prior to introduction to the replication site so that mud/dirt with exotic/invasive seeds is not inadvertently brought to the replication site.

**Timing of Plantings**

All plantings should occur at the end of the growing season or during dry conditions to minimize impact. Fall plantings should be done before the first frost. Shrubs and trees, however, may be planted up to November 15th, weather permitting.

Within two growing seasons, a viable plant community of indigenous species should be present, this includes some or all of the following red maple (Acer ruburm) and American elm (Ulmus americana), arrowwood (Viburnum dentatum), high bush blueberry (Vaccinium corymbosum), common winterberry (Ilex verticillate) and sensitive fern (Onoclea sensibilis). In case of vegetation mortality, the Commission will be informed of plantings of nursery stock.

**Wildlife Habitat**

Wetland resource areas provide important food, shelter, migratory and over-wintering areas, and breeding areas for many birds, mammals, amphibians, and reptiles. Wetland characteristics that provide wildlife habitat include hydrologic regime, plant and soil composition and structure, topography and water chemistry.

Woody vegetation of varying heights adds structural diversity that is important for wildlife. While it is not immediately feasible to replicate a mature forested swamp complete with large trees and standing snags, replication projects will incorporate shrubs and saplings so that woody components will develop over time, as well as emergent areas and hummocks. It is also beneficial to provide water at varying depths, times and duration.

The wetland replication area should have approximately 5% woody debris consisting of stumps or logs, three to four feet in length and six inches or larger in diameter.

**Erosion Control**

Erosion controls will be placed along the boundary of the wetland replication area. Upon completion of the replication area, installation of siltation fencing between the replication area and the adjacent upland will be provided to prevent silt from entering the replication area. Prior to permanent establishment of vegetation in the replication area, soils will be temporarily stabilized to prevent impacts from erosion by mulching and seeding with a wetland seed mixture until re-establishment of wetland vegetation occurs. Hydro seeding is a valuable erosion control measure and may discourage colonization by invasive species.

All embankment slopes adjacent to wetland replication areas should have slopes no greater than 2H:1V unless stabilized by structural means. Bioengineering stabilization methods are recommended for slope stabilization.

Organic soils and wetland vegetation should not be placed in the replication area until the wetland scientist has verified that the final excavated grade for the replication area will allow the finished grade of the replication site to meet the design specifications in the replication plan.

Following excavation work, final grading and landscaping should be completed as soon as possible to minimize erosion. All exposed soil will be stabilized using seed-free mulch or other appropriate erosion control measures in the event that seasonal conditions result in a delay in planting. If the site is excavated to the sub grade in the fall and a delay is inevitable, consideration should be given to stabilizing the site for winter and conducting final grading in the spring. Use of hydro seeding has been found to stabilize a site quickly and may possibly hinder growth of invasive species. Erosion control measures such as hay bales and silt fences shall be removed as soon as the site is stable to allow for proper hydrologic conditions.

**Monitoring Requirements**

Monitoring is critical in wetland replication efforts due to the complex issues that can arise when trying to replace the specific ecological conditions of wetlands. Monitoring to ensure that the project is built according to the design specifications will ensure that the most common cause of failure is avoided. A project monitor (preferably a qualified professional with training in wetland science) with a minimum 5 years of experience in the construction of wetland replication areas and general construction practices should be on-site to monitor the excavation, grading, and planting of the replication area (at the end of the first growing season, a professional with less than 5 years experience in wetland replication construction may conduct the monitoring if supervised by a professional with at least 5 years experience). The project supervisor or monitor should be present during the most important tasks in replication construction including:

1. Before excavation or erosion control installation work begins to inspect site flagging;
2. During excavation of the altered area if vegetation is to be translocated to the replication area to ensure survival of the plantings;
3. Before soil translocation or addition into the replication area to inspect excavated elevations and likely post-construction ground water elevations for the replication area;
4. After each stage of grading work is completed to inspect finished elevations;
5. During planting and seeding and after the first month of the growing season to inspect propagation techniques;
6. After one growing season to observe vegetation development and regulatory compliance;
7. After two growing seasons to determine vegetation development and regulatory compliance
8. After subsequent growing seasons, if a greater than 2-year monitoring program is required.

A monitoring report shall be submitted in the late spring and at the end of each of the first two growing seasons. Monitoring will be required until regulatory compliance goals are met. Reports should include recommendations for additional plantings should the replication area appear to be unlikely to meet the 75% reestablishment standard (note that the 75% revegetation may include volunteer hydrophytic species as well as replacement plantings and seeding). Monitoring for invasive species should also be conducted and any invasive handpicked before becoming widespread and established. The final monitoring report should be accompanied by an as-built plan. The final monitoring report should indicate the conditions at the replication site (including stabilization of embankments), and describe in detail how the functions of the impacted wetland have been replaced by the development of the replication site.

1. An as-built plan stamped by a R.L.S. or P.E. should be submitted which documents the construction of the replication area. The size of the replication area should be documented as consistent with the size proposed.

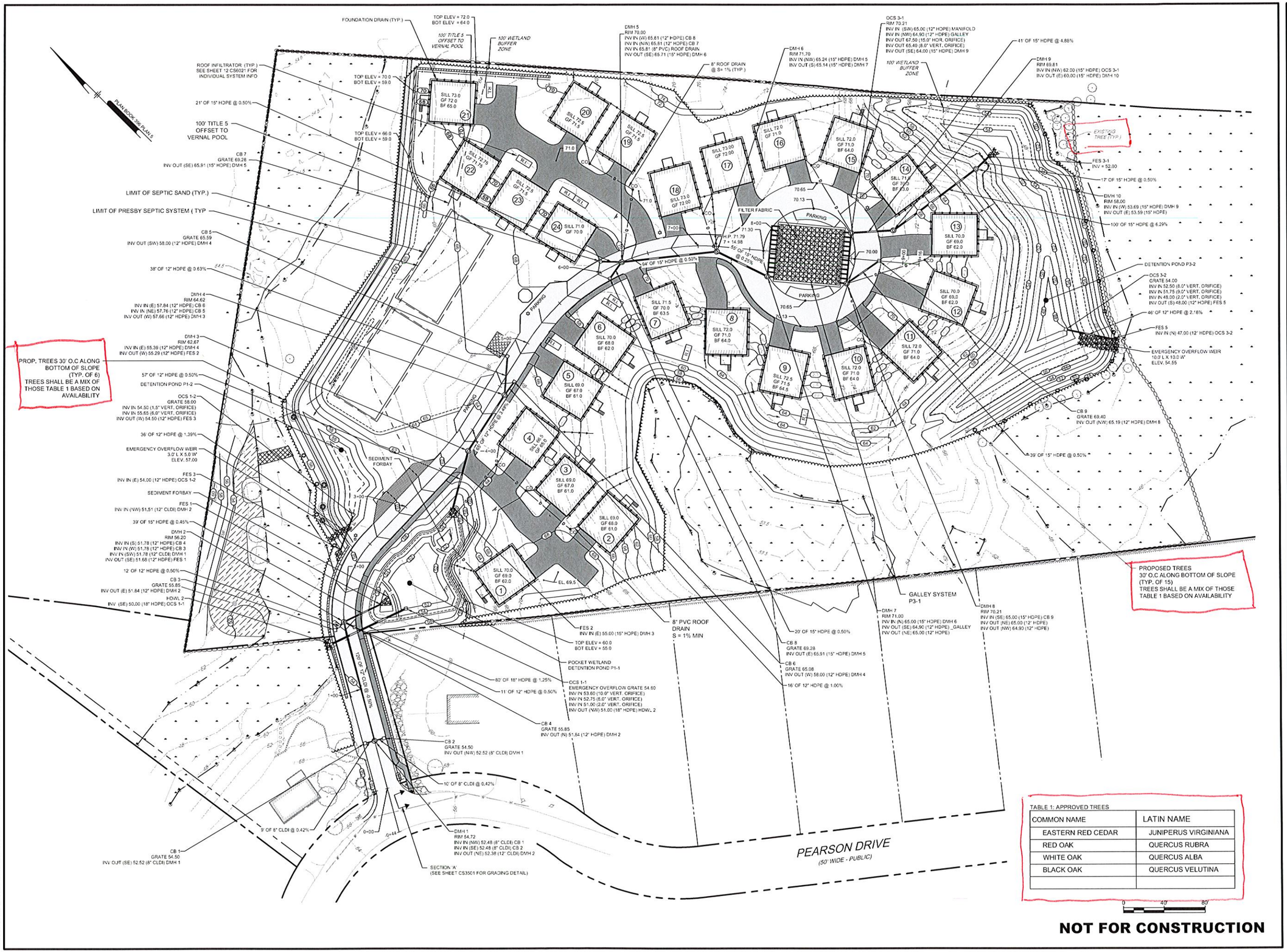
2. A site visit should be conducted prior to issuing a Certificate of Compliance. The replication area should be compared with the design plans and the Order of Conditions to ensure that it has been constructed as proposed and wetland interests have been replicated.

3. At least 75% of the surface area of the replication site should be reestablished with indigenous wetland species within two growing seasons. A qualified wetland professional should certify to the plant species composition of the area and compliance with this condition. The qualified wetland professional should also certify that the plants proposed in the planting plan are those that were planted, in the correct number, and the spacing of the plantings. The Order of Conditions may be extended if it is about to expire but the replication area has not fully established itself through two growing seasons. Each different layer of wetland vegetation (forested, shrub, herbaceous etc.) should be checked to ensure that it is surviving as designed and that the hydrology is appropriate.

4. Vegetation should be checked to ensure that no invasive species are colonized in the replication area. If so, measures should be taken to eliminate the invasive species.

5. All surrounding buffer zone areas should be stabilized. Inspections should be conducted of erosion control devices such as hay bales and silt fences and those devices should be removed once the site is stabilized. A Certificate of Compliance should not be issued until all erosion controls are removed and any soils disturbed by their removal stabilized.

If the developer or landscaper performing work has any questions, please contact Norse Environmental Services Inc.




| TABLE 1: APPROVED TREES | |
|---|---|
| COMMON NAME | LATIN NAME |
| EASTERN RED CEDAR | JUNIPERUS VIRGINIANA |
| RED OAK | QUERCUS RUBRA |
| WHITE OAK | QUERCUS ALBA |
| BLACK OAK | QUERCUS VELUTINA |
| | |

0 40' 80'

**NOT FOR CONSTRUCTION**


Ranger Engineering Group, Inc.
13 Branch Street, Suite 101
Methuen MA, 01844
Tel: 978-208-1742
rangereng.com


# THE VILLAGE AT CRICKET LANE

BYFIELD (NEWBURY), MA 01922
ASSESSOR'S MAP R-20 LOT 75

## GRADING AND DRAINAGE PRESENTATION PLAN

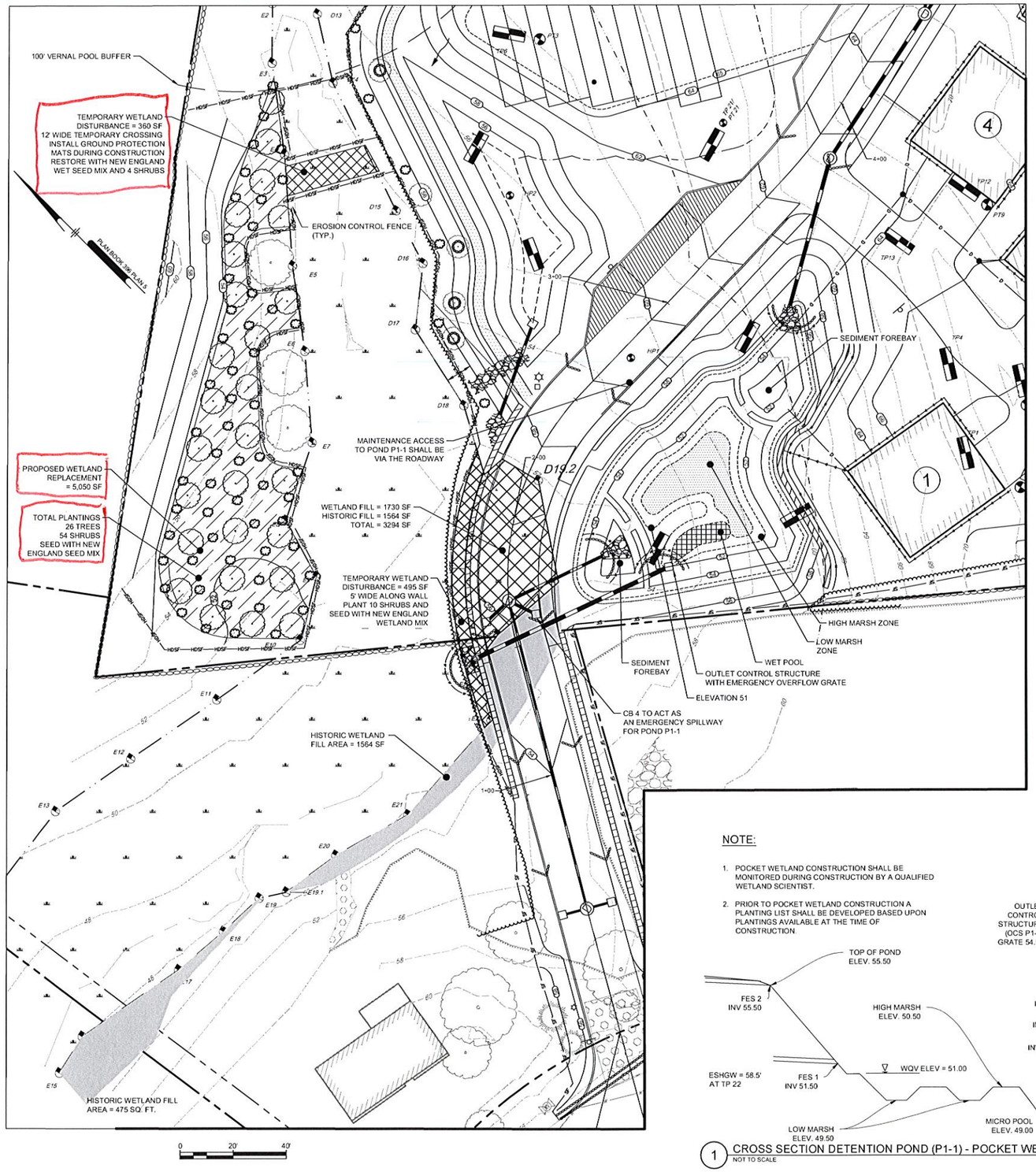
CRICKET ROAD DEVELOPMENT, LLC
92 MIDDLESEX ROAD
TYNGSBOROUGH, MA 01879

| NO. | DATE | REVISIONS | BY |
|---|---|---|---|
| 3 | 02/05/2020 | FINAL REVIEW COMMENT REVISIONS | BCO |
| 2 | 08/17/2020 | REVIEW COMMENT REVISIONS | BCO |
| 1 | 06/26/2020 | REVIEW COMMENT REVISIONS | BCO |

| | |
|---|---|
| PROJECT | 15-1516 |
| DATE | 2020-08-10 |
| DRAWING SCALE | AS NOTED |
| DRAWN BY | OMR |
| APPROVED BY | BCO |

**CS1501**

SHEET 8 OF 19




| POCKET WETLAND DESIGN | |
|---|---|
| DRAINAGE AREA | 62,234 SF |
| WETLAND AREA | 1,570 SF |
| SURFACE TO WATERSHED RATIO | .03 |
| LENGTH | 90 ' |
| WIDTH | 10 ' |
| L TO W RATIO | 9:1 |
| SURFACE AREA ALLOCATION | |
| WET POOL | 165 SF (10.5%) |
| LOW MARSH | 710 SF (45.2%) |
| HIGH MARSH | 695 SF (44.3%) |
| WATER QUALITY VOLUME ALLOCATION | |
| WET POOL | 330 CF (18.9%) |
| LOW MARSH | 347.5 CF (19.9%) |
| HIGH MARSH | 1065 CF (61.1%) |
| ESHGW | 53.0' |

| WETLAND SEED MIX | | |
|---|---|---|
| COMMON NAME | AMOUNT | SUPPLIER |
| NEW ENGLAND WETMIX | 1.0 LB./2500 S.F. | NEW ENGLAND WETLAND PLANTS, INC. |
| NEW ENGLAND LOGGING ROAD MIX | 1.0 LB./2200 S.F. | NEW ENGLAND WETLAND PLANTS, INC. |

| ACCEPTABLE WETLAND REPLACEMENT PLANTINGS | | |
|---|---|---|
| | SCIENTIFIC NAME | COMMON NAME |
| | SHRUBS | |
| | VACCINIUM CORYMBOSUM | HIGHBUSH BLUEBERRY |
| | ILEX VERTICILLATA | WINTERBERRY |
| | RHODODENDRON VISCOSUM | SWAMP AZALEA |
| | VIBURNUM DENTATUM | ARROW WOOD |
| | LINDERA BENZOIN | SPICEBUSH |
| | CORNUS AMOMUM | SILKY DOGWOOD |
| | TREES | |
| | ACER RUBRUM | RED MAPLE |
| | TSUGA CANADENSIS | EASTERN HEMLOCK |
| | ULMUS AMERICANA | AMERICAN ELM |
| | | |

REVISED PLANTS

WETLAND REPLACEMENT NOTES:

| | |
|---|---|
| WETLAND FILL AREA: | 1,730 SF |
| HISTORIC FILL AREA: | 2,039 SF |
| TEMPORARY DISTURBANCE: | 853 SF |
| TOTAL REQUIRED REPLICATION AREA: | 4622 SF |
| PROPOSED REPLACEMENT AREA (x1.5): | 3,769 (5660) SF |

PLANTING NOTE:

1. NEW ENGLAND WETMIX TO BE USED WITHIN WETLAND REPLACEMENT / RESTORATION AREA.
2. NEW ENGLAND LOGGING ROAD MIX TO BE USED FOR UPLAND AREAS.
3. MULCH WITH STRAW IF SEEDING PERFORMED AFTER JUNE 15TH.
4. PLANTS TO BE 2'-3' TALL, 1.5" CALIPER CONTAINER GROWN (MIN. 5 GAL.)
5. MIN OF 3 DIFFERENT TYPES OF SHRUBS TO BE PLANTED IN EACH TEMPORARY WETLAND DISTURBANCE AREA.
6. GROUND PROTECTION MATS TO BE REMOVED UPON COMPLETION OF CONSTRUCTION.

PERFORMANCE SPECIFICATIONS

1. Erosion Control Location and Delineation of Work Areas

   A silt fence shall remain as the lower limit of work until the restored area is stabilized. The upper limit of restoration shall be marked with stakes 20 feet apart prior to performing restoration activities.

2. Excavation and Stockpiling of Mineral Soil from Wetland Replication Area

   From the Wetland Replication Area as marked, all existing vegetation, with particular focus on invasive species, shall be cleared except for the individual species which are noted on sheet 16 and other native species. Existing vegetation to remain shall be protected by encircling with silt fence. All mineral soil shall be excavated to subgrade elevation, or as otherwise directed in the field. Excavated mineral soil may be stockpiled onsite. No heavy equipment shall pass the line of erosion control during this work.

3. Excavation of Topsoil from Wetland Crossing Area

   From the Wetland Crossing Area, all topsoil shall be excavated down to the elevation of the topsoil-subsoil boundary as determined in the field. All remaining vegetation shall be excavated with the topsoil. No heavy equipment shall pass the line of staked erosion control during this work. Topsoil removed from the wetland crossing area shall be reused in the wetland replication area.

4. Placement and Grading of Topsoil in Wetland Replication Area.

   The topsoil in the wetland replication area shall be graded roughly to the elevation of the adjacent wetland. Topsoil shall be finish graded by hand to elevations as shown on the sheet 15, or as otherwise directed in the field.

6. Revegetation with Indigenous Wetland Plant Species

   The excavated topsoil placed in the wetland replication area contains dormant seeds, roots and rhizomes of indigenous vegetation. When this soil is relocated and finish graded, germination and growth of the plant material within will result. In order expedite this natural process, container-grown wetland plant stock will be planted in the wetland replication area according to the plant list provided. Following planting of container grown stock, the wetland replication area will be seeded with a mixture of herbaceous wetland plant species to augment development of wetland vegetation and provide initial vegetative stabilization for erosion control. A light mulch of clean, weed free straw shall be spread on the surface of the seeded area to allow erosion control during the establishment period.

7. Relocation of erosion control
   Following planting and seeding of the wetland replication area, a second line of silt fencing with compost filter tubes shall be installed along the new limit of work. This work is intended to reduce or prevent erosion of the newly-planted replacement wetland. Upon installation of a second erosion control line, remove initial erosion control along wetland replication area perimeter.

8. Onsite Supervision

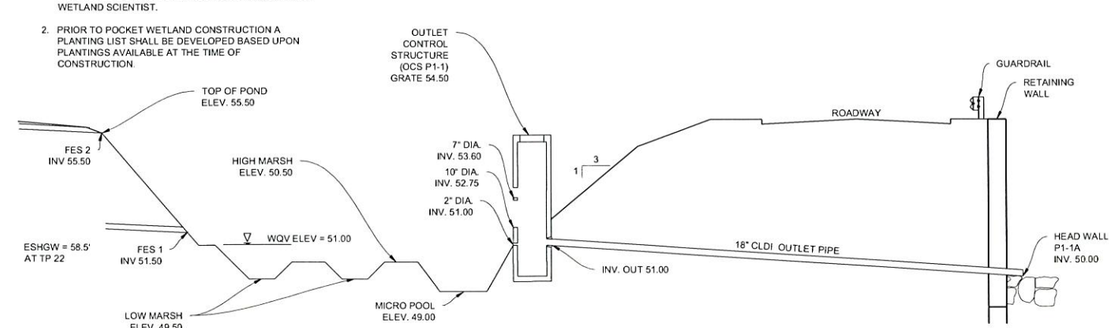
   During construction of the wetland replication area and the fill area, the work will be under the direct supervision of a registered professional engineer or wetland specialist.

9. Replacement of Unsatisfactory Plantings

   75% healthy foliage shall be assumed satisfactory evidence of growth after two growing seasons. All dead or unsatisfactory plants shall be removed and replaced in kind and size by the contractor with plants as originally established under this specification and planting plan. Any substitutions of plant material which may be necessary or desirable after the first growing season must be approved by the permit-issuing authority prior to replacement.

NOTE:

1. POCKET WETLAND CONSTRUCTION SHALL BE MONITORED DURING CONSTRUCTION BY A QUALIFIED WETLAND SCIENTIST.
2. PRIOR TO POCKET WETLAND CONSTRUCTION A PLANTING LIST SHALL BE DEVELOPED BASED UPON PLANTINGS AVAILABLE AT THE TIME OF CONSTRUCTION.




1 CROSS SECTION DETENTION POND (P1-1) - POCKET WETLAND
NOT TO SCALE

**NOT FOR CONSTRUCTION**


Ranger Engineering Group, Inc.
13 Branch Street, Suite 101
Methuen MA, 01844
Tel: 978-208-1762
rangereng.com


THE VILLAGE AT CRICKET LANE
BYFIELD (NEWBURY), MA 01922
ASSESSOR'S MAP R-20 LOT 75

WETLAND DETAILS

CRICKET ROAD DEVELOPMENT, LLC
92 MIDDLESEX ROAD
TYNGSBOROUGH, MA 01879

| NO. | DATE | REVISIONS | BY |
|---|---|---|---|
| 3 | 12/09/2020 | FINAL REVIEW COMMENT REVISIONS | BCO |
| 2 | 08/17/2020 | REVIEW COMMENT REVISIONS | BCO |
| 1 | 06/26/2020 | REVIEW COMMENT REVISIONS | BCO |

| | |
|---|---|
| PROJECT | 15-1516 |
| DATE | 2020-08-10 |
| DRAWING SCALE | AS NOTED |
| DRAWN BY | OMR |
| APPROVED BY | BCO |

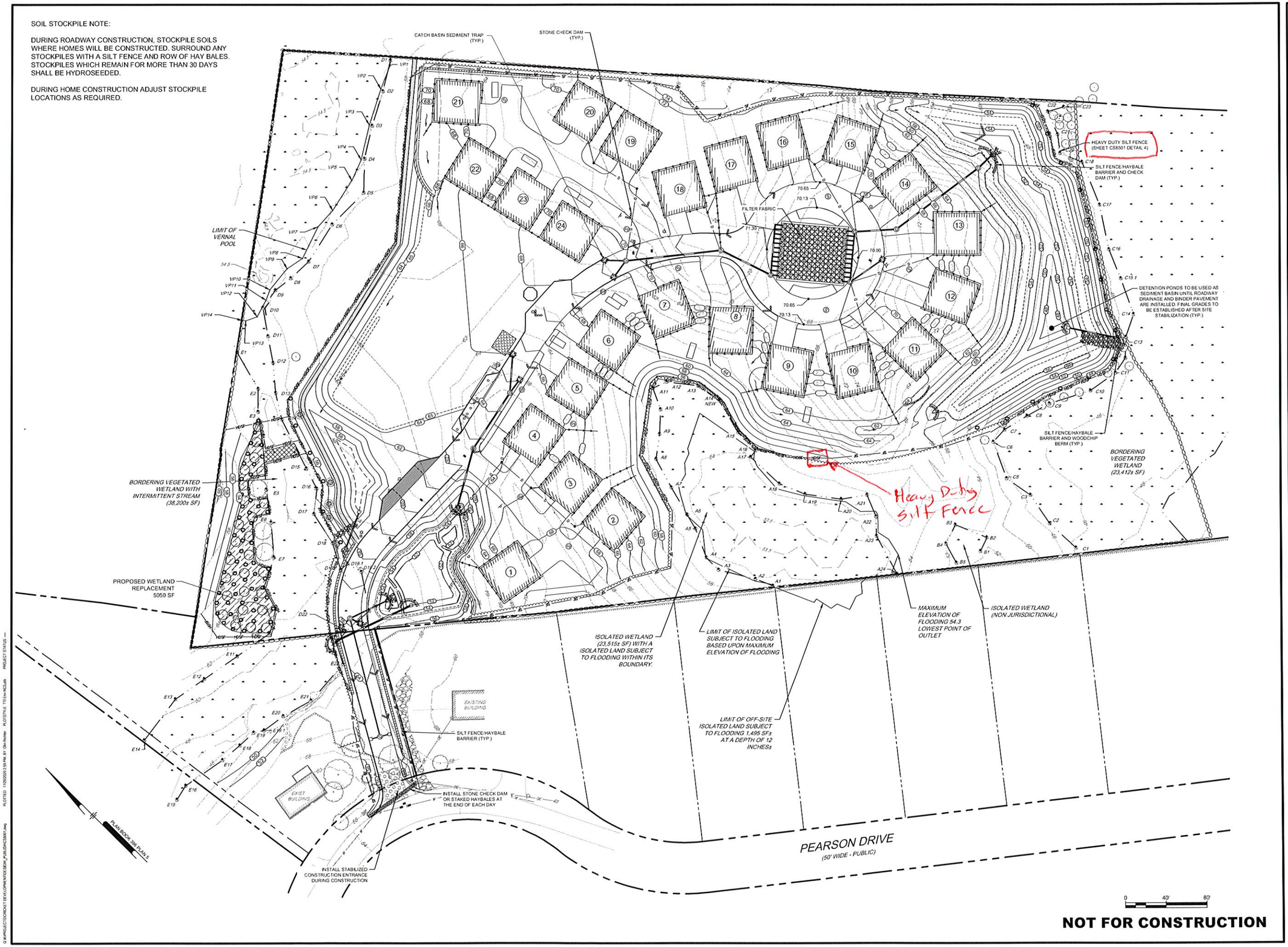
**CS6031**

SHEET 16 OF 19

SOIL STOCKPILE NOTE:

DURING ROADWAY CONSTRUCTION, STOCKPILE SOILS WHERE HOMES WILL BE CONSTRUCTED. SURROUND ANY STOCKPILES WITH A SILT FENCE AND ROW OF HAY BALES. STOCKPILES WHICH REMAIN FOR MORE THAN 30 DAYS SHALL BE HYDROSEEDED.

DURING HOME CONSTRUCTION ADJUST STOCKPILE LOCATIONS AS REQUIRED.

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THE VILLAGE AT CRICKET LANE
BYFIELD (NEWBURY), MA 01922
ASSESSOR'S MAP R-20 LOT 75

EROSION AND SEDIMENTATION CONTROL PLAN

CRICKET ROAD DEVELOPMENT, LLC
92 MIDDLESEX ROAD
TYNGSBOROUGH, MA 01879

| DATE | NO. | REVISIONS | BY |
|---|---|---|---|
| 08/17/2020 | 2 | REVIEW COMMENT REVISIONS | BCO |
| 05/26/2020 | 1 | REVIEW COMMENT REVISIONS | BCO |

| | |
|---|---|
| PROJECT | 15-1516 |
| DATE | 2020-08-10 |
| DRAWING SCALE | AS NOTED |
| DRAWN BY | OMR |
| APPROVED BY | BCO |

**CS8001**

SHEET 18 OF 19

**Attachment B**

Email Peer Review Comments

The Village at Cricket Lane

December 15, 2020

## Ann Marton

**From:** Ann Marton
**Sent:** Tuesday, December 15, 2020 4:47 PM
**To:** bosgood@rangereng.com; 'Information Technology'
**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental'; 'Walter Eriksen'; orichter@rangereng.com
**Subject:** RE: Status of Civil Eng Review - Joe Serwatka

Thanks Ben. Sorry to hear that one of your employees was potentially exposed to Covid.

I presume that Norse is also going to re-review and updated their 2-15-2020 revised Norse Wetland Restoration & Replication Report to correlate to your below responses?

See my comments below in **crimson**.

I will review the most recently updated plan sheets 7 and 16.

Thanks,

Ann

I will be away on holiday December 23-28, 2020.

Based on the collective Emergency Orders and guidance issued by the Governors of MA, RI, and NH for a phased reopening, LEC staff will continue working remotely until further notice and continue conducting field work and construction inspections while implementing federal, state, & local health and safety guidelines. I can be reached via email or my cell phone at 781-249-7777.

Ann M. Marton, President
Director of Ecological Services
LEC Environmental Consultants, Inc.
380 Lowell Street, Suite 101, Wakefield, MA 01880
Office: 781.245.2500

---

**From:** bosgood@rangereng.com [mailto:bosgood@rangereng.com]
**Sent:** Tuesday, December 15, 2020 1:35 PM
**To:** Ann Marton <AMarton@lecenvironmental.com>; 'Information Technology' <info@townofnewbury.org>
**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental' <norseenvironmental@verizon.net>; 'Walter Eriksen' <awc.walter@comcast.net>; orichter@rangereng.com
**Subject:** RE: Status of Civil Eng Review - Joe Serwatka

Ann,

I apologize for not clarifying and providing responses to each of your items in your email from Sunday. One of our employees was potentially exposed to Covid, so we have been making adjustments to accommodate people working from home, causing me to be in the field surveying before the snowstorm tomorrow. I have included responses below to each of your email comments.

Also, we will work on making the changes to sheet 16 as outlined in your attachment. I have also verified the number of shrub plantings along the C and D series wetland buffer. The plans will be revised to reflect 45 and 20 respectively.

1. The Ranger Report and the table on site plan sheet 16 state that wetland replication will be provided at a 1.5:1 ratio of impact (5,660), but the wetland replication area leader notes and the Norse Report both state 5,050 sf. Please clarify the square footage of the wetland replication shown on the plans and the square footage you intend to provide. Please ensure that the plans, the tables, and the Norse report correlate.

    a. ***All of the documents have been corelated to reflect a replacement area of 5,660 square feet.*** **Thank you. I concur.**

2. We have a few requested clarifications to the Norse Report on soil amendments and wetland scientist approval prior to placement in the wetland replication area.

    **a. A section regarding soil amendment has been included in the Norse Environmental report Thank you. I concur.**

3. Thank you for relocating the temporary access for creating the wetland replication area to reduce tree impacts and revising the means for access to reduce impacts to the footprint of the BVW.

    **a. No response required. Thank you. I concur.**

4. Shrub plantings in the wetland replication area and the wetland restoration areas should be 5 feet on center, not 10 feet on center. I have recommended increases in the number of shrubs for each of these areas on the attached plans and in the Norse Report. At a minimum, please make these changes on the plans and in an updated Norse Report (see attached).

    **a. The DEP guidelines recommend a spacing of 8 to 10 feet. The replacement area planting plan is based on a 10' spacing for shrubs which is in compliance with the DEP guidelines. Planting 5' apart will prevent the shrubs from having space to grow which will eventually cause many to die. The DEP document is only guidance. Based on my direct field experience, the number of shrubs and spacing should be 5 feet on center based on a rectangular spacing (versus triangular spacing, which would have required even more plantings).**

    **Thank you for reconsidering the planting count and agreeing to accept my recommendation. I look forward to seeing revised plans and a further revised Norse Wetland Restoration & Replication Report with a new revision date.**

5. Norse should expand the text on page 8 of their report to include information on the approximate grading required for the wetland replication area and to include specifications for preparing the temporarily impacted wetlands for replanting (e.g. removal of incidental construction debris or crossing materials/matts, restoration of grades, and inspection by the wetland scientist prior to planting).

    **a. Additional requirements for monitoring and verifying the wetland replication area have been added to the report on Page 8. Thank you. I concur.**

6. Thank you for performing additional field and survey work to depict existing trees that will remain along the limits of work that are tight to the BVW boundary and for proposing additional trees every 30 feet. This is an improvement. However, since you cannot shift Basins P1-2 and P3-2 further from the BVW, please add understory shrubs between the toe of the slope and the BVW boundary. We recommend species such as witch hazel, American hornbeam (if available from nurseries) sumac, and dogwood. The quantities for these plantings can be based on plantings 8 feet on center.

    **a. Additional buffer plantings have been added to the plans. The amounts will be verified and adjusted to reflect an 8' spacing. 45 shrubs will be planted along the C series wetland and 20 shrubs along the c series wetland. Thank you. I will review once these have been added to the plans.**

7. Your response to my prior Comments #8, #9, and #16 refer to eliminating the trail that connects the proposed roadway to the state owned land, in particular #9 refers to creating a slightly larger buffer along the D-series

wetland. However, the plans still show the trail. Please clarify if the trail will be remove or remain, and if removed, please provide revised plans.

   a. **The trail has been removed from the plan Thank you. I will review the updated plans.**

8. Thank you for clarifying placement of the septic system outside the 100-foot setback to the Certified Vernal Pool.

   a. **No response required Thank you. I concur.**

9. The remainder of my plan or Norse Report comments should be self-explanatory.

   a. **The tree species have been revised and the wetland fill and replacement values have been coordinated. Thank you. I will review the updated plans.**

Thank you for your quick response to our latest submittal. Hopefully this can be the last round of revisions and you can issue a favorable review prior to the meeting Thursday.

Ben

---

**From:** Ann Marton <AMarton@lecenvironmental.com>
**Sent:** Tuesday, December 15, 2020 12:39 PM
**To:** orichter@rangereng.com; 'bosgood' <bosgood@rangereng.com>; 'Information Technology' <info@townofnewbury.org>
**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental' <norseenvironmental@verizon.net>; 'Walter Eriksen' <awc.walter@comcast.net>
**Subject:** RE: Status of Civil Eng Review - Joe Serwatka

I have started reviewing the 2-15-2020 revised Norse Wetland Restoration & Replication Report and there are a number of requested changes to species quantities and spacing, etc. that were not changed. Was this an oversight or are you rejecting my recommendations?

I will be away on holiday December 23-28, 2020.

Based on the collective Emergency Orders and guidance issued by the Governors of MA, RI, and NH for a phased reopening, LEC staff will continue working remotely until further notice and continue conducting field work and construction inspections while implementing federal, state, & local health and safety guidelines. I can be reached via email or my cell phone at 781-249-7777.

Ann M. Marton, President
Director of Ecological Services
LEC Environmental Consultants, Inc.
380 Lowell Street, Suite 101, Wakefield, MA 01880
Office: 781.245.2500

---

**From:** Ann Marton
**Sent:** Tuesday, December 15, 2020 11:16 AM
**To:** orichter@rangereng.com; 'bosgood' <bosgood@rangereng.com>; 'Information Technology' <info@townofnewbury.org>
**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental' <norseenvironmental@verizon.net>; 'Walter Eriksen' <awc.walter@comcast.net>
**Subject:** RE: Status of Civil Eng Review - Joe Serwatka
**Importance:** High

## Ann Marton

**From:** Ann Marton
**Sent:** Tuesday, December 15, 2020 7:21 PM
**To:** bosgood@rangereng.com; orichter@rangereng.com; 'Information Technology'
**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental'; 'Walter Eriksen'
**Subject:** RE: Status of Civil Eng Review - Joe Serwatka
**Attachments:** CS1001-CS1001 LEC Comments.pdf; CS6031-CS6031 LEC Comments.pdf

Thanks for sending over updated plan sheets 7 and 16. A few more plan comments in addition to comments in my email sent on 12-15-2020 at 4:47PM.

I will be away on holiday December 23-28, 2020.

Based on the collective Emergency Orders and guidance issued by the Governors of MA, RI, and NH for a phased reopening, LEC staff will continue working remotely until further notice and continue conducting field work and construction inspections while implementing federal, state, & local health and safety guidelines. I can be reached via email or my cell phone at 781-249-7777.

Ann M. Marton, President
Director of Ecological Services
LEC Environmental Consultants, Inc.
380 Lowell Street, Suite 101, Wakefield, MA 01880
Office: 781.245.2500

---

**From:** bosgood@rangereng.com [mailto:bosgood@rangereng.com]
**Sent:** Tuesday, December 15, 2020 3:58 PM
**To:** Ann Marton <AMarton@lecenvironmental.com>; orichter@rangereng.com; 'Information Technology' <info@townofnewbury.org>
**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental' <norseenvironmental@verizon.net>; 'Walter Eriksen' <awc.walter@comcast.net>
**Subject:** RE: Status of Civil Eng Review - Joe Serwatka

Anne,

Here are the latest sheets CS1001 and CS6031 with some minor changes as mentioned in my previous email.

Ben

---

**From:** Ann Marton <AMarton@lecenvironmental.com>
**Sent:** Tuesday, December 15, 2020 12:39 PM
**To:** orichter@rangereng.com; 'bosgood' <bosgood@rangereng.com>; 'Information Technology' <info@townofnewbury.org>
**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental' <norseenvironmental@verizon.net>; 'Walter Eriksen' <awc.walter@comcast.net>
**Subject:** RE: Status of Civil Eng Review - Joe Serwatka

I have started reviewing the 2-15-2020 revised Norse Wetland Restoration & Replication Report and there are a number of requested changes to species quantities and spacing, etc. that were not changed. Was this an oversight or are you rejecting my recommendations?

I will be away on holiday December 23-28, 2020.

Based on the collective Emergency Orders and guidance issued by the Governors of MA, RI, and NH for a phased reopening, LEC staff will continue working remotely until further notice and continue conducting field work and construction inspections while implementing federal, state, & local health and safety guidelines. I can be reached via email or my cell phone at 781-249-7777.

Ann M. Marton, President
Director of Ecological Services
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Office: 781.245.2500

---

**From:** Ann Marton
**Sent:** Tuesday, December 15, 2020 11:16 AM
**To:** orichter@rangereng.com; 'bosgood' <bosgood@rangereng.com>; 'Information Technology' <info@townofnewbury.org>
**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental' <norseenvironmental@verizon.net>; 'Walter Eriksen' <awc.walter@comcast.net>
**Subject:** RE: Status of Civil Eng Review - Joe Serwatka
**Importance:** High

In my haste to complete my review this past Sunday, I failed to cross-check my prior 10-9-2020 comments on Plan Sheet 16 to the updated plans. Based on my initial review of the plans you just sent over, the attached comments were not incorporated into Plan Sheet 16. Please make these changes.

Additionally, the number of proposed buffer planting shrubs looks low. I will continue evaluating but wanted to give you an initial heads up.

Please make sure you have responded to ALL my prior comments.

Ann

I will be away on holiday December 23-28, 2020.

Based on the collective Emergency Orders and guidance issued by the Governors of MA, RI, and NH for a phased reopening, LEC staff will continue working remotely until further notice and continue conducting field work and construction inspections while implementing federal, state, & local health and safety guidelines. I can be reached via email or my cell phone at 781-249-7777.

Ann M. Marton, President
Director of Ecological Services
LEC Environmental Consultants, Inc.
380 Lowell Street, Suite 101, Wakefield, MA 01880
Office: 781.245.2500

---

**From:** orichter@rangereng.com [mailto:orichter@rangereng.com]
**Sent:** Tuesday, December 15, 2020 10:10 AM
**To:** 'bosgood' <bosgood@rangereng.com>; Ann Marton <AMarton@lecenvironmental.com>; 'Information Technology' <info@townofnewbury.org>

**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental' <norseenvironmental@verizon.net>; 'Walter Eriksen' <awc.walter@comcast.net>
**Subject:** RE: Status of Civil Eng Review - Joe Serwatka

Hello all,

Attached is the full plan set along with the Wetland restoration and replication report.
If you have any questions or comments, please let us know,

Thanks,
Olin

---

**From:** bosgood <bosgood@rangereng.com>
**Sent:** Tuesday, December 15, 2020 10:00 AM
**To:** Ann Marton <AMarton@lecenvironmental.com>; 'Information Technology' <info@townofnewbury.org>
**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental' <norseenvironmental@verizon.net>; 'Walter Eriksen' <awc.walter@comcast.net>; orichter@rangereng.com
**Subject:** RE: Status of Civil Eng Review - Joe Serwatka

Anne
The report is in my email and the edits have been made.

I will have Olin send them out shortly

Ben

Sent from my Verizon, Samsung Galaxy smartphone

-------- Original message --------
From: Ann Marton <AMarton@lecenvironmental.com>
Date: 12/15/20 9:44 AM (GMT-05:00)
To: bosgood@rangereng.com, 'Information Technology' <info@townofnewbury.org>
Cc: doug@dfpclaw.com, joeserwatka@comcast.net, lisa@mtclawyers.com, 'Norse Environmental' <norseenvironmental@verizon.net>, 'Walter Eriksen' <awc.walter@comcast.net>
Subject: RE: Status of Civil Eng Review - Joe Serwatka

Ben,

Can you give me an idea how quickly you will be making the below requested edits? I know there is a ZBA hearing this Thursday evening and I want to make sure I have allocated time on my schedule to review any responses if you think you can get them back to me before the meeting.

| IMPERVIOUS AREAS | AREA (SF) |
|---|---|
| BUILDING AREA | 42,240± |
| ROADWAY AREA | 27,300± |
| SIDEWALK AREA | 3,650± |
| DRIVEWAY AREA | 28,188± |
| TOTAL | 101,378± |

WETLAND DISTURBANCE:

| | |
|---|---|
| WETLAND FILL AREA: | 1,730 SF |
| HISTORIC FILL AREA: | 2,039 SF |
| TEMPORARY DISTURBANCE: | 855 SF |
| TOTAL WETLANDS ALTERED: | 4624 SF |

WETLAND REPLACEMENT: (REPLACED IN PLACE)
TEMPORARY DISTURBANCE AREA = 785 SF

| | |
|---|---|
| WETLAND FILL & HISTORIC FILL | = 3,769 SF |
| REQUIRED REPLACEMENT = 3,769 x 1.5 | = 5653 SF |
| PROPOSED REPLACEMENT | = 5,660 SF |

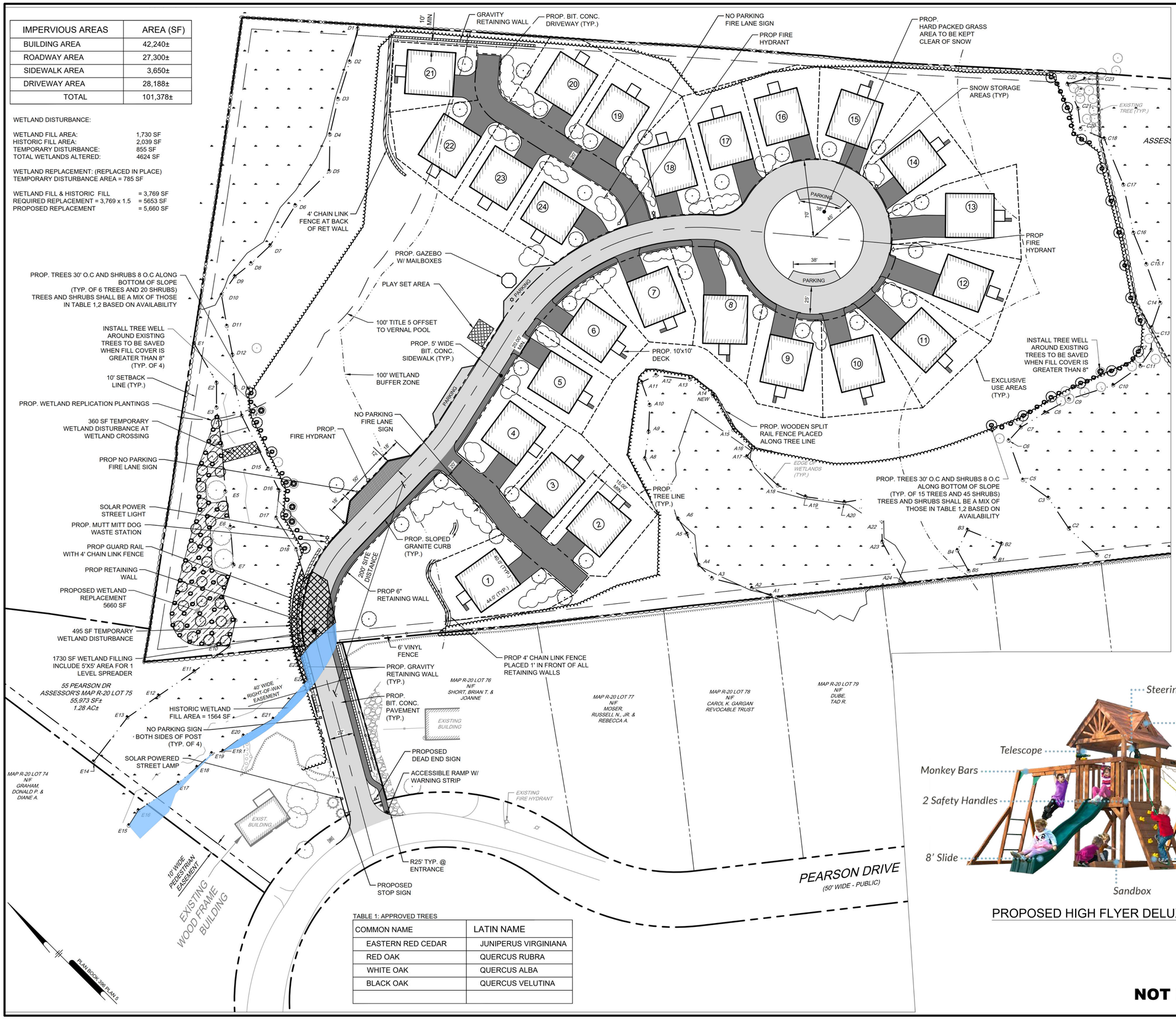



TABLE 1: APPROVED TREES

| COMMON NAME | LATIN NAME |
|---|---|
| EASTERN RED CEDAR | JUNIPERUS VIRGINIANA |
| RED OAK | QUERCUS RUBRA |
| WHITE OAK | QUERCUS ALBA |
| BLACK OAK | QUERCUS VELUTINA |
| | |


MUTT MITT STATION

PROPOSED GAZEBO WITH MAILBOXES


PROPOSED HIGH FLYER DELUXE PLAYGROUND SET

0 40' 80'

**NOT FOR CONSTRUCTION**


Ranger Engineering Group, Inc.
13 Branch Street, Suite 101
Methuen MA, 01844
Tel: 978-208-1762
rangereng.com


THE VILLAGE AT CRICKET LANE
BYFIELD (NEWBURY), MA 01922
ASSESSOR'S MAP R-20 LOT 75

LAYOUT AND MATERIALS PLAN

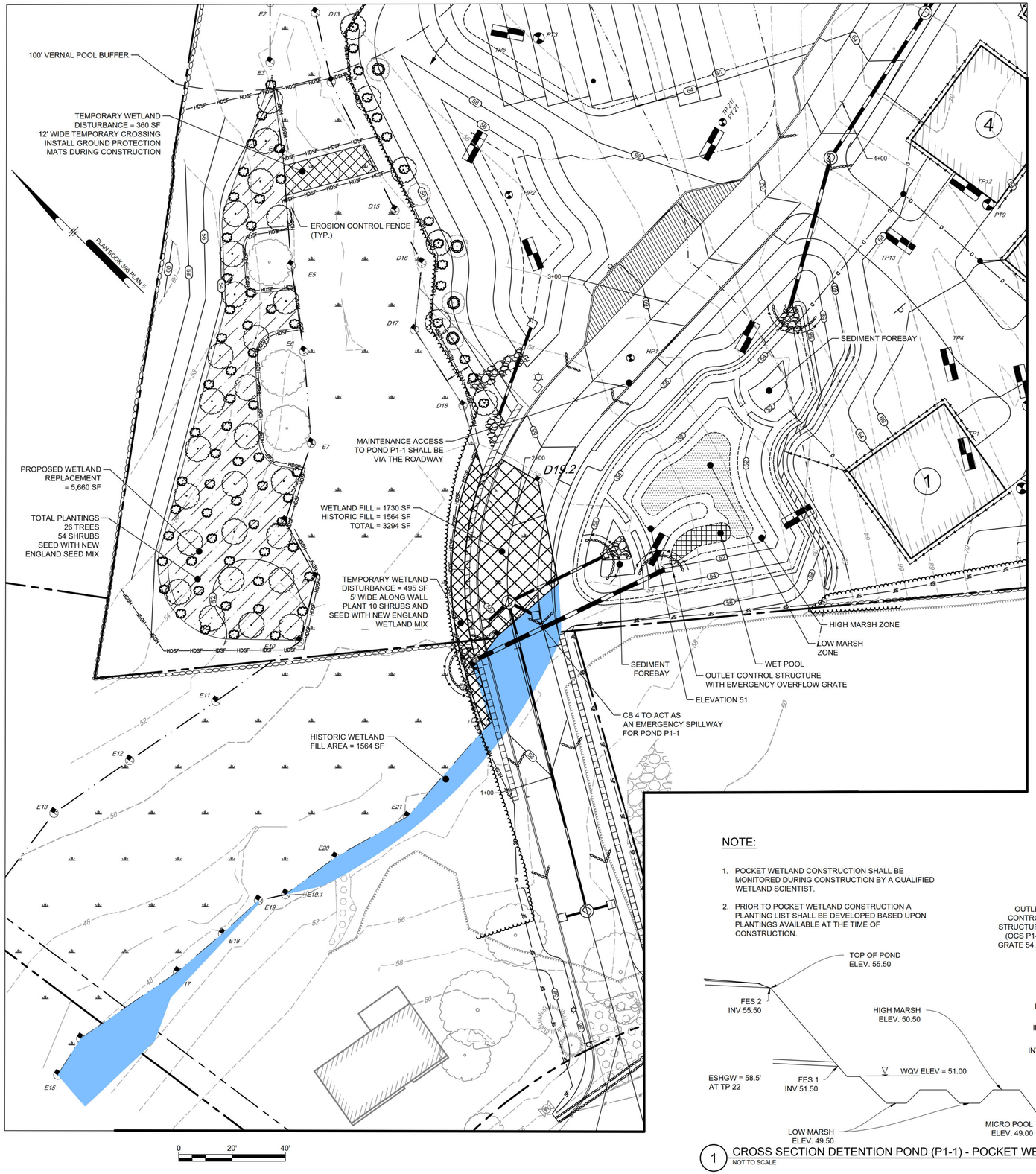
CRICKET ROAD DEVELOPMENT, LLC
92 MIDDLESEX ROAD
TYNGSBOROUGH, MA 01879

| NO. | DATE | REVISIONS | BY |
|---|---|---|---|
| 3 | 12/09/2020 | FINAL REVIEW COMMENT REVISIONS | BCO |
| 2 | 08/17/2020 | REVIEW COMMENT REVISIONS | BCO |
| 1 | 06/26/2020 | REVIEW COMMENT REVISIONS | BCO |

| | |
|---|---|
| PROJECT | 15-1516 |
| DATE | 2020-08-10 |
| DRAWING SCALE | AS NOTED |
| DRAWN BY | OMR |
| APPROVED BY | BCO |

**CS1001**

SHEET 7 OF 19




| POCKET WETLAND DESIGN | |
|---|---|
| DRAINAGE AREA | 62,234 SF |
| WETLAND AREA | 1,570 SF |
| SURFACE TO WATERSHED RATIO | .03 |
| LENGTH | 90 ' |
| WIDTH | 10 ' |
| L TO W RATIO | 9:1 |
| SURFACE AREA ALLOCATION | |
| WET POOL | 165 SF (10.5%) |
| LOW MARSH | 710 SF (45.2%) |
| HIGH MARSH | 695 SF (44.3%) |
| WATER QUALITY VOLUME ALLOCATION | |
| WET POOL | 330 CF (18.9%) |
| LOW MARSH | 347.5 CF (19.9%) |
| HIGH MARSH | 1065 CF (61.1%) |
| ESHGW | 53.0' |

| WETLAND SEED MIX | | |
|---|---|---|
| COMMON NAME | AMOUNT | SUPPLIER |
| NEW ENGLAND WETMIX | 1.0 LB./2500 S.F. | NEW ENGLAND WETLAND PLANTS, INC |
| NEW ENGLAND LOGGING ROAD MIX | 1.0 LB./2200 S.F. | NEW ENGLAND WETLAND PLANTS, INC |

| ACCEPTABLE WETLAND REPLACEMENT PLANTINGS | | |
|---|---|---|
| | SCIENTIFIC NAME | COMMON NAME |
| | SHRUBS | |
| | VACCINIUM CORYMBOSUM | HIGHBUSH BLUEBERRY |
| | ILEX VERTICILLATA | WINTERBERRY |
| | RHODODENDRON VISCOSUM | SWAMP AZALEA |
| | VIBURNUM DENTATUM | ARROW WOOD |
| | LINDERA BENZOIN | SPICEBUSH |
| | CORNUS AMOMUM | SILKY DOGWOOD |
| | TREES | |
| | ACER RUBRUM | RED MAPLE |
| | TSUGA CANADENSIS | EASTERN HEMLOCK |
| | ULMUS AMERICANA | AMERICAN ELM |
| | | |

## WETLAND REPLACEMENT NOTES:

| | |
|---|---|
| WETLAND FILL AREA AT CROSSING: | 1,730 SF |
| HISTORIC FILL AREA: | 2,039 SF |
| TEMPORARY DISTURBANCE: | 855 SF |
| TOTAL WETLANDS ALTERED: | 4624 SF |

WETLAND REPLACEMENT AT TEMPORARY DISTURBANCE AREAS = 855 SF
WETLAND REPLACEMENT FOR HISTORIC FILL AND WETLAND CROSSING AREA = (1730 +2039 )x1.5 = 5660 SF

## PLANTING NOTE:

1. NEW ENGLAND WETMIX TO BE USED WITHIN WETLAND REPLACEMENT / RESTORATION AREA.
2. NEW ENGLAND LOGGING ROAD MIX TO BE USED FOR UPLAND AREAS.
3. MULCH WITH STRAW IF SEEDING PERFORMED AFTER JUNE 15TH.
4. SHRUBS TO BE MINIMUM 2'-3' TALL, TREES TO BE MINIMUM 1.5" CALIPER CONTAINER GROWN (MIN. 5 GAL.)
5. MIN OF 5 DIFFERENT TYPES OF SHRUBS TO BE PLANTED IN EACH TEMPORARY WETLAND DISTURBANCE AREA.
6. GROUND PROTECTION MATS TO BE REMOVED UPON COMPLETION OF WETLAND REPLACEMENT AREA CONSTRUCTION.

## PERFORMANCE SPECIFICATIONS

1. Erosion Control Location and Delineation of Work Areas

   A silt fence shall remain as the lower limit of work until the wetland replication/restoration areas are stabilized. The upper limit of wetland replication area shall be marked with stakes 20 feet apart prior to performing wetland replication activities.

2. Excavation and Stockpiling of Topsoil and Mineral Soil from Wetland Replication Area

   From the Wetland Replication Area as marked, all existing vegetation, with particular focus on invasive species, shall be cleared except for the individual species which are noted on sheet 16. Existing vegetation to remain shall be protected by encircling with silt fence. Topsoil shall be removed and may be stockpiled outside the wetland replication area and on-site. All mineral soil shall be excavated to subgrade elevation, or as otherwise directed in the field. Excavated mineral soil may be stockpiled outside the wetland replication area and on-site. No heavy equipment shall pass the line of erosion control during this work.

3. Excavation of Topsoil from Wetland Crossing Area

   From the Wetland Crossing Area, all topsoil shall be excavated down to the elevation of the topsoil-subsoil boundary as determined in the field. All remaining vegetation shall be excavated with the topsoil. No heavy equipment shall pass the line of staked erosion control during this work. Topsoil removed from the wetland crossing area shall be reused in the wetland replication area.

4. Excavation and Stockpiling of Topsoil and Mineral Soil from Temporary Wetland Disturbance Area

   From the Temporary Wetland disturbance Area as marked, all existing vegetation, with particular focus on invasive species, shall be cleared. Topsoil shall be removed and may be stockpiled outside the temporary wetland disturbance area and on-site. All mineral soil shall be excavated to subgrade elevation, or as otherwise directed in the field. Excavated mineral soil may be stockpiled outside the wetland replication area and on-site. After completion of the retaining wall, the disturbed area shall be backfilled with the stockpiled mineral and top soil. The area shall then seeded with New England Wetmix.

5. Placement and Grading of Topsoil in Wetland Replication Area.

   The topsoil in the wetland replication area shall be graded roughly to the elevation of the adjacent wetland. Topsoil shall be finish graded by hand to elevations as shown on sheet 16, or as otherwise directed in the field. If extra soil is needed to complete finished grading, soils with at least 10% organic material shall be used.

6. Revegetation with Indigenous Wetland Plant Species

   The excavated topsoil placed in the wetland replication area contains dormant seeds, roots and rhizomes of indigenous vegetation. When this soil is relocated and finish graded, germination and growth of the plant material within will result. In order expedite this natural process, container-grown wetland plant stock will be planted in the wetland replication area according to the plant list provided. Following planting of container grown stock, the wetland replication area will be seeded with a mixture of herbaceous wetland plant species to augment development of wetland vegetation and provide initial vegetative stabilization for erosion control. A light mulch of clean, weed free straw shall be spread on the surface of the seeded area to allow erosion control during the establishment period.

7. Relocation of erosion control
   Following planting and seeding of the wetland replication area, a second line of silt fencing with compost filter tubes shall be installed along the new limit of work. This work is intended to reduce or prevent erosion of the newly-planted replacement wetland. Upon installation of a second erosion control line, remove initial erosion control along wetland replication area perimeter.

8. Onsite Supervision

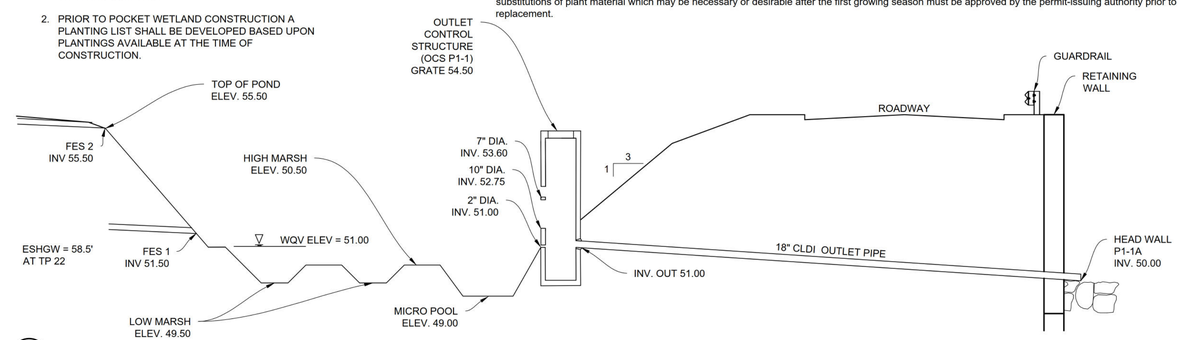
   During construction of the wetland replication area and the fill area, the work will be under the direct supervision of a wetland scientist.

9. Replacement of Unsatisfactory Plantings

   75% survival of planted woody vegetation healthy foliage shall be assumed satisfactory evidence of growth after two growing seasons. All dead or unsatisfactory plants shall be removed and replaced in kind and size by the contractor with plants as originally established under this specification and planting plan. Any substitutions of plant material which may be necessary or desirable after the first growing season must be approved by the permit-issuing authority prior to replacement.

## NOTE:

1. POCKET WETLAND CONSTRUCTION SHALL BE MONITORED DURING CONSTRUCTION BY A QUALIFIED WETLAND SCIENTIST.
2. PRIOR TO POCKET WETLAND CONSTRUCTION A PLANTING LIST SHALL BE DEVELOPED BASED UPON PLANTINGS AVAILABLE AT THE TIME OF CONSTRUCTION.




1 CROSS SECTION DETENTION POND (P1-1) - POCKET WETLAND
NOT TO SCALE

**NOT FOR CONSTRUCTION**


Ranger Engineering Group, Inc.
13 Branch Street, Suite 101
Methuen MA, 01844
Tel: 978-208-1742
rangereng.com


THE VILLAGE AT CRICKET LANE
BYFIELD (NEWBURY), MA 01922
ASSESSOR'S MAP R-20 LOT 75

WETLAND DETAILS

CRICKET ROAD DEVELOPMENT, LLC
92 MIDDLESEX ROAD
TYNGSBOROUGH, MA 01879

| NO. | DATE | REVISIONS | BY |
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| 3 | 12/09/2020 | FINAL REVIEW COMMENT REVISIONS | BCO |
| 2 | 08/17/2020 | REVIEW COMMENT REVISIONS | BCO |
| 1 | 06/26/2020 | REVIEW COMMENT REVISIONS | BCO |

| | |
|---|---|
| PROJECT | 15-1516 |
| DATE | 2020-08-10 |
| DRAWING SCALE | AS NOTED |
| DRAWN BY | OMR |
| APPROVED BY | BCO |

**CS6031**

SHEET 16 OF 19

**Attachment C**

Email Peer Review Comments

The Village at Cricket Lane

December 17, 2020

## Ann Marton

**From:** Ann Marton
**Sent:** Thursday, December 17, 2020 12:35 PM
**To:** bosgood@rangereng.com; orichter@rangereng.com; 'Information Technology'
**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental'; 'Walter Eriksen'
**Subject:** RE: Status of Civil Eng Review - Joe Serwatka

The 2-15-2020 Norse Wetland Restoration & Replication Report has been updated (new date of 12-16-2020) as requested.

However, it appears from the two sheets Ben sent last night, that the number of proposed shrub plantings on the plan sheets remains incorrect and does not correlate to the December 16, 2020 Norse Wetland Restoration & Replication Report.

Perhaps they were changed for the final full plan set that was sent around. I will download and check, but if not. Please correct the plans.

I will be away on holiday December 23-28, 2020.

Based on the collective Emergency Orders and guidance issued by the Governors of MA, RI, and NH for a phased reopening, LEC staff will continue working remotely until further notice and continue conducting field work and construction inspections while implementing federal, state, & local health and safety guidelines. I can be reached via email or my cell phone at 781-249-7777.

Ann M. Marton, President
Director of Ecological Services
LEC Environmental Consultants, Inc.
380 Lowell Street, Suite 101, Wakefield, MA 01880
Office: 781.245.2500

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**From:** bosgood@rangereng.com [mailto:bosgood@rangereng.com]
**Sent:** Wednesday, December 16, 2020 4:35 PM
**To:** Ann Marton <AMarton@lecenvironmental.com>; orichter@rangereng.com; 'Information Technology' <info@townofnewbury.org>
**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental' <norseenvironmental@verizon.net>; 'Walter Eriksen' <awc.walter@comcast.net>
**Subject:** RE: Status of Civil Eng Review - Joe Serwatka

Ann,

Attached are the revised wetland report, Sheet CS1001 and sheet CS6031 with the final changes made.

I will send the revised full set by we transfer.

Ben

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**From:** Ann Marton <AMarton@lecenvironmental.com>
**Sent:** Tuesday, December 15, 2020 7:21 PM
**To:** bosgood@rangereng.com; orichter@rangereng.com; 'Information Technology' <info@townofnewbury.org>
**Cc:** doug@dfpclaw.com; joeserwatka@comcast.net; lisa@mtclawyers.com; 'Norse Environmental'

**Joseph J. Serwatka, P.E.**
**Post Office Box 1016**
**North Andover, MA 01845**
**978-314-8731**

April 13, 2020

Susan Noyes, Administrator
Newbury Zoning Board of Appeals
12 Kent Way, Suite 200
Newbury, MA 01922

Re: The Villages at Cricket Lane
55R Pearson Drive
Peer Review

Dear Ms. Noyes:

I have received a 40B Comprehensive Permit plan set (sheets 1 -18 of 18, dated January 22, 2020 by Ranger Engineering Group, Inc.), Comprehensive Permit Application binder dated February, 2020, by Cricket Lane, LLC/Deschenes & Farrell, P.C., and a copy of 3D Architectural Renderings, all for The Villages at Cricket Lane. Also, on April 8th, I received a mailed copy of the Stormwater Management Report dated January 31, 2020. Further, on April 11th, I received a mailed copy of the Road Profile sheet, which had been missing from the plan package. I have reviewed the submitted material relate to the Town of Newbury Zoning Board of Appeals Comprehensive Permit Rules and Regulations, MassDEP Stormwater Management Standards, and common engineering practice. I offer the following:

Sheet 1 of 18, CS0001, Cover Sheet

The index of drawings lists sheet 10 of 18, CS3501, as Road Profile, but sheet 10 appears to incorrectly contain site details. It appears to be a duplicate of sheet 11. The engineer should provide the road profile sheet for review.

*Road profile sheet previously provided under separate mailing. The sheet will be included in the next submission*

Sheet 1 of 1, CS9001, Open Space Plan

1. The plan labels an open space parcel, proposed to be deemed to the Commonwealth of Massachusetts Division of Fish and Game as 4.82 acres, but sheet 6 of 18 labels the area as 9.15 acres. The engineer should verify which number is correct.
2. It is not clear on this plan, but the division line between the two open space parcels appears to be the stone wall, based on what is presented on sheet 6 of 18.

Sheets 3 and 4 of 18, CS0201/0202, Existing Conditions Plan

1. It is worth noting that wetland flags C8-C11 are depicted across a rock outcrop. The engineer may want to review whether the depiction reflects actual field conditions.
2. Existing curb cuts and driveways should be depicted for lots 75 and 76 in order to determine their relation to the proposed roadway.
3. The pipe size and material are not provided for the existing water line in Pearson Drive. Typically, the water department/authority will have this information on file.

4. Approximately 22 test pits were conducted, primarily on the western side of the site, to a depth of 6-10 feet, presumably with a backhoe or excavator. The plan also depicts 6 “HP” test pits which, according to the legend on sheet 2, were “hand-dug” to a depth of only 26-36 inches. The method, and resulting shallow analysis depth, is unusual , and does not provide adequate information on the depth of the C layer, or possible depth to ledge. The locations and number of these test pits may also not be suitable for the design of the Stormwater BMPs (Best Management Practices). This will be discussed further in the Stormwater section.
5. Existing treelines should be depicted on the plans, as would be typical.

Sheets 5 and 6 of 18, V0801/V0802, Roadway Layout and Property Line Plan
1. The plans are stamped by a registered professional engineer. Given that the plans present “property line” data, it would be appropriate to have a registered surveyor’s stamp and signature on the plans.
2. Section 3.1(e) of the Comprehensive Rules and Regulations states “where a subdivision of land is involved, a definitive subdivision plan, conforming to all of the requirements of the Planning Board’s Rules and Regulations for the Subdivision of Land” shall accompany the application. The right-of-way layout, width and cul-de-sac dimensions do not conform to the subdivision regulations. Of particular concern is the 100’ radius provided at about station 2+00, where the engineer should demonstrate that the required 200’ sight distance is provided.
3. The board may want the engineer to provide lot areas for the 24 individual lots proposed, as would be typical.

Sheet 7 of 18, CS1001, Layout and Materials Plan
1. As mentioned previously, the existing curb cuts and driveways for units 75 and 76 should be shown on the plan in order to determine their relation to the proposed roadway/sidewalk.
2. The proposed curb cut appears to include the roadway, but also a paved way onto lot 76. It scales about 8’ wide, which would typically be too narrow for a driveway, and appears to connect to existing gravel or rock. In either case, it is not recommended to have an abutting entrance included in the proposed roadway. The board may want the engineer to explain why the layout shown is necessary.
3. Proposed curb radii should be provided at the entrance, as would be typical.
4. A 5’ sidewalk is proposed from the project onto Pearson drive, but no connection is shown to an existing sidewalk. The engineer should address whether the proposed sidewalk will connect to an existing walkway. The engineer should also address the need for an ADA ramp at the end of the sidewalk, as would be typical.
5. The engineer should address where mail/parcels will be delivered. Projects of this type will typically have a central mailbox stand, as dictated by the postmaster general for the area. Some projects locate the stand under a shelter.
6. It appears that 4 solar powered street lights are proposed along the roadway, within the project. No light appears to be provided at the intersection with Pearson Drive. The engineer should address how the intersection will be lit.
7. Individual driveway depths do not appear sufficient in some cases to park a vehicle in the driveway. The lot 7 driveway scales about 15’, lot 2 scales about 18’, and lot 7 scales about 13’ to the back of sidewalk. The board may want the engineer to provide a suitable driveway depth, say 20’, to ensure that residents can park vehicles.
8. The plan appears to depict a proposed treeline beyond the wetlands line at flags D14-D18, which is also beyond the erosion control line depicted on sheet 17. The engineer should comment on this.
9. A proposed wall appears to be depicted at lot 21-22, but it is not labeled.

10. The plan proposes a 5' bituminous concrete sidewalk with a sloped granite curb. It has been my experience that this combination results in a gap that forms where the curb meets the sidewalk. This allows water to get under the sidewalk and curb. The way to typically avoid this is to install vertical granite curb with the bituminous sidewalk. The board may want to consider requiring vertical curb abutting the sidewalk, with sloped curb at all other locations.
11. The cul-de-sac island is 90' in diameter with a label that states "prop. hard packed grass area to be kept clear of snow". No curbing is depicted around the island, which will make it easy to use for parking. The engineer should comment on the lack of curbing, combined with a hard packed grass area.
12. There appear to be only 4 visitor parking spaces for the site. The lack of visitor parking, combined with a narrow roadway, could create traffic enforcement issues.

Sheet 8 of 18, CS1501, Grading and Drainage Plan
1. DMH1 and CB1 and CB2 cannot be constructed as shown, given the invert information and details provided. As designed, the top of pipe is only about 8" below the rim elevation. About 1.5-2' is required between the rim and top of pipe, given the frame, bricks, and slab top thicknesses. The engineer should revise the design accordingly.
2. The engineer should discuss what will be done to keep Pearson Drive runoff from entering the proposed roadway.
3. The 30-40 arrow leaders make the plan very busy and difficult to follow. It would be simple enough for the engineer to put the drainage structure information in a table on the plan. This would eliminate many of the leaders.
4. The proposed walking path depicted on sheet 7 should be shown on the grading plan. It appears that the proposed grades do not account for the walking path.
5. Top and bottom elevations should be provided for the retaining walls depicted.
6. The plans depict a "roof infiltrator" area for most, but not all, of the proposed dwellings. I cannot comment on the proposed size as I was not provided with a copy of the Stormwater Report, but they do appear too small (i.e. 5'X10') for a 1,600s.f. +/- roof area. Further, the detail on sheet 12 shows that the bottom of the infiltration system needs to be about 60" below grade. Typical groundwater throughout the site is about 18-48" below grade, based on the test pit data provided. Based on this, the engineer should verify that each system will be above groundwater.
7. The slopes around detention pond P3-2 are graded at 2:1, whereas 3:1 maximum slopes are typically required. The 2:1 is difficult to stabilize, mow, and likely poses a safety hazard given the proximity to the proposed dwellings. The board may want the engineer to propose a safer, more maintainable slope around the pond.
8. The large existing rock outcrop depicted on sheet 3 is not accounted for in the detention pond P3-2 grading. The engineer should address whether the outcrop is proposed to be removed entirely.
9. The closest test pit to detention pond P3-2, HP5, has groundwater at 18". The bottom of the pond is 6 feet below grade, likely 4-5 feet into the watertable. The engineer should address this issue.
10. The plan does not depict any decks or patios on the backs of the dwellings. The architectural renderings show a sliding door at the back of each house, so it would stand to reason that a deck or patio would be needed. These should be accounted for on the plan.
11. Based on the architectural renderings and grading scheme, it appears that all of the dwellings will have basements, some with walkouts perhaps. The dwellings with walkouts will need a deck above for the sliding door, and likely a set of stairs to come off the deck. All of these features should be depicted on the plan so that the board has a true sense of all the site features.
12. Dwelling 1 is located about 10 feet off a 6-8 foot retaining wall, dwelling 4 is about 3 feet off the sidewalk, dwelling 8 is about 1 foot off the sidewalk, and dwelling 21 is about 5 feet off a 6-8' retaining

wall. The board may want the engineer to redesign the layout to provide more useable space around each dwelling.

Sheet 9 of 18, CS1701, Utility Plan

1. The plan labels an “8” Tapping Sleeve” in Pearson Drive, but a triple gate system is drawn, and the detail on sheet 15 shows a triple gate cut-out on the existing watermain. This should be corrected and, as noted previously, the existing pipe size and material should be provided.
2. At SMH 1-6 there will be about 2 feet of cover over the pipe, given the elevations shown. Sewer mains should have 4 or more feet of cover, or be insulated properly. The engineer should address this issue.
3. At SMH 1-1 about 3 feet of cover is provided. The engineer should review this and revise accordingly.
4. At SMH 1-2, the pipe in from SMH 2-2 is incorrectly labeled and the invert appears incorrect. The engineer should revise.
5. At SMH 2-2, the invert out to SMH 1-2 should be labeled correctly.
6. At SMH 2-3 about 3 feet of cover is provided. The engineer should look at revising the design.
7. Sewer pipe lengths and slopes should be provided on the plan, as this information is not shown on the road profile.
8. Two inch copper waterlines with blowoffs are proposed for the two dead end streets, but a blowoff detail does not appear to be provided. The engineer should address this.

Sheet 10 of 18, CS3501, Road Profile

1. The road profile starts off at one percent into the site from Pearson Drive. As mentioned previously, the engineer should discuss how runoff from Pearson Drive will be kept from flowing onto the proposed road.
2. The engineer may want to consider starting the road profile at plus one percent, rather than minus one percent. This would require the catchbasins to be relocated to station 0+00, but would increase the cover over the pipes. As mentioned previously, the current design has only about 8” of cover over the pipes.
3. Proposed sewer structures and piping are typically depicted in the roadway profile, as they are generally installed under the paved roadway. In this case, most of the structures/piping are located outside of the paved roadway, and are not depicted on the profile. It is still important to provide sewer profiles to the site contractor, so I would recommend that a sewer profile sheet be provided in the plan set.
4. Catchbasin grates should be set at a gutter grade which is 0.22 feet lower than the centerline, to account for the 11 feet of pavement sloping at 2 percent. Catchbasins 1 and 2 have grate elevations that are only 0.12 feet lower than centerline, or about 1 percent cross slope. The engineer should adjust these elevation, and verify the remaining catchbasin grates.
5. The cul-de-sac has a slope of 1.25 percent through the centerline. When the gutter grade is checked, which is the route that runoff will take, it comes out to only 0.8 percent from the high point to catchbasin 9. The engineer should adjust the profile so that a minimum gutter grade of one percent is provided.
6. It appears that the cul-de-sac pavement is proposed to be superelevated so that all runoff drains to the outside curb. The detail on sheet 10, however, depicts a typical crowned roadway. This should be adjusted to agree with the profile/grading.

Exhibit M, Stormwater Design Narrative

1. The “Subsurface Investigation” section of the narrative states that “sufficient soils were found beneath the proposed detention/infiltration basin to allow for infiltration at a rate of 1” per hour”. This is not accurate, in my opinion. The plans depict one hand-dug pit (HP6) in the area of Galley System P3-1, whereas the Policy require a minimum of three test pits. Further, the hand-dug pit exhibits only 6” of C layer. The engineer should conduct the required number of test pits, with a machine, and submit the data for review.
2. The narrative states that Detention Pond P1-1 is a “detention pond with a pocket wetland”. The detail on sheet 13 does not appear to match Policy requirements for a pocket wetland. Sheet “14 of 17” is referred to for “pocket wetland details”, but sheet 14 has no details. The engineer should address these issues.
3. The narrative and detail sheet 14 refer to “treatment galley row(s)” associated with buried detention basin P3-1. Neither the plans, nor the details, appear to depict any treatment rows. The engineer should address this issue.

Stormwater Management Report

1. Section X, Stormwater management standards, states that “detention ponds 1-2 and 3-2 have been designed as dry detention basins to control flow”. The policy states that the bottom of the basin should not intercept groundwater. Pond 1-2 is at, or slightly above, groundwater based on the soil testing provided, and basin 3-2 is several feet into the groundwater based on the minimal testing provided. The engineer should address these issues.
2. Relative to “dry detention basin” 3-2, the Policy requires side slopes to be no steeper than 3:1. He subdivision regulations also call for slopes no steeper than 3:1. The engineer has provided 3:1 inside the basin itself, but the slopes above and around the basin are graded at 2:1.
3. The engineer states that Standard 4 is met by using “the impervious paved area”, but the Policy dictates that “total impervious area” be used. The engineer should adjust the Standard 4 calculations accordingly.
4. The LID Measures section of the Checklist for Stormwater Report lists only ‘constructed Stormwater wetlands” as an LID measure used on the site. The local stormwater regulations states that “Low Impact Development (LID) measures are to be used”. The Subdivision Regulations sates that “drainage systems relying on gutters, catch basins and underground piping will be allowed only where country drainage is not feasible”. The board may want the engineer to address how additional LID measures can be incorporated into the site drainage system.
5. The Standard 3: Recharge section of the checklist states that soil analysis has been provided. As stated previously, only one hand-dug test pit, demonstrating only 6” of C Layer, has been depicted in the area of the galley infiltration system. The engineer should provide the minimum 3 test pits required in the infiltration area. Further, sufficient information has not been provided relative to the proposed roof infiltration systems. The engineer should provide additional soil testing for the roof infiltration systems and provide system elevations relative to groundwater.
6. The report assumes that all 24 dwellings have roof infiltration systems, but the plans do not depict systems for dwellings 4 and 9. The engineer should address this.
7. The post development watershed plan shows roof runoff shedding in 2 to 3 different directions on some dwelling. With the roof infiltration system, however, the entire roof area is collected in gutters and directed to the system. Any runoff not capable of being stored in the infiltration system would still overflow into the same subcatchment area as the system. The engineer should revise the watershed plan accordingly.

Town Memos

Fire Department (9/23/19)

1. The fire department suggested “a minimum of twenty (20) feet of space between buildings due to exposure issues in the event of fire”. The submitted plans do not comply, and provide a minimum 15’ between buildings instead.
2. The fire department suggested that the dead-end sections be reconfigured or eliminated. It appears that the dead-ends have not been adjusted to comply.

Planning Board (9/29/19)

1. The cul-de-sac length exceeds the maximum allowed without a waiver by 345 feet. This is listed as a waiver.
2. A sidewalk is provided on the proposed street, but there are no sidewalks in Pearson Drive. The board may want the engineer to address whether a sidewalk could be constructed along Pearson Drive.
3. As mentioned previously, each unit has a sliding door on the back of the house, likely leading to a deck and/or patio. These should be depicted on the plans, and accounted for in the proposed grading.
4. The project has not addressed what LID alternatives were considered for the site.

Board of Selectmen (9/23/19)

1. Concerns are raised relative to cul-de-sac length, dead-end sections, and separation between dwellings.

Should you have any questions concerning this letter, please contact me at your convenience.

Sincerely,

Joseph J. Serwatka, P.E.

**Joseph J. Serwatka, P.E.**
**Post Office Box 1016**
**North Andover, MA 01845**
**978-314-8731**

July 18, 2020

Susan Noyes, Administrator
Newbury Zoning Board of Appeals
12 Kent Way, Suite 200
Newbury, MA 01922

Re: The Villages at Cricket Lane
55R Pearson Drive
Peer Review

Dear Ms. Noyes:

I have received a 40B Comprehensive Permit plan set (sheets 1 -18 of 18, revised to June 26, 2020); Stormwater Management Report revised to June 30, 2020; and a response letter dated July 2, 2020, prepared by Ranger Engineering Group, Inc., all for The Villages at Cricket Lane. I have reviewed the submitted material relative to my previous review letter dated April 13, 2020 and offer the following comments. The previous comments are in regular type, with the latest comments in bold type.

Sheet 1 of 18, CS0001, Cover Sheet

The index of drawings lists sheet 10 of 18, CS3501, as Road Profile, but sheet 10 appears to incorrectly contain site details. It appears to be a duplicate of sheet 11. The engineer should provide the road profile sheet for review.

**This issue has been addressed.**

Sheet 1 of 1, CS9001, Open Space Plan

1. The plan labels an open space parcel, proposed to be deemed to the Commonwealth of Massachusetts Division of Fish and Game as 4.82 acres, but sheet 6 of 18 labels the area as 9.15 acres. The engineer should verify which number is correct.

**A revised copy of the plan was not submitted, but the response states that the area labels have been corrected.**

2. It is not clear on this plan, but the division line between the two open space parcels appears to be the stone wall, based on what is presented on sheet 6 of 18.

**As noted above, a revised copy of the plan was not submitted, but the response states that the proposed property line has been added.**

Sheets 3 and 4 of 18, CS0201/0202, Existing Conditions Plan

1. It is worth noting that wetland flags C8-C11 are depicted across a rock outcrop. The engineer may want to review whether the depiction reflects actual field conditions.

**The plan has been revised to label the area 'rocks and boulders" rather than rock outcrop.**

2. Existing curb cuts and driveways should be depicted for lots 75 and 76 in order to determine their relation to the proposed roadway.

**The existing driveways have been depicted on the plan.**

3. The pipe size and material are not provided for the existing water line in Pearson Drive. Typically, the water department/authority will have this information on file.

**The recommended information has been provided.**

4. Approximately 22 test pits were conducted, primarily on the western side of the site, to a depth of 6-10 feet, presumably with a backhoe or excavator. The plan also depicts 6 "HP" test pits which, according to the legend on sheet 2, were "hand-dug" to a depth of only 26-36 inches. The method, and resulting shallow analysis depth, is unusual , and does not provide adequate information on the depth of the C layer, or possible depth to ledge. The locations and number of these test pits may also not be suitable for the design of the Stormwater BMPs (Best Management Practices). This will be discussed further in the Stormwater section.

**The response states that "additional test pits have been done and have been added to the plan". The test pits appear to be labeled on the plan as TP20-1 through 10, but I am unable to find the test pit data on the plan, or in the stormwater report. The engineer should provide the test pit data.**

5. Existing treelines should be depicted on the plans, as would be typical.

**The plan has been revised.**

Sheets 5 and 6 of 18, V0801/V0802, Roadway Layout and Property Line Plan

It should be noted that none of the plans combine lots, or "exclusive use area", with house locations. I superimposed the property line plan over the grading plan, and it would appear that the dwellings on lots 2-4, at least, extend beyond their "use area". The engineer should address these issues.

1. The plans are stamped by a registered professional engineer. Given that the plans present "property line" data, it would be appropriate to have a registered surveyor's stamp and signature on the plans.

**The engineer emailed copies of the plans, stamped and signed by a land surveyor, on July 16, 2020.**

2. Section 3.1(e) of the Comprehensive Rules and Regulations states "where a subdivision of land is involved, a definitive subdivision plan, conforming to all of the requirements of the Planning Board's Rules and Regulations for the Subdivision of Land" shall accompany the application. The right-of-way layout, width and cul-de-sac dimensions do not conform to the subdivision regulations. Of particular concern is the 100' radius provided at about station 2+00, where the engineer should demonstrate that the required 200' sight distance is provided.

**The response states that "a 200' site distance line has been added to the plan", but it has actually been added to sheet 7 of 18. The response states that "there are no obstructions above the line of site that interfere with this line". It would be important that no trees shrubs or walls are installed in this area that could interfere with sight lines. The board may want to make this a condition of any approvals.**

3. The board may want the engineer to provide lot areas for the 24 individual lots proposed, as would be typical.

**The area of each "exclusive use area" has been added to the plans.**

Sheet 7 of 18, CS1001, Layout and Materials Plan

1. As mentioned previously, the existing curb cuts and driveways for units 75 and 76 should be shown on the plan in order to determine their relation to the proposed roadway/sidewalk.

**The plan has been revised.**

2. The proposed curb cut appears to include the roadway, but also a paved way onto lot 76. It scales about 8' wide, which would typically be too narrow for a driveway, and appears to connect to existing gravel or rock. In either case, it is not recommended to have an abutting entrance included in the proposed roadway. The board may want the engineer to explain why the layout shown is necessary.

**The condition has been revised.**

3. Proposed curb radii should be provided at the entrance, as would be typical.

**The engineer has added "pavement curb radii" to the plan.**

4. A 5' sidewalk is proposed from the project onto Pearson drive, but no connection is shown to an existing sidewalk. The engineer should address whether the proposed sidewalk will connect to an existing walkway. The engineer should also address the need for an ADA ramp at the end of the sidewalk, as would be typical.

**The plan has been revised to add as ADA ramp at the end of the proposed sidewalk. As noted, there are no existing sidewalks on Pearson Drive.**

5. The engineer should address where mail/parcels will be delivered. Projects of this type will typically have a central mailbox stand, as dictated by the postmaster general for the area. Some projects locate the stand under a shelter.

**The plan has been revised to show the mailboxes in the gazebo.**

6. It appears that 4 solar powered street lights are proposed along the roadway, within the project. No light appears to be provided at the intersection with Pearson Drive. The engineer should address how the intersection will be lit.

**An additional light has been added at the entrance.**

7. Individual driveway depths do not appear sufficient in some cases to park a vehicle in the driveway. The lot 7 driveway scales about 15', lot 2 scales about 18', and lot 7 scales about 13' to the back of sidewalk. The board may want the engineer to provide a suitable driveway depth, say 20', to ensure that residents can park vehicles.

**This issue does not appear to be entirely addressed. The driveway for dwelling 7 still scales only 15 feet in depth to the back of sidewalk.**

8. The plan appears to depict a proposed treeline beyond the wetlands line at flags D14-D18, which is also beyond the erosion control line depicted on sheet 17. The engineer should comment on this.

**The tree line has been revised.**

9. A proposed wall appears to be depicted at lot 21-22, but it is not labeled.

**The wall has been labeled.**

10. The plan proposes a 5' bituminous concrete sidewalk with a sloped granite curb. It has been my experience that this combination results in a gap that forms where the curb meets the sidewalk. This

allows water to get under the sidewalk and curb. The way to typically avoid this is to install vertical granite curb with the bituminous sidewalk. The board may want to consider requiring vertical curb abutting the sidewalk, with sloped curb at all other locations.

**The engineer appears to have missed my point relative to the two types of curbs, and the response states that "the curbing will be sloped granite".**

11. The cul-de-sac island is 90' in diameter with a label that states "prop. hard packed grass area to be kept clear of snow". No curbing is depicted around the island, which will make it easy to use for parking. The engineer should comment on the lack of curbing, combined with a hard packed grass area.

**The response states that the cul-de-sac island design is based on a request from the fire department.**

12. There appear to be only 4 visitor parking spaces for the site. The lack of visitor parking, combined with a narrow roadway, could create traffic enforcement issues.

**The response states that four additional spaces have been added in the cul-de-sac.**

Sheet 8 of 18, CS1501, Grading and Drainage Plan

1. DMH1 and CB1 and CB2 cannot be constructed as shown, given the invert information and details provided. As designed, the top of pipe is only about 8" below the rim elevation. About 1.5-2' is required between the rim and top of pipe, given the frame, bricks, and slab top thicknesses. The engineer should revise the design accordingly.

**The response states that the pipe elevations have been adjusted down, but there is still only 1.2-1.4' between the rim and top of pipe. The detail on sheet 12 allows for an 8" slab top, but does not provide dimensions for the grate height and bricks. The engineer should revise the detail to show that structure can be installed with as little as 1.2 feet from rim to top of pipe.**

2. The engineer should discuss what will be done to keep Pearson Drive runoff from entering the proposed roadway.

**The engineer has provided for a lip at the entrance to keep runoff flowing down Pearson Drive.**

3. The 30-40 arrow leaders make the plan very busy and difficult to follow. It would be simple enough for the engineer to put the drainage structure information in a table on the plan. This would eliminate many of the leaders.

**The engineer has kept the leaders, but made the plan easier to read.**

4. The proposed walking path depicted on sheet 7 should be shown on the grading plan. It appears that the proposed grades do not account for the walking path.

**The walking path has been added to the plan.**

5. Top and bottom elevations should be provided for the retaining walls depicted.

**Elevations have been provided which depict an 8' retaining wall. The wall plans will need to be stamped by a structural engineer. The board may want to make this a condition of any approvals.**

6. The plans depict a "roof infiltrator" area for most, but not all, of the proposed dwellings. I cannot comment on the proposed size as I was not provided with a copy of the Stormwater Report, but they do appear too small (i.e. 5'X10') for a 1,600s.f. +/- roof area. Further, the detail on sheet 12 shows that the bottom of the infiltration system needs to be about 60" below grade. Typical groundwater

throughout the site is about 18-48" below grade, based on the test pit data provided. Based on this, the engineer should verify that each system will be above groundwater.

**The response states that only some units will have roof infiltration systems. Based on the roof infiltration table on sheet 12, only units 5-9 and 22-24 will have roof units. The elevations provided in the table, however, do not work with the detail provided. As noted previously, the roof units are designed to be about 60" below grade, and the table only provides 3' between proposed grade and bottom of system. The engineer should make the necessary revisions.**

**The engineer should address whether the roof infiltration system for a dwelling should be on the same lot as the dwelling, or can be located on an adjacent lot.**

**The proposed roof collection pipe for units 19-21 will not work as designed. The plan shows an 8" roof drain @ 1% to collect the roof runoff and direct it to DMH 5. Assuming an invert of about 66 feet at DMH 5, then running 240' to unit 21, the pipe would be at elevation 68.4 feet, which is higher than the garage and sill elevations. The engineer should revise the plan accordingly.**

**It also appears that roof runoff from units 1-4 will be directed to pond P1-1, but a collection pipe is not shown. The engineer should address this issue.**

7. The slopes around detention pond P3-2 are graded at 2:1, whereas 3:1 maximum slopes are typically required. The 2:1 is difficult to stabilize, mow, and likely poses a safety hazard given the proximity to the proposed dwellings. The board may want the engineer to propose a safer, more maintainable slope around the pond.

**Grading has been revised.**

8. The large existing rock outcrop depicted on sheet 3 is not accounted for in the detention pond P3-2 grading. The engineer should address whether the outcrop is proposed to be removed entirely.

**The label has been revised to "rocks and boulders" rather than "bedrock".**

9. The closest test pit to detention pond P3-2, HP5, has groundwater at 18". The bottom of the pond is 6 feet below grade, likely 4-5 feet into the watertable. The engineer should address this issue.

**The response states that "additional test pits were performed and included on the plans", but I am unable to locate test pit data on the plans or in the Stormwater report. The engineer should provide this information.**

10. The plan does not depict any decks or patios on the backs of the dwellings. The architectural renderings show a sliding door at the back of each house, so it would stand to reason that a deck or patio would be needed. These should be accounted for on the plan.

**It appears that 10' by 10' decks/patios have been depicted on the dwellings, some with stairs as needed. As noted above, however, it appears that some of the dwellings/decks may extend past their "exclusive use area". The engineer should address this, and it would be helpful to depict the dwellings and lots on one plan.**

11. Based on the architectural renderings and grading scheme, it appears that all of the dwellings will have basements, some with walkouts perhaps. The dwellings with walkouts will need a deck above for the sliding door, and likely a set of stairs to come off the deck. All of these features should be depicted on the plan so that the board has a true sense of all the site features.

**As noted above, decks, patios and stairs have been added to the plan.**

12. Dwelling 1 is located about 10 feet off a 6-8 foot retaining wall, dwelling 4 is about 3 feet off the sidewalk, dwelling 8 is about 1 foot off the sidewalk, and dwelling 21 is about 5 feet off a 6-8' retaining

wall. The board may want the engineer to redesign the layout to provide more useable space around each dwelling.

**The response states that several buildings have been shifted to provide more usable yard space, but, as noted above, some dwellings/decks appear to extend beyond the "exclusive use area".**

Sheet 9 of 18, CS1701, Utility Plan

1. The plan labels an "8" Tapping Sleeve" in Pearson Drive, but a triple gate system is drawn, and the detail on sheet 15 shows a triple gate cut-out on the existing watermain. This should be corrected and, as noted previously, the existing pipe size and material should be provided.

**The plan has been revised.**

2. At SMH 1-6 there will be about 2 feet of cover over the pipe, given the elevations shown. Sewer mains should have 4 or more feet of cover, or be insulated properly. The engineer should address this issue.

**The response states that the septic system plan has been revised to indicate insulation shall be provided, but those plans are not included in this submittal. I would recommend that this plan set contain adequate information to construct the entire gravity sewer system up to the first septic tank. The engineer should provide sewermanhole, trench, insulation details as necessary.**

3. At SMH 1-1 about 3 feet of cover is provided. The engineer should review this and revise accordingly.

**See comment above.**

4. At SMH 1-2, the pipe in from SMH 2-2 is incorrectly labeled and the invert appears incorrect. The engineer should revise.

**The invert has been revised.**

5. At SMH 2-2, the invert out to SMH 1-2 should be labeled correctly.

**The invert has been revised.**

6. At SMH 2-3 about 3 feet of cover is provided. The engineer should look at revising the design.

**No comment has been provided.**

7. Sewer pipe lengths and slopes should be provided on the plan, as this information is not shown on the road profile.

**See comment above relative to providing adequate information in this plan set to construct the gravity sewer system up to the first septic tank.**

8. Two inch copper waterlines with blowoffs are proposed for the two dead end streets, but a blowoff detail does not appear to be provided. The engineer should address this.

**A detail has been provided.**

Sheet 10 of 18, CS3501, Road Profile

1. The road profile starts off at one percent into the site from Pearson Drive. As mentioned previously, the engineer should discuss how runoff from Pearson Drive will be kept from flowing onto the proposed road.

**The engineer has provided a "lip" detail to maintain runoff flow in Pearson Drive.**

2. The engineer may want to consider starting the road profile at plus one percent, rather than minus one percent. This would require the catchbasins to be relocated to station 0+00, but would increase the cover over the pipes. As mentioned previously, the current design has only about 8" of cover over the pipes.

**The engineer claims that relocating the catchbasins would be contrary to comment 1 above. As noted previously, there still appears to be an issue with constructing the first structures with the designed amount of cover.**

3. Proposed sewer structures and piping are typically depicted in the roadway profile, as they are generally installed under the paved roadway. In this case, most of the structures/piping are located outside of the paved roadway, and are not depicted on the profile. It is still important to provide sewer profiles to the site contractor, so I would recommend that a sewer profile sheet be provided in the plan set.

**The response states that the sewer profiles are part of the septic system design plans. As noted previously, I would recommend that this plan set contain adequate information, including sewer profiles, to construct the gravity sewer system up to the first septic tank.**

4. Catchbasin grates should be set at a gutter grade which is 0.22 feet lower than the centerline, to account for the 11 feet of pavement sloping at 2 percent. Catchbasins 1 and 2 have grate elevations that are only 0.12 feet lower than centerline, or about 1 percent cross slope. The engineer should adjust these elevation, and verify the remaining catchbasin grates.

**The elevations have been adjusted.**

5. The cul-de-sac has a slope of 1.25 percent through the centerline. When the gutter grade is checked, which is the route that runoff will take, it comes out to only 0.8 percent from the high point to catchbasin 9. The engineer should adjust the profile so that a minimum gutter grade of one percent is provided.

**The profile has been revised.**

6. It appears that the cul-de-sac pavement is proposed to be superelevated so that all runoff drains to the outside curb. The detail on sheet 10, however, depicts a typical crowned roadway. This should be adjusted to agree with the profile/grading.

**An additional detail has been provided.**

Exhibit M, Stormwater Design Narrative

1. The "Subsurface Investigation" section of the narrative states that "sufficient soils were found beneath the proposed detention/infiltration basin to allow for infiltration at a rate of 1" per hour". This is not accurate, in my opinion. The plans depict one hand-dug pit (HP6) in the area of Galley System P3-1, whereas the Policy require a minimum of three test pits. Further, the hand-dug pit exhibits only 6" of C layer. The engineer should conduct the required number of test pits, with a machine, and submit the data for review.

**The response states that additional test pits were performed and added to the plans, but I am unable to locate the test pit data on the plans or in the Stormwater report. The engineer should provide this data.**

2. The narrative states that Detention Pond P1-1 is a "detention pond with a pocket wetland". The detail on sheet 13 does not appear to match Policy requirements for a pocket wetland. Sheet "14 of 17"

is referred to for “pocket wetland details”, but sheet 14 has no details. The engineer should address these issues.

**Details have been provided on sheet 15.**

3. The narrative and detail sheet 14 refer to “treatment galley row(s)” associated with buried detention basin P3-1. Neither the plans, nor the details, appear to depict any treatment rows. The engineer should address this issue.

**This issue appears to be addressed.**

Stormwater Management Report

1. Section X, Stormwater management standards, states that “detention ponds 1-2 and 3-2 have been designed as dry detention basins to control flow”. The policy states that the bottom of the basin should not intercept groundwater. Pond 1-2 is at, or slightly above, groundwater based on the soil testing provided, and basin 3-2 is several feet into the groundwater based on the minimal testing provided. The engineer should address these issues.

**As mentioned previously, the results of the new test pits should be submitted for review.**

2. Relative to “dry detention basin” 3-2, the Policy requires side slopes to be no steeper than 3:1. The subdivision regulations also call for slopes no steeper than 3:1. The engineer has provided 3:1 inside the basin itself, but the slopes above and around the basin are graded at 2:1.

**The engineer has addressed the Policy requirements, but has not discussed how the slopes do not comply with local subdivision regulations.**

3. The engineer states that Standard 4 is met by using “the impervious paved area”, but the Policy dictates that “total impervious area” be used. The engineer should adjust the Standard 4 calculations accordingly.

**The calculations have been revised.**

4. The LID Measures section of the Checklist for Stormwater Report lists only ‘constructed Stormwater wetlands” as an LID measure used on the site. The local stormwater regulations states that “Low Impact Development (LID) measures are to be used”. The Subdivision Regulations sates that “drainage systems relying on gutters, catch basins and underground piping will be allowed only where country drainage is not feasible”. The board may want the engineer to address how additional LID measures can be incorporated into the site drainage system.

**The response simply states that “the drainage design for the project is in compliance with the Massachusetts Stormwater Management Standards”.**

5. The Standard 3: Recharge section of the checklist states that soil analysis has been provided. As stated previously, only one hand-dug test pit, demonstrating only 6” of C Layer, has been depicted in the area of the galley infiltration system. The engineer should provide the minimum 3 test pits required in the infiltration area. Further, sufficient information has not been provided relative to the proposed roof infiltration systems. The engineer should provide additional soil testing for the roof infiltration systems and provide system elevations relative to groundwater.

**As noted previously, the new test pit data was not included in the submittal. Also, there are issues that need to be addressed with the roof infiltration systems. See previous comments.**

6. The report assumes that all 24 dwellings have roof infiltration systems, but the plans do not depict systems for dwellings 4 and 9. The engineer should address this.

**The revised plans have 13 of 24 dwellings being routed to roof infiltration systems. Previous comments have raised issues relative to the design.**

7. The post development watershed plan shows roof runoff shedding in 2 to 3 different directions on some dwellings. With the roof infiltration system, however, the entire roof area is collected in gutters and directed to the system. Any runoff not capable of being stored in the infiltration system would still overflow into the same subcatchment area as the system. The engineer should revise the watershed plan accordingly.

**The response states that the map and calculations have been revised, but post-development watershed map CS9301 was not included in the submittal. A copy should be provided.**

Town Memos

Fire Department (9/23/19)

1. The fire department suggested "a minimum of twenty (20) feet of space between buildings due to exposure issues in the event of fire". The submitted plans do not comply, and provide a minimum 15' between buildings instead.

**The response simply states that "with cement fiberboard siding the building code allows a separation of 5'".**

2. The fire department suggested that the dead-end sections be reconfigured or eliminated. It appears that the dead-ends have not been adjusted to comply.

**The response claims that "the dead ends are in compliance with NFPA which require a minimum 16' wide fire lane. Dead end fire lanes are allowed but can be no longer than 300'".**

Planning Board (9/29/19)

1. The cul-de-sac length exceeds the maximum allowed without a waiver by 345 feet. This is listed as a waiver.

**The response states that no response is required.**

2. A sidewalk is provided on the proposed street, but there are no sidewalks in Pearson Drive. The board may want the engineer to address whether a sidewalk could be constructed along Pearson Drive.

**The response states that sidewalks will only be provided in the new development.**

3. As mentioned previously, each unit has a sliding door on the back of the house, likely leading to a deck and/or patio. These should be depicted on the plans, and accounted for in the proposed grading.

**The plans have been revised.**

4. The project has not addressed what LID alternatives were considered for the site.

**The response states that LID alternatives have not been considered.**

Board of Selectmen (9/23/19)

1. Concerns are raised relative to cul-de-sac length, dead-end sections, and separation between dwellings.

**The response states that "the dead end street is in compliance with NFPA maximum of 100 units on a single entrance dean end".**

Should you have any questions concerning this letter, please contact me at your convenience.

Sincerely,

Joseph J. Serwatka, P.E.

**Joseph J. Serwatka, P.E.**
**Post Office Box 1016**
**North Andover, MA 01845**
**978-314-8731**

September 22, 2020

Susan Noyes, Administrator
Newbury Zoning Board of Appeals
12 Kent Way, Suite 200
Newbury, MA 01922

Re: The Villages at Cricket Lane
55R Pearson Drive
Peer Review

Dear Ms. Noyes:

I have received a 40B Comprehensive Permit plan set (sheets 1 -19 of 19, revised to August 17, 2020); soil data sheets dated July 30, 2020; sheets CS9001, CS9201, and CS9301 revised to August 17, 2020; and a response letter dated August 18, 2020, prepared by Ranger Engineering Group, Inc., all for The Villages at Cricket Lane. I have reviewed the submitted material relative to my previous review letter dated July 18, 2020 and offer the following comments. The previous comments are in regular type, with the latest comments in bold type.

Sheet 1 of 18, CS0001, Cover Sheet

The index of drawings lists sheet 10 of 18, CS3501, as Road Profile, but sheet 10 appears to incorrectly contain site details. It appears to be a duplicate of sheet 11. The engineer should provide the road profile sheet for review.

**This issue has been addressed.**

Sheet 1 of 1, CS9001, Open Space Plan

1. The plan labels an open space parcel, proposed to be deemed to the Commonwealth of Massachusetts Division of Fish and Game as 4.82 acres, but sheet 6 of 18 labels the area as 9.15 acres. The engineer should verify which number is correct.

A revised copy of the plan was not submitted, but the response states that the area labels have been corrected.

**A revised plan has been submitted.**

2. It is not clear on this plan, but the division line between the two open space parcels appears to be the stone wall, based on what is presented on sheet 6 of 18.

As noted above, a revised copy of the plan was not submitted, but the response states that the proposed property line has been added.

**A revised plan has been submitted.**

Sheets 3 and 4 of 18, CS0201/0202, Existing Conditions Plan

1. It is worth noting that wetland flags C8-C11 are depicted across a rock outcrop. The engineer may want to review whether the depiction reflects actual field conditions.

**The plan has been revised to label the area 'rocks and boulders" rather than rock outcrop.**

2. Existing curb cuts and driveways should be depicted for lots 75 and 76 in order to determine their relation to the proposed roadway.

**The existing driveways have been depicted on the plan.**

3. The pipe size and material are not provided for the existing water line in Pearson Drive. Typically, the water department/authority will have this information on file.

**The recommended information has been provided.**

4. Approximately 22 test pits were conducted, primarily on the western side of the site, to a depth of 6-10 feet, presumably with a backhoe or excavator. The plan also depicts 6 "HP" test pits which, according to the legend on sheet 2, were "hand-dug" to a depth of only 26-36 inches. The method, and resulting shallow analysis depth, is unusual , and does not provide adequate information on the depth of the C layer, or possible depth to ledge. The locations and number of these test pits may also not be suitable for the design of the Stormwater BMPs (Best Management Practices). This will be discussed further in the Stormwater section.

The response states that "additional test pits have been done and have been added to the plan". The test pits appear to be labeled on the plan as TP20-1 through 10, but I am unable to find the test pit data on the plan, or in the stormwater report. The engineer should provide the test pit data.

**The soil testing data has been provided.**

5. Existing treelines should be depicted on the plans, as would be typical.

**The plan has been revised.**

Sheets 5 and 6 of 18, V0801/V0802, Roadway Layout and Property Line Plan

It should be noted that none of the plans combine lots, or "exclusive use area", with house locations. I superimposed the property line plan over the grading plan, and it would appear that the dwellings on lots 2-4, at least, extend beyond their "use area". The engineer should address these issues.

**These issues have been addressed on sheet 7.**

1. The plans are stamped by a registered professional engineer. Given that the plans present "property line" data, it would be appropriate to have a registered surveyor's stamp and signature on the plans.

The engineer emailed copies of the plans, stamped and signed by a land surveyor, on July 16, 2020.

**Revised plans include the surveyor's stamp.**

2. Section 3.1(e) of the Comprehensive Rules and Regulations states "where a subdivision of land is involved, a definitive subdivision plan, conforming to all of the requirements of the Planning Board's Rules and Regulations for the Subdivision of Land" shall accompany the application. The right-of-way layout, width and cul-de-sac dimensions do not conform to the subdivision regulations. Of particular concern is the 100' radius provided at about station 2+00, where the engineer should demonstrate that the required 200' sight distance is provided.

**The response states that "a 200' site distance line has been added to the plan", but it has actually been added to sheet 7 of 18. The response states that "there are no obstructions above the line of site that interfere with this line". It would be important that no trees shrubs or walls are**

**installed in this area that could interfere with sight lines. The board may want to make this a condition of any approvals.**

3. The board may want the engineer to provide lot areas for the 24 individual lots proposed, as would be typical.

**The area of each "exclusive use area" has been added to the plans.**

Sheet 7 of 18, CS1001, Layout and Materials Plan

1. As mentioned previously, the existing curb cuts and driveways for units 75 and 76 should be shown on the plan in order to determine their relation to the proposed roadway/sidewalk.

**The plan has been revised.**

2. The proposed curb cut appears to include the roadway, but also a paved way onto lot 76. It scales about 8' wide, which would typically be too narrow for a driveway, and appears to connect to existing gravel or rock. In either case, it is not recommended to have an abutting entrance included in the proposed roadway. The board may want the engineer to explain why the layout shown is necessary.

**The condition has been revised.**

3. Proposed curb radii should be provided at the entrance, as would be typical.

**The engineer has added "pavement curb radii" to the plan.**

4. A 5' sidewalk is proposed from the project onto Pearson drive, but no connection is shown to an existing sidewalk. The engineer should address whether the proposed sidewalk will connect to an existing walkway. The engineer should also address the need for an ADA ramp at the end of the sidewalk, as would be typical.

**The plan has been revised to add as ADA ramp at the end of the proposed sidewalk. As noted, there are no existing sidewalks on Pearson Drive.**

5. The engineer should address where mail/parcels will be delivered. Projects of this type will typically have a central mailbox stand, as dictated by the postmaster general for the area. Some projects locate the stand under a shelter.

**The plan has been revised to show the mailboxes in the gazebo.**

6. It appears that 4 solar powered street lights are proposed along the roadway, within the project. No light appears to be provided at the intersection with Pearson Drive. The engineer should address how the intersection will be lit.

**An additional light has been added at the entrance.**

7. Individual driveway depths do not appear sufficient in some cases to park a vehicle in the driveway. The lot 7 driveway scales about 15', lot 2 scales about 18', and lot 7 scales about 13' to the back of sidewalk. The board may want the engineer to provide a suitable driveway depth, say 20', to ensure that residents can park vehicles.

This issue does not appear to be entirely addressed. The driveway for dwelling 7 still scales only 15 feet in depth to the back of sidewalk.

**The plan has been revised to provide 20'**

8. The plan appears to depict a proposed treeline beyond the wetlands line at flags D14-D18, which is also beyond the erosion control line depicted on sheet 17. The engineer should comment on this.

**The tree line has been revised.**

9. A proposed wall appears to be depicted at lot 21-22, but it is not labeled.

**The wall has been labeled.**

10. The plan proposes a 5' bituminous concrete sidewalk with a sloped granite curb. It has been my experience that this combination results in a gap that forms where the curb meets the sidewalk. This allows water to get under the sidewalk and curb. The way to typically avoid this is to install vertical granite curb with the bituminous sidewalk. The board may want to consider requiring vertical curb abutting the sidewalk, with sloped curb at all other locations.

The engineer appears to have missed my point relative to the two types of curbs, and the response states that "the curbing will be sloped granite".

**The response the curb will be sloped granite, and maintained by the homeowners association.**

11. The cul-de-sac island is 90' in diameter with a label that states "prop. hard packed grass area to be kept clear of snow". No curbing is depicted around the island, which will make it easy to use for parking. The engineer should comment on the lack of curbing, combined with a hard packed grass area.

**The response states that the cul-de-sac island design is based on a request from the fire department.**

12. There appear to be only 4 visitor parking spaces for the site. The lack of visitor parking, combined with a narrow roadway, could create traffic enforcement issues.

**The response states that four additional spaces have been added in the cul-de-sac.**

Sheet 8 of 18, CS1501, Grading and Drainage Plan

1. DMH1 and CB1 and CB2 cannot be constructed as shown, given the invert information and details provided. As designed, the top of pipe is only about 8" below the rim elevation. About 1.5-2' is required between the rim and top of pipe, given the frame, bricks, and slab top thicknesses. The engineer should revise the design accordingly.

The response states that the pipe elevations have been adjusted down, but there is still only 1.2-1.4' between the rim and top of pipe. The detail on sheet 12 allows for an 8" slab top, but does not provide dimensions for the grate height and bricks. The engineer should revise the detail to show that structure can be installed with as little as 1.2 feet from rim to top of pipe.

**The response states that the structures can be installed with one course of brick and a 4" frame and cover.**

2. The engineer should discuss what will be done to keep Pearson Drive runoff from entering the proposed roadway.

**The engineer has provided for a lip at the entrance to keep runoff flowing down Pearson Drive.**

3. The 30-40 arrow leaders make the plan very busy and difficult to follow. It would be simple enough for the engineer to put the drainage structure information in a table on the plan. This would eliminate many of the leaders.

**The engineer has kept the leaders, but made the plan easier to read.**

4. The proposed walking path depicted on sheet 7 should be shown on the grading plan. It appears that the proposed grades do not account for the walking path.

**The walking path has been added to the plan.**

5. Top and bottom elevations should be provided for the retaining walls depicted.

**Elevations have been provided which depict an 8' retaining wall. The wall plans will need to be stamped by a structural engineer. The board may want to make this a condition of any approvals.**

6. The plans depict a "roof infiltrator" area for most, but not all, of the proposed dwellings. I cannot comment on the proposed size as I was not provided with a copy of the Stormwater Report, but they do appear too small (i.e. 5'X10') for a 1,600s.f. +/- roof area. Further, the detail on sheet 12 shows that the bottom of the infiltration system needs to be about 60" below grade. Typical groundwater throughout the site is about 18-48" below grade, based on the test pit data provided. Based on this, the engineer should verify that each system will be above groundwater.

The response states that only some units will have roof infiltration systems. Based on the roof infiltration table on sheet 12, only units 5-9 and 22-24 will have roof units. The elevations provided in the table, however, do not work with the detail provided. As noted previously, the roof units are designed to be about 60" below grade, and the table only provides 3' between proposed grade and bottom of system. The engineer should make the necessary revisions.

**The detail has been corrected.**

The engineer should address whether the roof infiltration system for a dwelling should be on the same lot as the dwelling, or can be located on an adjacent lot.

**The response states that the systems do not need to be restricted to the exclusive use area for each unit.**

The proposed roof collection pipe for units 19-21 will not work as designed. The plan shows an 8" roof drain @ 1% to collect the roof runoff and direct it to DMH 5. Assuming an invert of about 66 feet at DMH 5, then running 240' to unit 21, the pipe would be at elevation 68.4 feet, which is higher than the garage and sill elevations. The engineer should revise the plan accordingly.

**The plan has been revised to address this issue.**

It also appears that roof runoff from units 1-4 will be directed to pond P1-1, but a collection pipe is not shown. The engineer should address this issue.

**A pipe has been shown on the pan.**

7. The slopes around detention pond P3-2 are graded at 2:1, whereas 3:1 maximum slopes are typically required. The 2:1 is difficult to stabilize, mow, and likely poses a safety hazard given the proximity to the proposed dwellings. The board may want the engineer to propose a safer, more maintainable slope around the pond.

**Grading has been revised.**

8. The large existing rock outcrop depicted on sheet 3 is not accounted for in the detention pond P3-2 grading. The engineer should address whether the outcrop is proposed to be removed entirely.

**The label has been revised to "rocks and boulders" rather than "bedrock".**

9. The closest test pit to detention pond P3-2, HP5, has groundwater at 18". The bottom of the pond is 6 feet below grade, likely 4-5 feet into the watertable. The engineer should address this issue.

The response states that "additional test pits were performed and included on the plans", but I am unable to locate test pit data on the plans or in the Stormwater report. The engineer should provide this information.

**Additional test pit data has been provided which demonstrates that the pond will intercept 2-3 feet of seasonal high groundwater.**

10. The plan does not depict any decks or patios on the backs of the dwellings. The architectural renderings show a sliding door at the back of each house, so it would stand to reason that a deck or patio would be needed. These should be accounted for on the plan.

It appears that 10' by 10' decks/patios have been depicted on the dwellings, some with stairs as needed. As noted above, however, it appears that some of the dwellings/decks may extend past their "exclusive use area". The engineer should address this, and it would be helpful to depict the dwellings and lots on one plan.

**The decks and exclusive use areas have been shown on sheet 7.**

11. Based on the architectural renderings and grading scheme, it appears that all of the dwellings will have basements, some with walkouts perhaps. The dwellings with walkouts will need a deck above for the sliding door, and likely a set of stairs to come off the deck. All of these features should be depicted on the plan so that the board has a true sense of all the site features.

**As noted above, decks, patios and stairs have been added to the plan.**

12. Dwelling 1 is located about 10 feet off a 6-8 foot retaining wall, dwelling 4 is about 3 feet off the sidewalk, dwelling 8 is about 1 foot off the sidewalk, and dwelling 21 is about 5 feet off a 6-8' retaining wall. The board may want the engineer to redesign the layout to provide more useable space around each dwelling.

The response states that several buildings have been shifted to provide more usable yard space, but, as noted above, some dwellings/decks appear to extend beyond the "exclusive use area".

**See response to 10 above.**

Sheet 9 of 18, CS1701, Utility Plan

1. The plan labels an "8" Tapping Sleeve" in Pearson Drive, but a triple gate system is drawn, and the detail on sheet 15 shows a triple gate cut-out on the existing watermain. This should be corrected and, as noted previously, the existing pipe size and material should be provided.

**The plan has been revised.**

2. At SMH 1-6 there will be about 2 feet of cover over the pipe, given the elevations shown. Sewer mains should have 4 or more feet of cover, or be insulated properly. The engineer should address this issue.

The response states that the septic system plan has been revised to indicate insulation shall be provided, but those plans are not included in this submittal. I would recommend that this plan set contain adequate information to construct the entire gravity sewer system up to the first septic tank. The engineer should provide sewermanhole, trench, insulation details as necessary.

**A sewer profile sheet has been added to the set, but no sewermanhole detail, sewer trench detail, or insulation detail has been provided, to the best of my knowledge. The contractor has very little guidance on how to install the 2" rigid insulation. The engineer should provide these items.**

**Further, the sewer profile sheet only includes the "1" series sewer structures, not the "2" series.**

3. At SMH 1-1 about 3 feet of cover is provided. The engineer should review this and revise accordingly.

**See comment above.**

4. At SMH 1-2, the pipe in from SMH 2-2 is incorrectly labeled and the invert appears incorrect. The engineer should revise.

**The invert has been revised.**

5. At SMH 2-2, the invert out to SMH 1-2 should be labeled correctly.

**The invert has been revised.**

6. At SMH 2-3 about 3 feet of cover is provided. The engineer should look at revising the design.

**No comment has been provided.**

7. Sewer pipe lengths and slopes should be provided on the plan, as this information is not shown on the road profile.

See comment above relative to providing adequate information in this plan set to construct the gravity sewer system up to the first septic tank.

**See comment to 2 above.**

8. Two inch copper waterlines with blowoffs are proposed for the two dead end streets, but a blowoff detail does not appear to be provided. The engineer should address this.

**A detail has been provided.**

Sheet 10 of 18, CS3501, Road Profile

1. The road profile starts off at one percent into the site from Pearson Drive. As mentioned previously, the engineer should discuss how runoff from Pearson Drive will be kept from flowing onto the proposed road.

**The engineer has provided a "lip" detail to maintain runoff flow in Pearson Drive.**

2. The engineer may want to consider starting the road profile at plus one percent, rather than minus one percent. This would require the catchbasins to be relocated to station 0+00, but would increase the cover over the pipes. As mentioned previously, the current design has only about 8" of cover over the pipes.

The engineer claims that relocating the catchbasins would be contrary to comment 1 above. As noted previously, there still appears to be an issue with constructing the first structures with the designed amount of cover.

**As noted above, the engineer states that these structures can be installed with one course of brick and 4" frame and cover.**

3. Proposed sewer structures and piping are typically depicted in the roadway profile, as they are generally installed under the paved roadway. In this case, most of the structures/piping are located outside of the paved roadway, and are not depicted on the profile. It is still important to provide sewer profiles to the site contractor, so I would recommend that a sewer profile sheet be provided in the plan set.

The response states that the sewer profiles are part of the septic system design plans. As noted previously, I would recommend that this plan set contain adequate information, including sewer profiles, to construct the gravity sewer system up to the first septic tank.

**The response states that sewer profile "sheets" have been added but, as noted above, only one sheet has been provided, which only addresses half of the sewer design.**

4. Catchbasin grates should be set at a gutter grade which is 0.22 feet lower than the centerline, to account for the 11 feet of pavement sloping at 2 percent. Catchbasins 1 and 2 have grate elevations that are only 0.12 feet lower than centerline, or about 1 percent cross slope. The engineer should adjust these elevation, and verify the remaining catchbasin grates.

**The elevations have been adjusted.**

5. The cul-de-sac has a slope of 1.25 percent through the centerline. When the gutter grade is checked, which is the route that runoff will take, it comes out to only 0.8 percent from the high point to catchbasin 9. The engineer should adjust the profile so that a minimum gutter grade of one percent is provided.

**The profile has been revised.**

6. It appears that the cul-de-sac pavement is proposed to be superelevated so that all runoff drains to the outside curb. The detail on sheet 10, however, depicts a typical crowned roadway. This should be adjusted to agree with the profile/grading.

**An additional detail has been provided.**

Exhibit M, Stormwater Design Narrative

1. The "Subsurface Investigation" section of the narrative states that "sufficient soils were found beneath the proposed detention/infiltration basin to allow for infiltration at a rate of 1" per hour". This is not accurate, in my opinion. The plans depict one hand-dug pit (HP6) in the area of Galley System P3-1, whereas the Policy require a minimum of three test pits. Further, the hand-dug pit exhibits only 6" of C layer. The engineer should conduct the required number of test pits, with a machine, and submit the data for review.

The response states that additional test pits were performed and added to the plans, but I am unable to locate the test pit data on the plans or in the Stormwater report. The engineer should provide this data.

**Test pit data has been provided which appears to indicate loam and silt loam as the parent material in the area of the detention/infiltration basin. The corresponding infiltration rates are 0.52 and 0.27 inches per hour, not the 1 inch per hour that appears to have been used. A revised stormwater report was not included in the submittal, so I cannot verify that the infiltration calculations have been revised. The engineer should provide the revised calculations, as is customary.**

2. The narrative states that Detention Pond P1-1 is a "detention pond with a pocket wetland". The detail on sheet 13 does not appear to match Policy requirements for a pocket wetland. Sheet "14 of 17" is referred to for "pocket wetland details", but sheet 14 has no details. The engineer should address these issues.

**Details have been provided on sheet 15.**

3. The narrative and detail sheet 14 refer to "treatment galley row(s)" associated with buried detention basin P3-1. Neither the plans, nor the details, appear to depict any treatment rows. The engineer should address this issue.

**This issue appears to be addressed.**

Stormwater Management Report

1. Section X, Stormwater management standards, states that "detention ponds 1-2 and 3-2 have been designed as dry detention basins to control flow". The policy states that the bottom of the basin should not intercept groundwater. Pond 1-2 is at, or slightly above, groundwater based on the soil testing provided, and basin 3-2 is several feet into the groundwater based on the minimal testing provided. The engineer should address these issues.

As mentioned previously, the results of the new test pits should be submitted for review.

**Test pit data has been submitted which appears to demonstrate that pond 1-2 is set at seasonal high groundwater, and pond 3-2 is 2-3 feet into the seasonal high groundwater.**

2. Relative to "dry detention basin" 3-2, the Policy requires side slopes to be no steeper than 3:1. The subdivision regulations also call for slopes no steeper than 3:1. The engineer has provided 3:1 inside the basin itself, but the slopes above and around the basin are graded at 2:1.

The engineer has addressed the Policy requirements, but has not discussed how the slopes do not comply with local subdivision regulations.

**The response states that "a waiver will be requested".**

3. The engineer states that Standard 4 is met by using "the impervious paved area", but the Policy dictates that "total impervious area" be used. The engineer should adjust the Standard 4 calculations accordingly.

**The calculations have been revised.**

4. The LID Measures section of the Checklist for Stormwater Report lists only 'constructed Stormwater wetlands" as an LID measure used on the site. The local stormwater regulations states that "Low Impact Development (LID) measures are to be used". The Subdivision Regulations sates that "drainage systems relying on gutters, catch basins and underground piping will be allowed only where country drainage is not feasible". The board may want the engineer to address how additional LID measures can be incorporated into the site drainage system.

**The response simply states that "the drainage design for the project is in compliance with the Massachusetts Stormwater Management Standards".**

5. The Standard 3: Recharge section of the checklist states that soil analysis has been provided. As stated previously, only one hand-dug test pit, demonstrating only 6" of C Layer, has been depicted in the area of the galley infiltration system. The engineer should provide the minimum 3 test pits required in the infiltration area. Further, sufficient information has not been provided relative to the proposed roof infiltration systems. The engineer should provide additional soil testing for the roof infiltration systems and provide system elevations relative to groundwater.

As noted previously, the new test pit data was not included in the submittal. Also, there are issues that need to be addressed with the roof infiltration systems. See previous comments.

**As noted above, additional test pit data has been provided which would appear to indicate that the infiltration rate used in the calculations should be revised. The engineer should address this issue. Also, no response has been provided relative to the roof infiltration systems.**

6. The report assumes that all 24 dwellings have roof infiltration systems, but the plans do not depict systems for dwellings 4 and 9. The engineer should address this.

**The revised plans have 13 of 24 dwellings being routed to roof infiltration systems. Previous comments have raised issues relative to the design.**

7. The post development watershed plan shows roof runoff shedding in 2 to 3 different directions on some dwellings. With the roof infiltration system, however, the entire roof area is collected in gutters and directed to the system. Any runoff not capable of being stored in the infiltration system would still overflow into the same subcatchment area as the system. The engineer should revise the watershed plan accordingly.

The response states that the map and calculations have been revised, but post-development watershed map CS9301 was not included in the submittal. A copy should be provided.

**The plan has been provided.**

Town Memos

Fire Department (9/23/19)

1. The fire department suggested "a minimum of twenty (20) feet of space between buildings due to exposure issues in the event of fire". The submitted plans do not comply, and provide a minimum 15' between buildings instead.

**The response simply states that "with cement fiberboard siding the building code allows a separation of 5'".**

2. The fire department suggested that the dead-end sections be reconfigured or eliminated. It appears that the dead-ends have not been adjusted to comply.

**The response claims that "the dead ends are in compliance with NFPA which require a minimum 16' wide fire lane. Dead end fire lanes are allowed but can be no longer than 300'".**

Planning Board (9/29/19)

1. The cul-de-sac length exceeds the maximum allowed without a waiver by 345 feet. This is listed as a waiver.

**The response states that no response is required.**

2. A sidewalk is provided on the proposed street, but there are no sidewalks in Pearson Drive. The board may want the engineer to address whether a sidewalk could be constructed along Pearson Drive.

**The response states that sidewalks will only be provided in the new development.**

3. As mentioned previously, each unit has a sliding door on the back of the house, likely leading to a deck and/or patio. These should be depicted on the plans, and accounted for in the proposed grading.

**The plans have been revised.**

4. The project has not addressed what LID alternatives were considered for the site.

**The response states that LID alternatives have not been considered.**

Board of Selectmen (9/23/19)

1. Concerns are raised relative to cul-de-sac length, dead-end sections, and separation between dwellings.

**The response states that "the dead end street is in compliance with NFPA maximum of 100 units on a single entrance dead end".**

Should you have any questions concerning this letter, please contact me at your convenience.

Sincerely,

Joseph J. Serwatka, P.E.