

Thunderchase Environmental LLC

Lightning Fast Environmental Consulting Services



October 23, 2023

Becky Daniels
6 Evergreen Way
Medfield, MA 02052

Michelle Lederhos
10 Evergreen Way
Medfield, MA 02052

c/o "Hardinghood Neighbors": 6 Evergreen Way, Medfield, MA 02052

Re: ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION APPLICATION
Junction Street, Dover, Massachusetts 02030
Wetland Scientist Consulting Services Review Memorandum

Dear Hardinghood Neighbors:

Thunderchase Environmental LLC (Thunderchase) understands that you have indicated to us that you have organized the Hardinghood Neighbors, a Ten Citizen Group, and located in Medfield, Massachusetts. Thunderchase also understands that "Abutter"(s), defined in 310 CMR 10.04, as "the same as owner of land abutting the activity", are represented by and included both individually, and as a citizen in this Ten Citizen Group.

Thunderchase understands that LEC Environmental Consultants, Inc. (LEC) submitted an Abbreviated Notice of Resource Area Delineation (ANRAD) Application (dated August 24, 2023) to the Dover Conservation Commission (DCC), pertaining to a Subject Property, identified by LEC as "Junction Street, Assessor's Map 20; Lots 5, 9, 10 & 11; Dover, Massachusetts" (the "Property").

Thunderchase is aware of the following three (3) documents, which may have been provided to the DCC.

- Abbreviated Notice of Resource Area Delineation; Junction Street, Assessor's Map 20; Lots 5, 9, 10 & 11; Dover, Massachusetts; by LEC Environmental Consultants, Inc.; 102 Grove Street, Worcester, MA; dated August 24, 2023. [**the "ANRAD"**]
- Abbreviated Notice of Resource Area Delineation; Pulte Homes; Junction Street; Map 20; Lots 5, 11, 10 & 9; Town of Dover, Norfolk County; Commonwealth of Massachusetts, by Control Point Associates, Inc.; dated 8-17-23 with Revision No. 2 "Revised Per Client comments" dated 10-11-2023 (DWG No. 1 of 1) [**the "Revised Drawing"**]

- “Wetland Delineation Review”; Junction Street [Assessor’s Map 20; Lots 5, 9, 10 & 11] Dover; by EcoTec, Inc., 100 Grove Street, Worcester, MA; dated October 11, 2023 [**the “Agent Consultant Review”**]

△ △ △

Thunderchase considered the information within the three documents cited above as it relates to the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40) and its implementing Regulations (310 CMR 10.00); and as it relates to the Dover Wetlands Protection Bylaw (Chapter 181) and the Rules and Regulations for the Dover Wetlands Protection Bylaw (Chapter 263). A summary of the consideration of the information is presented below.

For clarification purposes within the following text, it is noted that the **Representative** for the ANRAD is identified as Richard Kirby, LEC Environmental Consultants, Inc., and addressed at 100 Grove Street, Suite 310, Worcester, Massachusetts; and the **Agent Consultant** for the DCC is identified as Paul McManus, EcoTec, Inc., and addressed at 102 Grove Street, Worcester, Massachusetts.

The ANRAD:

Page 12 of 52 of the PDF cites that the project location is "0, 15, 17, and 19 Junction Street".

However, MassMapper (MassGIS' flagship interactive map utilized to access virtually all MassGIS map layers and to view descriptive information about the features on the map) appears to identify the addresses as "Off Junction Street, 15 Junction Street, 17 Junction Street, 19 Junction Street".

Page 18 of 52 of the PDF.

For the Medfield, MA Abutters List, Parcel ID 80-034, and addressed as 17 Stonybrook Road, appears (according to MassMapper) to be considered “abutters to the abutters within 300 feet of the property line”, but this Abutter appears to have not been shown as an “abutter” within the ANRAD and may not have been notified “at least 7 days prior to the hearing date”.

Page 20 of 52 of the PDF cites that “LEC conducted a site evaluation on July 27, 2023 to determine the extent of protectable Wetland Resource Areas and to delineate the boundaries of Bordering Vegetated Wetlands (BVW). The ANRAD Application seeks confirmation that the Wetland Resource Areas associated with the site are limited to BVW, and confirmation that the BVW boundaries are correct, as depicted on the ANRAD Plan”.

However, MassMapper appears to show two “Hydrologic Connections” on the Property. MassMapper notes that “the hydrologic connection arcs provide a medium scale representation of linear features (less than 50 feet wide) that appear to contain flowing water (either intermittently or perennially) and flow into, out of, or between mapped wetland polygons. Hydrologic connections may consist of rivers, streams, ditches, culverts, swales, or other water conveyance features.” As LEC appears to be citing that

"Wetland Resource Areas associated with the site are limited to BVW", LEC may not have considered the presence or absence of these MassMapper shown Hydrologic Connections on the Property.

Page 23 of 52 of the PDF cites that “the BVW boundaries were demarcated in the field with sequentially-numbered, blaze orange surveyors’ tape embossed with the text “LEC Resource Area Boundary” and numbered **1 through 93**, and **1A through 43A**. LEC flagging stations U1 through U14 delineate the boundary of an upland island contained within the BVW within the central portion of the site.”

Thunderchase understands that the ANRAD indicates that Nicole M. Ferrara, Wetland Specialist, may have placed a total of 150 "WLF" (presumed to be an acronym for wetland flag) on the Property and completed two sampling points for the 150 "WLF", as per information provided on the included Bordering Vegetated Wetland Determination Form, during **one day**, July 27, 2023, and representing a linear distance of **3,315+ feet**.

It is important to note that the August 2023 Drawing (on Page 52 of 52) in the ANRAD identifies the points as "WLF#1" to "WLF#94" and "WLF#1A" through "WLF#43A".

Page 27 of 52 of the PDF cites that “scattered pockets of standing water and saturation to the surface were observed within the BVW at the time of LEC’s site evaluation. Flagging stations 1 through 94 delineate the eastern property boundary, while flagging stations 1A through 43A delineate the western BVW boundary.”

Thunderchase notes that the August 2023 Drawing provided on page 52 of 52 of the PDF does not appear to show that “flagging stations 1 through 94” DELINEATE the eastern property boundary. Similarly, the August 2023 Drawing provided on page 52 of 52 of the PDF does not appear to show that “flagging stations 1A through 43A” DELINEATE the western property boundary.

Page 35 of 52 of the PDF indicates on the Bordering Vegetated Wetland Determination Form for NONWET 1 that "test pit excavated **17' downgradient** of BVW Flag 20" and "observed soil profile is generally consistent with the NRCS soil description".

Thunderchase notes that on the Revised Drawing, WLF#21 and WLF#22, which are sequential to the WLF#20 location appear to have been adjusted. Furthermore, it may be expected that a “NONWET” point would have been positioned by LEC “upgradient” of “BVW Flag 20”, instead of downgradient.

In addition, LEC indicates that the “plot size” for each of the vegetation layers is [50']. Though it is not clear whether this plot size referenced by LEC refers to radius or diameter, the following document {Jackson, S.D., D.J. Henson, D. Hilgeman, M. McHugh, and L. Rhodes, 2022. *Massachusetts Handbook for Delineation of Bordering Vegetated Wetlands, Second Edition*, Massachusetts Department of Environmental Protection, Bureau of Water Resources, Wetlands Program, Boston, Massachusetts} cites “in general, it is recommended that for small observation plots, the Tree Stratum and Woody Vine Stratum be sampled in a 30-foot radius plot, the Sapling/Shrub Stratum be sampled

in a 15-foot radius plot, and the Herb Stratum be sampled in a 5-foot radius plot." Therefore, it is not clear why LEC chose to utilize a 50' plot size for each of the listed vegetation layers.

In addition, whereas LEC cites that "observed soil profile is generally consistent with the NRCS soil description", it is noted that LEC indicates the following for NONWET1:

- A – 0-2 inches: fine sandy loam
- Bw1 – 2-5 inches: fine sandy loam
- Bw2 – 5-18 inches: fine sandy loam
- C – 18-22+ inches: fine sandy loam

However, NRCS cites the following typical profile for Woodbridge fine sandy loam, 3 to 8 percent slopes:

- Ap – 0 to 7 inches: fine sandy loam
- Bw1 – 7 to 18 inches: fine sandy loam
- Bw2 – 18 to 30 inches: fine sandy loam
- Cd – 30 to 65 inches: gravelly fine sandy loam

Page 39 of 52 of the PDF indicates on the Bordering Vegetated Wetland Determination Form for WET 1 that the "test pit excavated roughly **10' down-gradient** of BVW Flag 20" and "observed soil profile is generally consistent with the NRCS Soil Series Descriptions".

Thunderchase notes that LEC indicates that the "plot size" for each of the vegetation layers is **[50']**. Though it is not clear whether this plot size reference by LEC refers to radius or diameter, the *Massachusetts Handbook for Delineation of Bordering Vegetated Wetlands, Second Edition* cites "in general, it is recommended that for small observation plots, the Tree Stratum and Woody Vine Stratum be sampled in a 30-foot radius plot, the Sapling/Shrub Stratum be sampled in a 15-foot radius plot, and the Herb Stratum be sampled in a 5-foot radius plot." Therefore, it is not clear why LEC chose to utilize a 50' plot size for each of the vegetation layers.

The DCC may wish to request that LEC provide the Issuing Authority with the location of the center point for each of the observation plots used for vegetative analyses, relative to "BVW Flag 20".

Page 42 of 52 of the PDF appears to indicate on the Bordering Vegetated Wetland Determination Form a redox feature color (moist) of 10YR 4/2 for WET 1 without a corresponding depth and without a corresponding matrix description.

Thunderchase notes that the Rows describing "redox features" may not be correctly aligned with other information presented by LEC. LEC cites in the Remarks section the presence of a Bg1 Horizon and a Bg2 Horizon. According to the NRCS Field Book for Describing and Sampling Soils, "**the suffix g is used for soil horizons (including subaqueous soils) where Fe has been reduced and pedogenically removed, resulting in a chroma of 2 or less**". Whereas the "g" means "strong gley", LEC appears

to describe these Bg Horizons as having a matrix color of 10YR 3/2 (very dark gray) or 10YR 5/2 (grayish brown).

The *Massachusetts Handbook for Delineation of Bordering Vegetated Wetlands, Second Edition* cites that “gleyed is a soil condition resulting from gleization which is characterized by the presence of neutral gray, bluish, or greenish colors in the soil matrix or in mottles among other colors. **There are also special pages for “gleyed” soils, which are very gray wetland soils. These pages are arranged differently than the rest of the Munsell Soil Color Book, with all of the color chips on these special pages being either a 1 or 2 chroma, and each column representing a different spectral hue.**”

The Massachusetts Handbook for Delineation of Bordering Vegetated Wetlands, Second Edition cites that “a gleyed matrix exists when the matrix color of a horizon is a depleted matrix whose color occurs on one of the Gley pages in the Munsell Soil Color Book. In gleyed soils, iron has either been chemically reduced, dissolved, and removed from the soil, or in conditions of persistent saturation with stagnant water, the iron has been preserved in a chemically reduced state in the soil. Gley colors include: **1. Hues of 10Y, 5GY, 10GY, 10G, 5BG, 10BG, 5B, 10B, or 5PB with value 4 or more and chroma is 1; or 2. Hue of 5G with value 4 or more and chroma is 1 or 2; or 3. Neutral hue and chroma (N) with value 4 or more.**”

The *Massachusetts Handbook for Delineation of Bordering Vegetated Wetlands, Second Edition* cites that “gleyed soils are soils that are predominantly neutral gray, or occasionally greenish or bluish gray in color (the Munsell Soil Color Book has special pages for gleyed soils” and that when these occur “within 6 in. from the soil surface for sandy soils (Indicator S4)”, and “within 12 in. from the soil surface for fine-textured soils (Indicators A11 and F2)”.

Therefore, with a matrix color of 10YR 3/2 (very dark gray) or 10YR 5/2 (grayish brown) in WET1, it is not clear that the condition represented in *italics* bold directly above, is applicable to the description. Furthermore, it is not clear that the “hydric soil indicator” for this “sandy loam” texture, as represented by LEC as A11 “depleted below dark surface”, is present considering that A11 related to fine-textured soils.

In addition, whereas LEC cites that “observed soil profile is generally consistent with the NRCS soil description”, it is noted that LEC indicates the following:

- A – 0-4 inches: sandy loam
- Bg1 – 4-7 inches: sandy loam
- Bg2 – 7-18 inches: sandy loam
- C – 18-22+ inches: sandy loam

However, NRCS cites the following typical profile for Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony:

- Oe – 0 to 1 inches: moderately decomposed plant material
- A – 1 to 6 inches: fine sandy loam
- Bw – 6 to 10 inches: sandy loam
- Bg – 10 to 19 inches: gravelly sandy loam
- Cd – 19 to 66 inches: gravelly sandy loam

Page 43 of 52 of the PDF indicates on the Bordering Vegetated Wetland Determination Form for NONWET 2 that the “test pit excavated roughly **10' up-gradient of BVW Flag 11A**” and that “observed soil profile is generally not consistent with the NRCS Soil Series Descriptions.”

The DCC may wish to request that LEC provide the Issuing Authority with the location of the center point for each of the observation plots used for vegetative analyses, relative to “BVW Flag 11A”.

In addition, whereas LEC cites that “observed soil profile is generally consistent with the NRCS soil description”, it is noted that LEC indicates the following:

- OA – 0-3 inches: sapric
- E – 3-5 inches: sandy loam
- Bh – 5-16 inches: sandy loam
- Bw – 16-22 inches: sandy loam

However, NRCS cites the following typical profile for Woodbridge fine sandy loam, 0 to 3 percent slopes:

- Ap – 0 to 7 inches: fine sandy loam
- Bw1 – 7 to 18 inches: fine sandy loam
- Bw2 – 18 to 30 inches: fine sandy loam
- Cd – 30 to 65 inches: gravelly fine sandy loam

Page 47 of 52 of the PDF indicates on the Bordering Vegetated Wetland Determination Form for WET 2 that “test pit excavated roughly **10' downgradient of BVW Flag 11A**” and that “observed soil profile is generally consistent with the NRCS Soil Series Descriptions”.

The DCC may wish to request that LEC provide the Issuing Authority with the location of the center point for each of the observation plots used for vegetative analyses, relative to “BVW Flag 11A”.

In addition, whereas LEC cites that “observed soil profile is generally consistent with the NRCS soil description”, it is noted that LEC indicates the following:

- Oe – 0-3 inches: hemic
- A – 3-7 inches: sandy loam
- Bg – 5-16 inches: sandy loam



However, NRCS cites the following typical profile for Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony:

Oe – 0 to 1 inches: moderately decomposed plant material
A – 1 to 6 inches: fine sandy loam
Bw – 6 to 10 inches: sandy loam
Bg – 10 to 19 inches: gravelly sandy loam
Cd – 19 to 66 inches: gravelly sandy loam

Page 50 of 52 of the PDF indicates on the Bordering Vegetated Wetland Determination Form for WET 2 that "7-16 inches" has a moist matrix color of "2.5Y 4/2".

LEC cites in the Remarks section the presence of a “Bg Horizon (with organic streaking). The matrix color of 2.5Y 4/2 refers to a dark grayish brown. Whereas the “g” means **“strong gley”**, the DCC may wish to consider the discussion above in the Paragraph labeled as “Page 42 of 52 of the PDF” for a similar applicability herein.

Page 52 of 52 of the PDF provides a drawing, identified as "Abbreviated Notice of Resource Area Delineation; Pulte Homes; Junction Street; Map 20; Lots 5, 11, 10 & 9; Town of Dover, Norfolk County; Commonwealth of Massachusetts, by Control Point Associates, Inc.; dated 8-17-23 (DWG No. 1 of 1) [the "**August 2023 Drawing**"].

For information purposes, Note 8 on the August 2023 Drawing notes that “the wetland delineation line was placed in the field by LEC on July 27, 2023, and field located by Control Point Associates, Inc. on July 31, 2023.” This “wetland delineation line” appears as a black line type with no associated legend describing the line type.

Thunderchase understands that LEC has indicated that Map 20, Lots 5, 9, 10, and 11 are represented by the ANRAD.

The August 2023 Drawing depicts points labeled as WLF#42 to WLF#84 on Map 20, Lot 5. WLF#84 does not connect to any additional point, and therefore the “wetland delineation line” appears discontinuous and ceases on the Property north of Map 80, Lot 12 in Medfield, MA. It is not clear how the demarcation of any “wetland delineation line” shall be represented after the last point at WLF#84.

The August 2023 Drawing depicts points labeled as WLF#1A to WLF#43A on Map 20, Lot 5. WLF#1A does not extend to the western limits of Map 20, Lot 5. WLF#43A does not connect to any additional point, and therefore the “wetland delineation line” appears discontinuous and ceases on the Property north of Map 80, Lot 9 in Medfield, MA. It is not clear how the demarcation of any “wetland delineation line” shall be represented after the last point at WLF#43A.

The August 2023 Drawing depicts points labeled as WLF#U-1 to WLF#U-14 on Map 20, Lot 5, and includes a description "upland island". As these points are modified by "WLF" but identified as "upland island", it is not clear whether the ANRAD seeks to confirm the

accuracy of these “upland island” points, or whether these points have been included by LEC for information purposes.

The August 2023 Drawing depicts points labeled as WLF#1 to WLF#4 on Map 20, Lot 9.

The August 2023 Drawing depicts points labeled as WLF#5 to WLF#41 on Map 20, Lot 10.

The August 2023 Drawing depicts the term “Gravel Path” and “Approximate Location of Right of Way”. This identified “Gravel Path” appears to pass through a labeled “Wetland” from the west at WLF#22A and from the east at WLF#69. The DCC may wish to consider whether the “Gravel” cited by Control Point Associates within the LEC-identified wetland was previously permitted under an Order of Conditions by the Issuing Authority.

For information purposes, Thunderchase notes that the August 2023 Drawing depicts a line style identified as “100’ Wetland Buffer”, which is also discontinuous on the August 2023 Drawing.

△ △ △

The Revised Drawing

Thunderchase notes that the Revised Drawing adds a legend which identifies what appears to be a solid gray line, a solid orange line, and a solid light blue line, as follows:



Thunderchase notes the following of what it understands to be the details on the Revised Drawing:

Points WLF#1A.1 to WLF#1A.7 were added and connected with a solid orange line on Map 20, Lot 4. Points WLF#BL A1.3 (connects to WLF# 1A.2) to WLF#BL A1.5 (connects to WLF #1A.5) were added and connected with a solid light blue line on Map 20, Lot 4. The Revised Drawing indicates that Map 20, Lot 4 represents “Lands of the Dover-Sherborn Regional School District”.

It is not clear if LEC is seeking approval by the Issuing Authority of "WLF" points which may occur on land which may not be under the control of the Applicant or the Property Owner.

Points WLF#BL 20A (connects to WLF#19A and WLF#21A) were added and connected with a solid light blue line or a solid orange line (for WLF#20A) on Map 20, Lot 5.

Points WLF#52 through WLF#59 appear as connected through a solid orange line while point WLF#BL 52.1 has been added and connected with a solid blue line between WLF#52 and WLF#59 on Map 20, Lot 5.

Points WLF#BL 61.7G (connected to WLF#61.4) through WLF#BL 61.7A (connected to WLF#61.6) appear as connected through a solid light blue line while points WLF#61.1 (connected to WLF#61) through WLF#61.10 (connected to WLF#62) have been added and connected with a solid orange line on Map 20, Lot 5.

Points WLF# BL41.1 (connected to WLF#41) and WLF# BL 41.2 (connected to WLF#42) appear as connected through a solid light blue line, while WLF#41 and WLF#42 now appear connected through a solid orange line on Map 20, Lot 5.

Points WLF#BL 88 and WLF#BL 89 (connected to WLF#87 and WLF#90, respectively) appears as connected through a solid light blue line, while WLF#88 and WLF#89 (connected to WLF#87 and WLF#90, respectively), appears connected through a solid orange line on Map 20, Lot 5.

Points WLF# BL21 (connected to WLF#20 and WLF#22) appears as connected through a solid light blue line, while WLF#21 (connected to WLF#20 and WLF#22) now appears connected through a solid orange line on Map 20, Lot 10.

Points WLF#BL I-1 through WLF#BL I-7 have been added to Map 20, Lot 10. As these new points on the Revised Drawing appear to occur within a topographic valley which appears to extend west toward lower topographic contours and towards WLF# BL 61.7C, the DCC may wish to consider the potential of this system being connected to the shown adjoining BVW.

Thunderchase notes that Note 8 on the Revised Drawing now cites that “the wetland delineation line was placed in the field by LEC on July 27, 2023 and October 13, 2023, and field located by Control Point Associates, Inc. on July 31, 2023 and October 9, 2023.”

It is not clear why LEC may have placed a suspect additional wetland delineation line on the Property on October 13, 2023.

Δ Δ Δ

The Agent Consultant Review

The Agent Consultant indicates that “Richard Kirby of LEC Environmental was present with me throughout my review. No other parties were present during the review.”

It is not clear why Nicole Ferrara, the “Wetland Specialist” who indicated that “the BVW boundaries were demarcated in the field with sequentially-numbered, blaze orange surveyors’ tape embossed with the text “LEC Resource Area Boundary” and numbered 1 through 93, and 1A through 43A” was not present during the Agent Consultant Review.

The Agent Consultant indicated that he “reviewed the boundaries under the Massachusetts dual parameter criteria (vegetation and indicators of wetland hydrology, as outlined in 310 CMR 10.55 and the MassDEP delineation manual) and the Dover Wetland Bylaw’s vegetation-only criterion for the delineation of vegetated wetlands.”

It is not clear where the term “Massachusetts dual parameter criteria” is referenced in the stated 310 CMR 10.55.

In fact, 310 CMR 10.55(2)(c)2. indicates that “the boundary of Bordering Vegetated Wetlands is the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist. The Issuing Authority must evaluate vegetation and indicators of saturated or inundated conditions if submitted by a credible source or may require credible evidence of saturated or inundated conditions when determining the boundary. Indicators of saturated or inundated conditions sufficient to support wetland indicator plants shall include one or more of the following: **a. groundwater, including the capillary fringe, within a major portion of the root zone; b. observation of prolonged or frequent flowing or standing surface water; c. characteristics of hydric soils.**

Since 310 CMR 10.55(2)(c)2. describes that indicators of saturated or inundated conditions sufficient to support wetland indicator plants shall include one or more of the following: a. groundwater, including the capillary fringe, within a major portion of the root zone; b. observation of prolonged or frequent flowing or standing surface water; c. characteristics of hydric soils; and

Since 310 CMR 10.00 indicates that “to establish the extent of bordering vegetated wetland and/or other resource areas on land subject to protection under M.G.L. c. 131, § 40, applicants may use the Abbreviated Notice of Resource Area Delineation for the confirmation of a delineated boundary of bordering vegetated wetlands and/or other resource areas on the site...”

The DCC may wish to consider requesting this documentation for ALL individual points along “a delineated boundary” for which either the August 2023 Drawing and/or the Revised Drawing seeks “**confirmation**”.

In addition, whereas the Agent Consultant indicates the term “MassDEP delineation manual”, it is not clear whether the Agent Consultant is referring to the Massachusetts Handbook for Delineation of Bordering Vegetated Wetlands or some other document.

The Agent Consultant indicated that “where revisions and additions to the wetland boundary were appropriate in my opinion, Mr. Kirby flagged those locations with numbered flagging that allowed for understandable modifications to the plans.”

It is not clear what methodologies were utilized for any “revisions and additions”, as no additional “field data forms” or additional descriptive narratives pertaining to the revisions and additions have been provided.

The Agent Consultant indicated that he "also conducted walking transect inspections of the remaining portions of the site delineated by LEC as upland, to search for possible additional (undelineated) wetland areas."

It is not clear what is meant by and what methodologies would be utilized to characterize a Property as a “site **delineated** by LEC as **upland**”.

△△△

Additional Information – 310 CMR 10.00

For information purposes, it is understood that 310 CMR 10.05 (a) 2. Cites that “applicants may use the Abbreviated Notice of Resource Area Delineation to confirm the boundaries of resource areas and the buffer zone.” In addition, it is understood that 310 CMR 10.05 4 (b) 2. Cites that “to establish the extent of bordering vegetated wetland and/or other resource areas on land subject to protection under M.G.L. c. 131, § 40, applicants may use the Abbreviated Notice of Resource Area Delineation for the confirmation of a delineated boundary of bordering vegetated wetlands and/or other resource areas on the site, prior to filing a Notice of Intent for proposed work.”

△ △ △

Additional Information – Chapter 263. Rules and Regulations for the Dover Wetlands Protection Bylaw

For information purposes, according to § 263-3. Application and permit procedures; Paragraph C. Permit Application (NOI, **ANRAD**, Amendment, etc.); (2) **Information Required**: it is noted that for [3], the Existing Conditions Site Plan(s), to be stamped by a professional engineer or land surveyor registered in Massachusetts (for any project which normally requires this degree of professional expertise in the judgment of the Commission), which includes, at a minimum, the following items:

[f] All trees which are located within the proposed work area and have a diameter of four (4) inches or greater at four feet above ground level.

The Revised Drawing does not appear to include this “required” item.

[h] Locations of major vegetation changes (-e.g., field, woodland, etc.)

The Revised Drawing does not appear to include this “required” item.

[i] Delineation and labeling of Groundwater Protection Districts.

The Revised Drawing does not appear to include this “required” item.

For information purposes, according to § 263-3. Application and permit procedures; Paragraph C. Permit Application (NOI, **ANRAD**, Amendment, etc.); (2) **Information Required**: it is noted that for [5], a “narrative description of Wetland Resource Areas, DEP Wetland Delineation Forms, including vegetation types and the resource area designations, as defined under the Bylaw and

this chapter, delineation methodologies and names and **credentials** of the persons conducting the delineations”.

The ANRAD does not appear to include the “credentials of the persons conducting the delineations”.

For information purposes, according to § 263-3. Application and permit procedures; Paragraph E. Public Hearings (3), it is noted that "the Commission may schedule a site visit for the purpose of inspecting the subject property, at a time and place to be announced at the public hearing. Members of the public will be allowed to inspect the property with the Commission during the site inspection, with the owner's permission."

The Hardingham Neighbors and the Abutters are aware that "the Commission may schedule a site visit for the purpose of inspecting the subject property, at a time and place to be announced at the public hearing". The Hardingham Neighbors and the Abutters understand that "members of the public will be allowed to inspect the property with the Commission during the site inspection, with the owner's permission", and welcome the opportunity to inspect the property with the Commission during the site inspection.

For information purposes, according to § 263-3. Application and permit procedures; Paragraph J. Consultant Fees, it is understood that “(1) The Commission shall retain the services of the Agent Consultant to provide technical review of any **NOI Application, Request for Determination of Applicability or request for Certificate of Compliance or other permit enforcement related matters**, including all supporting information submitted to the Commission”.

It is noted that § 263-3. Application and permit procedures; Paragraph J. Consultant Fees does not appear to include an **ANRAD** in the services that the Commission shall retain the services of for the Agent Consultant.

§ 263-3. Application and permit procedures; Paragraph J. Consultant Fees continues and cites that “additionally, the Commission may retain the services of an additional **Wetland Scientist Peer Review Consultant** depending on the complexity of the project.”

Since the technical review services of the Agent Consultant, according to § 263-3, does not appear to include an ANRAD, considering the “complexity of the project”, the DCC may wish to consider retaining “the services of an additional Wetland Scientist Peer Review Consultant” for the technical review of this ANRAD.

According to § 263-5. Performance standards. C. Isolated Vegetated Wetland, it is understood that “wetlands in areas with high permeability soils are more closely linked to groundwater, which is the source of all drinking water within the Town of Dover. Therefore, Isolated Vegetated Wetlands are divided into two categories: those areas with highly permeable soils located within the Town of Dover Groundwater Protection Districts GW-1 or WP and those with less permeable soils located within Groundwater Protection District GW-2. The boundaries of the Groundwater Protection District are those which are shown on the most recent version of the Town of Dover Groundwater Protection District Map.”

The DCC may wish to consider having the Revised Drawing specifically identify the Town of Dover Groundwater Protection Districts.



According to § 263-5. Performance standards. J. Vernal Pools. It is understood that “any work within 100 feet of a Vernal Pool must not impair its capacity to function as a Vernal Pool.” According to § 263-5. Performance standards. J. Vernal Pools, it is understood that **“all applicants shall certify to the existence and location or nonexistence of any Vernal Pools on the project site.”** Any area which any credible evidence suggests may be a Vernal Pool shall be presumed to be a Vernal Pool and afforded all the protections thereto, unless and until the Commission explicitly finds that such area is not a Vernal Pool based on field examination(s) in the spring vernal pool season by the Commission or its Agent, or a detailed written analysis by an independent appropriately qualified wetlands professional based on a documented field examination in the spring during vernal pool season. The credible evidence referred to in this provision may include sworn testimony of or affidavit provided under pains and penalties of perjury from one or more abutters or persons familiar with the site.”

As the § 263-5. Performance standards. J. Vernal Pools cites that that **“all applicants shall certify to the existence and location or nonexistence of any Vernal Pools on the project site”**; and since the WPA Form 4A – Abbreviated Notice of Resource Area Delineation indicates an **“Applicant”**; and since § 263-5 cites **“all applicants shall certify”**, the DCC may wish to consider having the applicant “certify to the existence and location or nonexistence of any Vernal Pools on the project site”, as part of this ANRAD.

According to § 263-6. Definitions. BUFFER ZONE, it is understood that the Buffer Zone is “the area within 150 feet measured horizontally from any Beach, Bank, Vegetated Wetland (Bordering or Isolated), or Land Subject To Flooding or Vernal Pool”. As the Agent Consultant has indicated that “in my opinion much of the wetland boundary on the site consists of coterminous state and local boundaries...”

It is not clear why the Revised Drawing only shows a “100’ Buffer Zone Under Bylaw Only”, as since the Agent Consultant has indicated that “in my opinion much of the wetland boundary on the site consists of coterminous state and local boundaries”.

The DCC may wish to consider that a depicted **150’ Buffer Zone** for all wetland boundaries on the site which are considered “coterminous state and local boundaries” would be more appropriate to § 263 Rules and Regulations for the Dover Wetlands Protection Bylaw.

Δ Δ Δ

Additional Information – Jackson, S. D., D. J. Henson, D. Hilgeman, M. McHugh, and L. Rhodes, 2022. Massachusetts Handbook for Delineation of Bordering Vegetated Wetlands, Second Edition, Massachusetts Department of Environmental Protection, Bureau of Water Resources, Wetlands Program, Boston, Massachusetts. (the “Handbook”)

For information purposes for the consideration of the DCC, Section 2.3 of the Handbook cites that “plant identification is an important aspect of reviewing or delineating wetland boundaries”.

For information purposes for the consideration of the DCC, Section 3.1 of the Handbook cites “in addition to its importance for delineating wetlands, the ability to understand descriptions of **soil characteristics** is important for reviewing BVW delineations. These include soil profiles (i.e., horizons), texture, and color”.

For information purposes for the consideration of the DCC, Chapter 5 of the Handbook cites “during RDA, ANRAD, and NOI review, the **Issuing Authority is responsible** for reviewing the accuracy of an applicant’s flagged BVW boundary and ensuring that the boundaries are accurately represented on the maps/plans”.

For information purposes for the consideration of the DCC Section 5.5.2 Reviewing Boundary Delineations cites "in reviewing BVW boundary delineations, the Issuing Authority should review all the information submitted by the applicant or that is otherwise available. Vegetation must always be considered, soils must be considered in all but the most obvious delineations, and Other Indicators of Hydrology must be reviewed when that additional information is submitted."

Section 5.5.2 Reviewing Boundary Delineations continues and cites “wetland boundary delineations often involve much interpretation and judgement. In some cases, it may be difficult to precisely locate the wetland/upland boundary, and experienced professionals may differ in where they choose to put the line. However, any differences in wetland boundary points should not be large. Conservation commissions may want to hire a consultant to review delineations in difficult situations. Those conservation commissions that have adopted rules under section 53G of Massachusetts General Law Chapter 44 (Municipal Finance) can hire third-party consultants at the applicant’s expense, to conduct peer reviews of BVW boundary delineations”.

Section 5.5.2 Reviewing Boundary Delineations continues and cites “once you are well-oriented to the site, walk the BVW boundary as represented by the applicant. The boundary should be flagged so that when standing at one flag location, the next flag is always visible”.

Section 5.5.2 Reviewing Boundary Delineations continues and cites “if the delineation is based on vegetation, soils, and Other Indicators of Hydrology review the vegetative community to determine if 50 percent or more of the dominant plants are wetland indicator plants. Examine soils on each side of the delineated boundary to determine whether hydric soils are present. You can examine the applicant’s soil test pits or dig new ones (or use a Dutch auger for spot checks). In addition, consider the presence or absence of Other Indicators of Hydrology and look for field indicators, such as topographic changes, variation in the herbaceous plant community, or an obvious change in the presence or absence of one or more specific plant species, that can be used to locate the precise wetland boundary.”

Section 5.5.2 Reviewing Boundary Delineations continues and cites “ask the person who delineated the boundary to explain their decision in areas where you have questions. Request additional Data Forms and transects in specific areas that are in dispute after an onsite assessment”.

As per the Agent Consultant Review, it is understood that the “person who delineated the boundary” **was not present** during the date (October 3, 2023) and time that the Agent Consultant was on the Property.

Section 5.5.2 Reviewing Boundary Delineations continues and cites "if agreement with the applicant cannot be reached, the Issuing Authority may need to determine the location of the BVW boundary. In these circumstances, the Issuing Authority should adjust the delineation by hanging flags in the field or making notes on the plans (e.g., flag A-12, moved 15 ft. up gradient). The applicant should submit a revised site plan showing the Issuing Authority's BVW boundary."

As per the Agent Consultant Review, which may not have described the methodologies and details for how points may have showed “where revisions and additions to the wetland boundary” may have occurred; and as per the Revised Drawing, which may not indicate the specific changes through notes on the Revised Drawing, the DCC may wish to consider whether the information presented on the Revised Drawing represents “all the information submitted by the applicant or that is otherwise available”.

△ △ △

Please feel comfortable having the Hardingham Neighbors, a Ten Citizen Group, and/or any Abutter contact me directly should there be any questions regarding our Wetland Scientist Consulting Services Review Memorandum for the Property.

Sincerely,

Thunderchase Environmental LLC

Dave Gorden, CPSS | CWS | BCES
Manager of Thunderchase Environmental LLC