FUSS & O'NEILL

December 5, 2022

Ms. Miriam DeFant, Chair
Shutesbury Conservation Commission
Town Hall
PO Box 276
Shutesbury, MA 01072

RE: Applicant Response to Wetland Consultant Peer Review-Revised Materials (WE 286-0297)
66 Leverett Road, Shutesbury, MA 01072
Fuss & O'Neill Reference No. 20091032.A22

Dear Ms. DeFant and Members of the Commission:

This letter serves as the Town of Shutesbury's (the Applicant) responses to the Wetland Consultant Peer Review letter provided by Ms. Emily Stockman of Stockman Associates LLC dated December 1, 2022 for 66 Leverett Road, Shutesbury, Massachusetts.

Please find the comments received by the Applicant on December 1, 2022, and the applicant's responses in bold below. The Stockman Associates LLC letter is provided in Attachment A.

Review Comments

1) The November 22, 2022 response letter prepared by Fuss & O'Neill states that the final wetlands mapping submitted to the Conservation Commission under the ANRAD process will reflect professionally surveyed flag locations. Flags will be located via survey following the agreement of the applicant, peer review, and the Conservation Commission of a consensus delineation and any subsequent flag relocation as a result of that consensus. Stockman Associates agrees with the proposed survey and final map submittal schedule.

Applicant Response: The Applicant will update the Conservation Commission with the anticipated survey schedule once determined.

BVW 1

This comment by Stockman Associates includes an analysis of BVW 1 soils, vegetation, and hydrology. For brevity, only the conclusions section of this comment has been reiterated below. Refer to Attachment A for the full comment.

1) Based on the November 22, 2022 data submission by Fuss & O'Neill, the November 28, 2022 site examination, and "Section 5 Difficult Situations, normal conditions ae not

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present within and proximal to the revised BVW 1 boundary. The evaluation of soil, vegetation and hydrology all fall under the category of Difficult Situations.

Based on the methodology required under the "Section 5 Difficult Situations" for assessing problematic soils, vegetation, and hydrology, it is the opinion of Stockman Associates that the Burden of proof to overcome the application of the F.6. Redox Dark Surface Hydric Soil indicator previously applied to establish the August 2022 BVW 1 boundary has not been met. Furthermore, the methodology/data to address problematic vegetation and hydrology has not been submitted to support the revised BVW 1 boundary.

Stockman Associates acknowledges the detailed level of further exploration performed by Fuss & O'Neill, which was greatly hindered by time of year and drought conditions. However, Stockman Associates suggests that the complexity of the area of question requires additional investigation to refute the original August 2022 BVW 1 boundary. Examples of additional examination include, but are not limited to,

- Cease the clearing, cultivation, or manipulation of the site for one or more growing seasons with normal rainfall and examine the plant community that develops.
- Monitor the site in relation to the appropriate wetland hydrology or hydric soils technical standard.
- Estimate the effects of ditches and subsurface drainage systems using scope-and-effect equations (USDA Natural Resources Conservation Service 1997). A web application to analyze data using various models available at http://www.wli.nrcs.gov/technical/web_tool/tools_java.html.

Applicant Response: The August 2022 wetland delineation Boundary of BVW 1 will be re-instated. In the November 3, 2022 Peer Review letter, Stockman Associates concurred with the boundary of BVW 1 depicted by flags 1A-100 through and including 1A-133. The flag locations of the August 2022 delineation of BVW 1 will be located by a professional surveyor and depicted on the plans for the finalized ANRAD submission.

BVW 2

1) BVW 1 is correctly depicted as a Bordering Vegetated Wetland on the revised figures. Based on the buried hydric soils noted on the Test Pit #4 Wetland Delineation Data Form, and assessment of aerial imagery, the westerly boundary of BVW 2 has been appropriately expanded to incorporate areas of wetland alteration after the "Hatch Act, Chapter 220,

Acts of 1965, adopted March 25, 1965 and the MA Wetlands Protection Act (MA WPA) or 1972.

Stockman Associates concurs with the revised boundary of BVW 2.

Applicant Response: The flag locations of the revised boundary of BVW 2 will be located by a professional surveyor and depicted on the plans for the finalized ANRAD submission.

BVW 3

1) The revised figures depict an undefined boundary between flags 3A-114 and 3A-115. AS stated in the November 22, 2022 submission by Fuss & O'Neill, "*The boundary of 3A-114 and 3A-115 will be determined during the restoration efforts and therefore this portion of the BVW 3 boundary will be excluded from the ANRAD.*"

Under the ANRAD process, the applicant has the right to request specific boundaries for review and approval. The Conservation Commission responds accordingly under a subsequent ORAD. Stockman Associates LLC recommends that the Commission include findings with the ORAD to clearly address any special circumstances such as excluded boundaries and forthcoming restoration.

Applicant Response: The Applicant concurs.

IVW 4 and IVW 6

2) Stockman Associates concurs with the revised boundaries of IVW 4 and IVW 6 as depicted on the November 22, 2022 figures. Based on the calculations provided by Fuss & O'Neill, Stockman Associates concurs that IVW 4 and IVW 6 do not meet the size threshold (1,000-SF) for protection as isolated wetlands under the local Town of Shutesbury General Wetlands Protection Bylaw.

Applicant Response: In email correspondence from Emily Stockman on December 5, 2022, it is understood that Stockman Associates intended this comment for IVW 4 and 5. The flag locations of the revised boundary of IVW 4 and IVW 5 will be located by a professional surveyor and depicted on the plans for the finalized ANRAD submission.

IVW 5 and Newly Identified Area of Inundation

1) During the November 28, 2022 site visit, slight modifications were made to the boundary of IVW 5. It is our understanding that Fuss & O'Neill will depict the modifications on revised figures. The slight modifications increased the overall size of IVW 5. Based on field observation, the slight increase to the previously calculated 175-SF will not result in protection under the local bylaw. It is our understanding that Fuss & O'Neill will provide updated calculations for final review.

Applicant Response: In email correspondence on December 5, 2022, Stockman Associates confirmed this comment was intended for IVW 6. The boundary of IVW 6 was re-calculated to incorporate the November 22, 2022 changes. The original area of IVW 6 was 233 square feet (sf); the new area of IVW 6 is 528 sf.

The flag locations of the revised boundary of IVW 6 will be located by a professional surveyor and depicted on the plans for the finalized ANRAD submission.

2) An additional disturbed area of inundation was observed proximal to IVW 5 during the November 28, 2022 site visit. Based on a preliminary assessment the area presented as too small to meet the 1,000-SF size criteria for protection under the Town of Shutesbury General Wetlands Protection Bylaw as an isolated wetland. It was also noted that inundation was observed outside of the growing season and after heavy rains the day/night before. It is our understanding that Fuss & O'Neill, at the applicant's request, performed additional assessment after the site visit. It is our understanding that Fuss & O'Neill will depict the area on revised figures and provide square footage calculations for review.

Applicant Response: The area of inundation was delineated as IVW 7 on November 28, 2022 by Fuss & O'Neill. This area includes a low-lying depression to the east of the access route. Vegetation was dominated by cranberries. IVW 7 flags range from 7A-100 to 7A-107 and the total area was 199 sf. Based on the area of less than 1,000 sf, IVW is not protected as IVW under the local bylaw. The flag locations of the new IVW 7 will be located by a professional surveyor and depicted on the plans for the finalized ANRAD submission.

ANRAD Review Area

1) The ANRAD submittal has been revised to depict a specified ANRAD Review Area. The entire parcel is no longer the subject of the ANRAD.

Applicant Response: The Applicant concurs.

2) As previously stated, based on the field review of the westerly property line, a large BVW is located on the abutting property. The boundary of the BVW meanders east and west proximal to the approximated property line

The revised ANRAD figures depict an estimated 100-FT Buffer Zone projecting into the ANRAD Review Area. The November 22, 2022 response letter prepared by Fuss & O'Neill states the "*the 100-foot Buffer Zone is shown from the DEP-mapped wetlands. Mapped wetlands are only shown outside of the ANRAD Review Area in Figure 2 and 3 since these areas were not delineated.*"

The MassGIS Data: MassDEP (2005) website clearly states that "*The wetlands and hydrologic connection information is for* ***planning purposes only****. The wetlands boundaries shown in these amp layers have been determined by photographic interpretation. They do not represent, and should not be used as, wetland delineations under the Massachusetts Wetlands Protection Act (M.G.L.c. 131 §40) and its regulations.*"

With prior, similar situations (off property BVW with projected 100-FT Buffer Zone into a review area), the following options have been considered by the Shutesbury Conservation Commission.

a. The applicant has been requested to seek landowner permission to delineate the off-site BVW.
b. In the absence of landowner permission, the applicant has been requested to consider a "no-contest" line starting at the property line and projecting the 100-FT Buffer Zone into the review area.
c. The Commission also has the authority to deem the DEP-mapped wetlands 100-FT Buffer Zone boundary inaccurate.

Applicant Response: The Applicant will include option (b) stated above by Stockman Associates in the plans submitted for the finalized ANRAD submission. The 100-ft Buffer Zone will be shown as a 'No-Contest' 100-ft Buffer Zone on the updated plans to maximize protection of wetland resource areas that may be located off-parcel.

c: Mary Anne Antonellis; Director, M.N. Spear Memorial Library
Ms. Mary Grover, MassDEP WERO

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ATTACHMENTS

A Stockman Associates LLC Correspondence

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Attachment A
Stockman Associate LLC Correspondence

Stockman Associates LLC

December 1, 2022

Ms. Miriam DeFant, Chair
Shutesbury Conservation Commission
Town Hall
P.O. Box 276
1 Cooleyville Road
Shutesbury, MA 01072

Re: Abbreviated Notice of Resource Area Delineation (ANRAD)
66 Leverett Road
Shutesbury, MA
(Parcel ID O-32)
DEP File # 286-0297
Wetland Consultant Peer Review-Revised Materials

Dear Ms. DeFant and Commissioners:

Per request of the Shutesbury Conservation Commission, Stockman Associates LLC has performed a wetland consultant peer review of the revised materials submitted under the Abbreviated Notice of Resource Area Delineation (ANRAD) prepared by Fuss and O'Neill on behalf of their client, the Town of Shutesbury, for the review of delineated resource area boundaries located within the property at 66 Leverett Road in Shutesbury, MA (Parcel ID O-31).

Materials Reviewed

- *"Applicant Response to Wetland Consultant Peer Review (WE 286-0297)"* prepared by Fuss and O'Neill dated November 22, 2022, including attachments and photo log.

Site Visit

1) On November 28, 2022 Ms. Emily Stockman (Stockman Associates LLC) conducted a site visit to review the subject area presented under the revised ANRAD filling. Ms. April Doroski (Fuss & O'Neill), Ms. Miriam DeFant (SCC), Ms. Robin Harrington (SCC), Ms. Mary Davis (SCC), Ms. Janice Stone (SCC Volunteer Consultant), Ms. Mary Anne Antonellis (Library Director), and Ms. Rida Farrell (Shutesbury Selectboard, Chair) were also present during the site visit.

Review Comments

1) The November 22, 2022 response letter prepared by Fuss and O'Neill states that the final wetland mapping submitted to the Conservation Commission under the ANRAD process will reflect professionally surveyed flag locations. Flags will be located via survey following the agreement of the applicant, peer reviewer, and the Conservation Commission of a

consensus delineation and any subsequent flag relocation as a result of that consensus. Stockman Associates agrees with the proposed survey and final map submittal schedule.

BVW 1

1) During the November 8, 2022 site visit there was general discussion between Ms. Emily Stockman and Ms. April Doroski (Fuss and O'Neill) regarding the application of the ACOE F.6. Redox Dark Surface Hydric Soil Indicator. More specifically, discussion focused on the application of indicator within disturbed soils that contain a compacted layer or zone and a future review of the User Notes.

   Stockman Associates LLC previously concurred with the boundary of BVW 1 depicted by flags 1A-100 through and including 1A-133. Stockman Associates LLC concurred with the boundary of BVW 1 based on observations made during the October 28, 2022 site visit and data provided by Fuss & O'Neill on Wetland Determination Data Forms 1A-129 and UPL 1-2. During the site visit, areas upgradient of the previously demarcated BVW 1 boundary were examined. Based on the lack of observed hydric soils and wetland hydrology, Stockman Associates concurred that areas upgradient of the previously delineated BVW 1 were uplands.

   As documented, the landscape encompassing and proximal to BVW 1 has been historically and recently impacted. Coupled with prolonged drought conditions and further investigation outside of the growing season, the delineation of the BVW boundary presents multiple challenges.

   SOILS

   The revised Figure 3-1 indicates that three test pits were hand dug to reexamine the BVW 1 boundary. Wetland Determination Forms were submitted for Test Pits #1 and #3. Forms were not submitted for Test Pit #2.

   Stockman Associates concurs that the soil profile description submitted for Test Pit #3 does not meet the F.6. Redox Dark Surface Hydric Soil Indicator. Based on the matrix color (10YR 2/2) the percentage of prominent concentrations (3%) does not meet the 5% criterion.

   Further investigations by Fuss and O'Neill report that restrictive layers were not observed within the test pits. An assessment of soil structure was not included within the November 22, 2022 response but was discussed during the November 28, 2022 site visit. Ms. Doroski and Ms. Stockman concurred that observed soil structure ranged from granular to subangular blocky. Platy structure indicating compaction was not observed. Compaction associated with a plow plan and equipment travel was not observed. Furthermore, documented prominent redoximorphic concentrations were observed throughout the Ap horizon. Prominent redoximorphic concentrations were not limited to an anthropogenic zone of compaction.

   The F.6. Redox Dark Surface Hydric Soil Indicator User Notes discuss both subsurface hydrology and shallow perched layers of saturation. Detailed soil textures were not provided on the submitted Wetland Determination Data Forms. Soil textures were examined by Ms. Stockman and Ms. Doroski during the November 28, 2022 site visit. Ms. Doroski also referenced her field notes, and a textural change was noted between the Ap horizon and underlying subsoils. The textural change, coupled with the presence of organic matter within the Ap horizon [indicated by the black (10YR 2/1) and very dark

brown (10YR 2/2) matrix color and staining] was reviewed. The potential for a resulting perch hydrology due to wetting front was discussed in the field.

To further assess the assertion by Fuss and O'Neill that the F.6. Redox Dark Surface Hydric Soil Indicator is not applicable, two shallow soil pits were hand dug within a less altered (forested) portion of the delineated BVW 1. The area located within the northwesterly portion of BVW 1, was chosen with Ms. Doroski as an agreed upon wetland reference area. The use of a wetland reference area is an established methodology under "Section 5 Difficult Situations" of the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region.

High chroma subsoil matrix colors were observed within the wetland reference area. Colors were consistent with those documented within the newly excluded open field to the east (10YR 4/4 and 10YR 4/6). Observed high chroma subsoils within the *Ilex verticillata-Onoclea sensibilis* (Winterberry-Sensitive Fern) dominated BVW 1 wetland reference area indicate that the wetland system likely contains Problematic Hydric Soils.

VEGETATION

Despite the anticipated delineation of wetland resource areas and submittal of an ANRAD, the northerly open field was mown during 2022, resulting in altered vegetation at the time of the delineation, additional assessment, and reviews. As a result, grasses and sedges located within the evaluated area could not be identified to species, further hindering the assessment. Despite the mowing, certain forbs were identifiable to species.

Based on the Wetland Determination Data Forms and observations made during the site visits, the newly excluded open field area contains the following wetland indicator plant species: Sensitive Fern, *Onoclea sensibilis* (FACW); Bristly Dewberry, *Rubus hispidus* (FACW); and Cranberry, *Vaccinium oxycoccos* (OBL). Although sedges could not be identified to species, a significant percentage of sedges native to Massachusetts grow in wetland ecosystems and are classified as wetland indicator plant species. The observed abundance of cut sedges was greater within the newly excluded area as compared to upgradient areas to the east and south.

Mowing of vegetation falls under the classification of Problematic Hydrophytic Vegetation.

HYDROLOGY

As depicted on revised maps prepared by Fuss and O'Neill, a constructed ditch has been included within the revised BVW 1 boundary. The constructed ditch is located proximal to and downgradient of the newly excluded area. As stated under under "Section 5 Difficult Situations" of the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region,

"Agricultural and silvicultural drainage systems use ditches, subsurface drainage lines or "tiles," and water-control structures to manipulate the water table and improve conditions for crops or other desired species. A freely flowing ditch or drainage line depresses the water table within a certain lateral distance or zone of influence (Figure 62). The effectiveness of drainage in an area depends in part on soil characteristics, the timing and amount of rainfall, and the depth and spacing of ditches or drains. Wetland determinations on current and former agricultural or silvicultural lands must consider

whether a drainage system is present, how it is designed to function, and whether it is effective in removing wetland hydrology from the area."

An assessment of the construction of the ditch in relation to the hydrology of the newly excluded area was not provided in the November 22, 2022 submittal from Fuss and O'Neill.

Free water within 12-inches was observed within hand dug soil pits located within both the newly delineated BVW and the newly excluded area to the east. It should be noted that heavy rainfall occurred during the prior day/evening and the evaluation took place outside of the growing season. As such, the observation of free water within 12-inches was noted but not necessarily applied as a primary indicator of wetland hydrology.

The remarks section of the Wetland Delineation Data Forms Test Pit #1 states (in part) *"it is likely this soil was previously tilled and may be exhibiting redoximorphic concentrations from past activity."* Recent tilling can result in the loss of observable redoximorphic feature due to soil mixing. However, the area has not been recently tilled and redoximorphic features are observable and have been documented by Fuss and O'Neill. Furthermore, during the November 28, 2022 soil examination, iron concentrations as pore linings were observed. Oxidized rhizospheres were observed along living roots (2% and greater within 12-inches). This is an indicator of contemporary wet conditions and a Primary Wetland Hydrology Indicator (C3).

The presence of a constructed ditch and delineation during prolonged drought conditions falls under the category of Difficult Situations (Land Used in Agricultural and Wetlands That Periodically Lack Indicators of Wetland Hydrology, respectively).

CONCLUSION

Based on the November 22, 2022 data submission by Fuss and O'Neill, the November 28, 2022 site examination, and "Section 5 Difficult Situations", normal conditions are not present within and proximal to the revised BVW 1 boundary. The evaluation of soil, vegetation and hydrology all fall under the category of Difficult Situations.

Based on the methodology required under "Section 5 Difficult Situations" for assessing problematic soils, vegetation, and hydrology, it is the opinion of Stockman Associates that the Burder of Proof to overcome the application of the F.6. Redox Dark Surface Hydric Soil Indicator previously applied to establish the August 2022 BVW 1 boundary has not been met. Furthermore, methodology/data to address problematic vegetation and hydrology has not been submitted to support the revised BVW 1 boundary.

Stockman Associates acknowledges the detailed level of further exploration performed by Fuss and O'Neill, which was greatly hinder by time of year and drought conditions. However, Stockman Associates LLC suggests that the complexity of the area of question requires addition investigation to refute the original August 2022 BVW 1 boundary. Examples of additional examination include, but are not limited to,

- Cease the clearing, cultivation, or manipulation of the site for one or more growing seasons with normal rainfall and examine the plant community that develops.
- Monitor the site in relation to the appropriate wetland hydrology or hydric soils technical standard.

- Estimate the effects of ditches and subsurface drainage systems using scope-and-effect equations (USDA Natural Resources Conservation Service 1997). A web application to analyze data using various models is available at http://www.wli.nrcs.usda.gov/technical/web_tool/tools_java.html.

BVW 2

1) BVW 2 is correctly depicted as a Bordering Vegetated Wetland on the revised figures. Based on the buried hydric soils noted on the Test Pit #4 Wetland Delineation Data Form, and assessment of aerial imagery, the westerly boundary of BVW 2 has been appropriately expanded to incorporate areas of wetland alteration after the "Hatch" Act, Chapter 220, Acts of 1965, adopted March 25, 1965 and the MA Wetlands Protection Act (MA WPA) of 1972.

   Stockman Associates concurs with the revised boundary of BVW 2.

BVW 3

1) The revised figures depict an undefined BVW boundary between flags 3A-114 and 3A-115. As stated in the November 22, 2022 submission by Fuss and O'Neill, "*The boundary of 3A-114 and 3A-115 will be determined during the restoration efforts and therefore this portion of BVW 3 boundary will be excluded from the ANRAD.*"

   Under the ANRAD process, the applicant has the right to request specified boundaries for review and approval. The Conservation Commission responds accordingly under a subsequent ORAD. Stockman Associates LLC recommends that the Commission include findings with the ORAD to clearly address any special circumstances such as excluded boundaries and forthcoming restoration.

IVW 4 and IVW 6

1) Stockman Associates concurs with the revised boundaries of IVW 4 and IVW 6 as depicted on the November 22, 2022 figures. Based on the calculations provide by Fuss and O'Neill, Stockman Associates concurs that IVW 4 and IVW 6 do not meet the size threshold (1,000-SF) for protection as isolated wetlands under the local Town of Shutesbury General Wetlands Protection Bylaw.

IVW 5 and Newly Identified Area of Inundation

1) During the November 28, 2022 site visit, slight modifications were made to the boundary of IVW 5. It is our understanding that Fuss and O'Neill will depict the modifications on revised figures. The slight modifications increased the overall size of IVW 5. Based on field observation, the slight increase to the previously calculated 174-SF will not result in protection under the local bylaw. It is our understanding that Fuss and O'Neill will provide updated calculations for final review.

2) An additional disturbed area of inundation was observed proximal to IVW 5 during the November 28, 2022 site visit. Based on a preliminary assessment the area presented as too small to meet the1,000-SF size criteria for protection under the Town of Shutesbury General Wetlands Protection Bylaw as an isolated wetland. It was also noted that inundated was observed outside of the growing season and after heavy rains the day/night before. It is our understanding that Fuss and O'Neill, at the applicant's request, performed additional assessment after the site visit. It is our understanding that Fuss and

O'Neill will depict the area on revised figures and provide square footage calculations for review.

ANRAD REVIEW AREA

1) The ANRAD submittal has been revised to depict a specified ANRAD Review Area. The entire parcel is no longer the subject of the ANRAD.

2) As previously stated, based on the field review of the westerly property line, a large BVW is located on the abutting property. The boundary of the BVW meanders east and west proximal to the approximated property line.

   The revised ANRAD figures depict an estimated 100-FT Buffer Zone projecting into the ANRAD Review Area. The November 22, 2022 response letter prepared by Fuss and O'Neill states that "*the 100-foot Buffer Zone is shown from the DEP-mapped wetlands. DEP. Mapped wetlands are only shown outside of the ANRAD Review Area in Figure 2 and 3 since these areas were not delineated.*"

   The MassGIS Data: MassDEP Wetlands (2005) website clearly states that "*The wetlands and hydrologic connection information is for **planning purposes only**. The wetlands boundaries shown in these map layers have been determined by photographic interpretation. They do not represent, and should not be used as, wetlands delineations under the Massachusetts Wetlands Protection Act (M.G.L. c. 131 §40) and its regulations.*"

   With prior, similar situations (off property BVW with projected 100-FT Buffer Zone into a review area), the following options have been considered by the Shutesbury Conservation Commission.

   a) The applicant has been requested to seek landowner permission to delineate the off-site BVW.
   b) In the absence of landowner permission, the applicant has been requested to consider a "no-contest" line starting at the property line and projecting the 100-FT Buffer Zone into the review area.
   c) The Commission also has the authority to deem the DEP-mapped wetlands 100-FT Buffer Zone boundary inaccurate.

I trust that the above comments will assist the Commission in their continued review of the previously referenced ANRAD application. Please do not hesitate to contact me with any questions.

Sincerely,

Emily Stockman

Emily Stockman, M.S., P.W.S.
Senior Scientist/Principal
Stockman Associates LLC