



November 13, 2020

Ms. Erin O'Hare, Environmental Planner
Town of Wallingford
45 South Main Street
Wallingford, CT 06492

**RE: 5 and 21 Toelles Road and Wharton Brook – Pfizer, Inc.
Wallingford, Connecticut
MMI #141.11585.00064.001X**

Dear Ms. O'Hare:

Per the request of the Inland Wetlands Commission in the Town of Wallingford, Connecticut (the "Town"), Milone & MacBroom, Inc. (MMI) has reviewed materials submitted in association with the wetland application for Pfizer, Inc. The proposed plan is to excavate and dispose of contaminated wetland soils to a maximum depth of 2 feet within 2.23 acres of wetlands, followed by a wetland restoration (backfill and planting) that will approximate existing conditions. As part of this effort, MMI has reviewed the following materials:

- Plans entitled "21 Toelles Road Wallingford CT Soil Remediation Project," prepared by Woodard & Curran, dated August 27, 2020, and a revised version entitled "5 and 21 Toelles Road Wallingford CT Soil Remediation Project," dated November 2020, with the following attached drawings in each:
 - "Sheet 3, Soil Remediation Project," drawn at a scale of 1 inch = 1,000 feet
 - "Sheet 4, Existing Conditions Plan," drawn at a scale of 1 inch = 50 feet
 - "Sheet 5, Erosion and Sedimentation Controls," drawn at a scale of 1 inch = 40 feet
 - "Sheet 6, Site Preparation and Materials Management," drawn at a scale of 1 inch = 40 feet
 - "Sheet 7, Proposed Excavation Limits of Soil," drawn at a scale of 1 inch = 40 feet
 - "Sheet 8, Site Restoration Plan," drawn at a scale of 1 inch = 40 feet
 - "Sheet 9, Wetland Restoration Plan," drawn at a scale of 1 inch = 40 feet
 - "Sheet 10, Proposed Site Sequencing Plan," drawn at a scale of 1 inch = 40 feet
- "Reference Plan Depicting Site Features and Proposed Regulated Activities," drawn at a scale of 1 inch = 100 feet
- Inland Wetlands Commission – Wallingford, Connecticut Application for Inland Wetlands and Watercourses Permit, prepared for Pfizer, Inc., prepared by Woodard & Curran, dated June 25, 2020
- Inland Wetlands Commission – Wallingford, Connecticut Application for Inland Wetlands and Watercourses Permit Contingency Plan, prepared for Pfizer, Inc., prepared by Woodard & Curran, dated August 2020

- Copy of comment letter forwarded to the applicant from the Environmental Planner, dated August 6, 2020, and response letter from the applicant dated August 27, 2020
- Copy of comment letter forwarded to the applicant from the Environmental Planner, dated August 21, 2020, and response letter from the applicant dated August 27, 2020
- Copy of Connecticut Department of Energy & Environmental Protection (CTDEEP) email correspondence with Wetlands and Remediation Departments between August 14, 2020, and August 27, 2020
- Inland Wetlands Commission – Wallingford, Connecticut Application for Inland Wetlands and Watercourses Permit Soils Report, dated August 25, 2020, with one map sheet titled "Soil Boring Locations"
- Copy of Environmental Planner's Report, dated August 28, 2020
- Copy of 'Scope of Work' for Peer Review, MMI, dated September 15, 2020
- Copy of memorandum forwarded to Janis Small, Corporation Counsel, Law Department by Erin O'Hare, Environmental Planner, Re: Review of Environmental Protection Agency (EPA) document, dated September 29, 2020
- Copy of Environmental Planner's Report, dated October 2, 2020
- Photo Documentation – Floodplain Forest Remediation and Restoration in Southeastern Massachusetts, provided by Woodard & Curran, received by Wallingford IWWC on October 2, 2020
- Copy of comment letter forwarded to the applicant from the Environmental Planner, dated October 7, 2020, and response letter from the applicant dated November 3, 2020
- Copy of minutes from Wallingford Inland Wetlands and Watercourses Commission (IWWC) Regular Meeting of October 7, 2020
- Copy of memorandum forwarded to Janis Small, Corporation Counsel, Law Department by Erin O'Hare, Environmental Planner, Re: Documents for US Army Corps and EPA, dated October 9, 2020
- Inland Wetlands Commission – Wallingford, Connecticut Application for Inland Wetlands and Watercourses Permit Contingency Plan Revision 1, prepared for Pfizer, Inc., prepared by Woodard & Curran, dated November 2020
- Soils Report 5 and 21 Toelles Rd – Revised Soil Borings Locations Figure, dated November 3, 2020
- Copy of image of Wharton Brook Watershed – (site location indicated)

- Copy of Federal Emergency Management Agency (FEMA) 'Flood Hazard' mapping – (site location indicated)
- Copy of FEMA 'Flood Profile – Quinnipiac River' at Toelles Road crossing (1999)

This comment letter has been prepared following a site walk conducted on November 2, 2020, by Matthew Sanford, Professional Wetland Scientist, and Marlee Antill, Botanist, with MMI and accompanied by Senior Technical Practice Leader and Project Manager Lucas Hellerich of Woodard & Curran. Based on the site walk and our initial review of the permit application and supporting materials, MMI has the following comments regarding this permit application:

REVIEW COMMENTS

Wetlands and Watercourses

The wetlands and watercourses on site were visually assessed during our site walk. Palustrine forested floodplain wetlands run along either side of Wharton Brook, a perennial watercourse flowing southwest through the project site. There are small patches of palustrine emergent wetlands present within the restoration area. Varying soil conditions were observed within the floodplain wetland. In wetter areas, the soils had a thick organic layer that was intermixed with distinct layers of sand (deposited alluvium) while other areas consisted of fine sandy loam/loamy sands with less distinct sand layers. Overall, a combination of hydric and nonhydric alluvial soils were observed in the floodplain and depressional areas that border Wharton Brook. Further microtopographic features were noted, including hummocks, rills, mounds, berms, channels, and seasonal seeps.

The majority of the wetland area features a largely closed canopy of tall woody vegetation; however, some open areas exist without trees, mostly atop the drier man-made mounds north of Wharton Brook, which features more shrubs and herbaceous plants. The tree strata features trees ranging from approximately 3 to 22 inches diameter at breast height (DBH) and is dominated by American sycamore (*Planatus occidentalis*), red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*), shagbark hickory (*Carya ovata*), and tuliptree (*Liriodendron tulipifera*), with individual black cherry (*Prunus serotina*) and northern red oak (*Quercus rubra*) more typical in the higher elevation alluvial edges. Common shrubs within the site include spice bush (*Lindera benzoin*), highbush blueberry (*Vaccinium corymbosum*), and sweet-pepperbush (*Clethra alnifolia*). Herbaceous species include bog hemp (*Boehmeria cylindrica*), blue-flag iris (*Iris versicolor*), greenbrier (*Smilax rotundifolia*), crested wood fern (*Dryopteris cristata*), and soft rush (*Juncus effusus*). Numerous invasive species were observed on site, including common reed (*Phragmites australis*), Japanese knotweed (*Fallopia japonica*), garlic mustard (*Alliaria petiolata*), reed canary grass (*Phalaris arundinaceae*), and common wormwood (*Artemisia vulgaris*), among others and range from several individuals to homogenous stands. The invasive plant species were noted in areas that had low to moderately dense overstory canopy.

This wetland has been disturbed in the past as evidenced by existing man-made fill piles and berms that are scattered sporadically through the wetland. A stormwater outfall with riprap plunge pool is located within the central portion of the wetland restoration area and discharges stormwater into the common-reed-dominated part of the wetland. The existing plunge pool may

be undersized for dissipating discharge velocities based on the formation of a gully/channel downstream of the outfall. On the bordering downstream property, an existing brook crossing consisting of twin 60-inch cast iron pipes (CIPs) and concrete headwalls control flooding elevations within the project restoration area. It was noted that one of the 60-inch CIPs was 80 percent clogged with organic debris. The other 60-inch CIP was approximately 10 percent clogged with debris.

Wetland Restoration

Soils

- C1.** The plans and/or project reports are lacking a baseline soil chemistry analysis, including pH, total organic carbon (TOC), and macronutrients (such as available nitrogen and phosphorous) within the project's wetland soils to be excavated. These soil characteristics are extremely important to plant growth and survival. The chemical composition of the topsoil brought on site should reflect ratios of TOC, available macronutrients, and pH that is consistent with the conditions exhibited within the existing soils, which currently support a healthy native floodplain forest. The applicant should provide the targeted soil chemistry requirements for imported topsoil and subsoil for this wetland restoration project. Comments have been raised by the Town regarding the textural class of the existing soils on site versus topsoil and subsoil imports as proposed by the applicant. We recommend that the soil texture for both topsoil and subsoil meet a fine sandy loam to loamy sand textural class. While soil texture is important there are other parameters that are equal or more important for developing a successful restoration project, including maintaining/preserving the existing seasonal hydrologic regime and providing appropriate soils with the necessary chemistry for healthy plant growth. To that end, the proposed grading plan appears to restore the grades (i.e., elevations) to conditions that equal existing site elevations. This grading should promote the preservation of the site's existing hydrologic regime. More information is required to comment on the chemical requirements of the imported topsoil and subsoils for this project.
- C2. The applicant has provided representative photos of previous forested wetland remediation projects that preserved trees similar to the proposed restoration efforts for this project. We are encouraged by the photos that depict intact trees and dripline root system preservation during remediation practices. This approach will likely provide a level of success for preserving the larger trees within the remediation area.

Non-native Invasive Plant Species Management

- C3. The non-native plant species management plan does not provide sufficient detail to assess the potential success or effectiveness of the restoration management goals and/or plan. The plan identifies existing and potentially occurring non-native species within the wetland restoration site but does not attempt to quantify in square feet the area of the project or wetlands currently occupied by these invaders. The non-native species management plan states a goal of "less than 20% (relative to native species)" cover of non-native species after the 10-year monitoring period, but it is unclear how that percentage compares to the current percentage of invasive species on site relative to native vegetation. A map depicting the areas of invasive species and quantification of the species coverage should be provided for review.

- C4. The non-native species management plan does not sufficiently describe the methods that will be implemented to remove invasive species on site. Specifically, a preconstruction invasive species management plan should be developed prior to finalization of the complete site plan. The preconstruction invasive species treatment plan should address the major areas of invasive species on site to be managed as well as species-specific approaches to be taken during project implementation. For instance, common reed (*Phragmites australis*) spreads through underground rhizomes that may grow beyond the soil excavation depth. Does the applicant plan to remove rhizomes that occur below this depth in both the 6-inch- and 2-foot-deep excavation zones? Will invasive species management extend into the adjacent wetlands and uplands that border the restoration area? The spread of invasive species from adjacent areas may be problematic once the site is disturbed. Japanese knotweed and common reed are found in immediately abutting areas. Failure to properly address non-native invasive plant species prior to and during construction can greatly impact the success of the restoration project. The applicant should provide a more refined invasive species management plan tailored to this specific site.

Planting plan

- C5. The planting plan includes a diverse palette of the native species occurring on site. While many of the shade-tolerant species currently growing on site are represented in this plan, one consideration is whether there will be sufficient numbers of shade-intolerant species planted to survive the first few years postexcavation when significant open canopy will leave many of the new plants exposed. Currently, the site features open patches atop subtle hummocks and other rises where there are only a few large trees. These spots may offer further insight into suitable plants to include in an amended planting list. The applicant is to review the planting plan and provide additional shade-intolerant species for areas that will suffer canopy loss.
- C6. The applicant should provide tree protection details for those 15-inch DBH trees that will remain within the wetland remediation area. Damage to tree trunks and roots must be minimized to the maximum extent practicable.
- C7. The project will preserve an undisturbed swath of riparian vegetation along Wharton Brook, which will help protect the brook during construction and serve as a buffer. It is not clear how the double row of silt fence will impact trees along this riparian zone. Did the applicant survey trees along the proposed silt fence line? If trees are present regardless of DBH they should be preserved and silt fence install modified to protect the tree and its root system.

Monitoring

- C8. The monitoring plots proposed (15-foot radius plots established at a density of approximately two plots per acre) are too small to adequately monitor a closed-canopy, topographically heterogeneous community as the one proposed to be restored. We would recommend increasing the number of monitoring plots to four plots per acre.

Plan Drawings

Site topography

- C9. The plan drawings do not cite the origins of the topographic contours presented on the plan drawings; however, it seems possible that they were derived from remote LiDAR or aerial data rather than ground survey. The applicant should perform a more detailed ground survey prior to finalization of the site plan in order to verify existing elevational gradients and capture the existing microtopography on site (including upland islands, rills, unnamed intermittent watercourse) that were observed during our site visit. This baseline information is important to assess the successful return of site conditions to their previous state. All data sources used in the mapping should be cited on the existing conditions plan.

Hydrology

- C10. During the site visit, we reviewed conditions of an off-site brook crossing just west of the project boundary. This crossing consists of twin 60-inch CIPs conveying Wharton Brook west, away from the project site. It was noted that both pipes are significantly obstructed; the river left (facing downstream) culvert had several small dead trees laying in front of the opening while river right culvert was 80 percent clogged with organic debris. The applicant should contact the downstream property owner to coordinate the clearance of these obstructions prior to the commencement of restoration activities in order to reduce potential for backwater flooding of the active construction site upstream.

Erosion and Sediment Control Plan

- C11. From our observations during the site walk, it was noted that the proposed cofferdam site was not exceptionally wide and currently hosts riparian trees and vegetation that would in all likelihood need to be removed in order to accommodate the width of even a modestly sized cofferdam as shown in the applicant's project support materials. In our extensive experience with working within and along watercourses, the best means of controlling water is through less invasive cofferdam alternatives than presented to date. We recommend that the applicant review alternatives such as supersac sandbags or some other similarly maneuverable water control that would preserve more of the bank and riparian buffer. The reestablishment of vegetation of this stature along the channel will take a significant amount of time, especially if the removal of existing trees increases the risk of bank or floodplain erosion.

National Flood Insurance Program (NFIP) Compliance

- C12. The plans appear to propose grading (cut and fill) within a FEMA-regulated floodway. While proposed contours are depicted, no volumetric analysis is provided to ensure that there will be no net fill in the floodway. While the project narrative states the intention to match existing grades, the project plans (from which the project will be constructed) contain no such information. We recommend that a minimum of four cross sections are added to the plan set to depict the intended cut and fills in various locations throughout the floodplain/floodway and that cut/fill volumes be provided.

- C13. Any application that proposes grading within any FEMA regulatory floodway of any watercourse must be accompanied by a computational analysis, performed in accordance with standard engineering practice and procedures, and sufficient to certify that there will be 0.00 feet of change to the floodway water surface elevation. This analysis must be accompanied by a signed and sealed no-rise certification from a professional engineer licensed in the State of Connecticut. Please refer to the Town of Wallingford Zoning Regulations, Section 6.5.C-5 for more information.

CONCLUSION

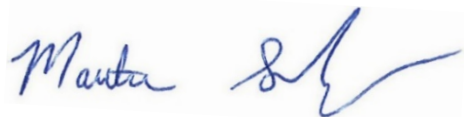
Based on MMI's review of the proposed restoration plan, it is our professional opinion that with certain updates, including the incorporation of soil nutrient and organic carbon levels in the restoration backfill equivalent to those found in existing soil conditions, and a more detailed and comprehensive invasive species management plan, the proposed soil remediation and wetland restoration plan will be successful in limiting net impacts to the existing floodplain forest and achieving ecological enhancements.

The current plan is lacking mention of existing wetland soil chemistry, results, or that of the proposed wetland restoration soil to be backfilled. The invasive species management plan is lacking a quantitative assessment of current invasive species cover and thus justification for the stated goal of "less than 20% (relative to native species)" cover of non-native species after the 10-year monitoring period. The plan also fails to mention how invasive species will be dealt with during the construction phase, which will be critical in later control of invasions. With that being said, we would request the applicant review our comments within this review letter and evaluate designs that would better serve the reestablishment of native vegetation resulting in a more successful restoration of the on-site wetland.

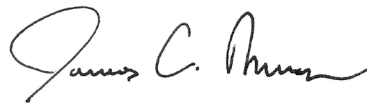
If you have any questions regarding the above, please feel free to contact either of the undersigned at (203) 271-1773.

Very truly yours,

MILONE & MACBROOM, INC.



Matthew J. Sanford, MS, PWS
Manager of Natural Resources Planning



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