



May 25, 2022

Deerfield Conservation Commission  
Deerfield Municipal Offices  
8 Conway Street  
South Deerfield MA 01373

**Re: Notice of Intent Permit Application Review (2)**

Proposed Deerfield Park & Playing Fields – Map 151, Lot 1, 0 North Main Street  
South Deerfield, MA

Deerfield Conservation Commission:

Freshwater Wetland Services (FWS) is pleased to submit this report per your request to review the development proposal response to FWS letter comments dated 4.26.22 as it relates to wetland resource areas associated with the property referenced as Map 151, Lot 1, 0 North Main Street, and as shown on the development plans entitled “Proposed Municipal Park & Fields, North Main Street, South Deerfield, MA”, dated 1.21.22, revised to 5.9.22 prepared by ProTerra Deign Group, LLC, herein referred to as the proposed project plans.

FWS has also reviewed the following documents or portions thereof as they pertain to regulated wetland resource areas as submitted as part of the municipal review process and are entitled as follows:

1. “Notice of Intent Application – Deerfield Park & Playing Fields”, Dated February 2022. (NOI Application)
  - a. “Limited Stormwater Hydrology Report. Under the Town of Deerfield Stormwater Regulations Bylaw, Stormwater Permit Application, and the DEP Stormwater Management Standards. Proposed Municipal Park & Fields”, dated December 13, 2021, prepared by ProTerra Design Group, LLC.
2. Wood Massachusetts, Inc. (Wood) correspondence letter regarding “Civil/Environmental Engineering and Permitting Peer Review Services, Deerfield, MA” dated April 15, 2022 to the Assistant Town Planner.
3. GML Green Miles Lipton, LLP, Letter referenced as “Site Plan Review, Map 151, Lot 1 North Main Street, Comments and Questions from Abutter”, dated March 16, 2022.
4. Chessia Consulting Services, LLC, letter referenced as “Notice of Intent & Stormwater, Map 151, Lot 1 North Main Street, Review for compliance with Stormwater Regulations promulgated by the state Department of Environmental Protection (“DEP”) and the Town of Deerfield Stormwater Regulations, dated April 1, 2022.
5. Chessia Consulting Services, LLC, letter referenced as “Site Plan Review, Map 151, Lot 1 North Main Street, Professional Engineering Review/Site Plan Regulations”, dated April 1, 2022.

In addition, to those documents completed as part of our initial review the following documents have also been included in this review effort.

6. GZA letter referenced as DEP File No. 142-0226 Deerfield Park & Playing Fields, Response to Peer Review Comments”, dated May 3, 2022.
7. GZA letter referenced as DEP File No. 1420226 Deerfield Park & Playing Fields, Clarification of Resources Onsite”, dated May 16, 2022.
8. DEP “Notification of Wetlands Protection Act File Number”, dated February 18, 2022.
9. ProTerra letter referenced as “Peer Review of North Main Street Park by Wood Massachusetts, Inc., Third Letter Dated 05-13-2022 (Town’s Selected Peer Review Consultant) Deerfield, Massachusetts” dated May 17, 2022.
10. Wood letter referenced as “Civil/Environmental Engineering and Permitting Peer Review Services, Deerfield, Massachusetts” dated May 19, 2022.

FWS is currently preparing draft conditions of approval for review by the DCC to consider in their review process and will be submitted separately at a later date. The following shows the original FWS comments in regular type, GZA responses in **BOLD** type, and FWS subsequent responses in *ITALICS*.

#### **DOCUMENT AND REGULATORY REVIEW**

In general, it should be stated that the site design team has presented a thoughtful design for a site that has notable restrictive development parameters. Historically, the property has been utilized as a till agricultural field that regularly disturbed the soil profile, received fertilization, and likely herbicide or pesticide application. In this configuration, there is an informal treatment system of farm ditches and berms which has potential for sediment and nutrient loading of adjacent wetland resource areas. Therefore, the proposed project, done properly, can balance preserving if not enhancing functions and values of wetland resource areas, while providing a community resource.

This concept is reviewed in accordance with the NOI Application and how it complies with the Wetlands Protection Act M.G.L. Chapter 131, § 40, the associated regulations detailed in 310 CMR: 10.00 Wetlands Protection, and associated regulatory guidance, policies, and manuals. This review does not include an engineering review of the stormwater management system or other engineering features. FWS questions and comments regarding the NOI Application are as follows.

1. The proper management of stormwater is a keystone requirement to maintaining the wetland resource areas’ functions and values. It is recommended that the Deerfield Conservation Commission coordinate stormwater management peer review of the proposed project with the Deerfield Planning Board, as they have already retained and received comments from Wood Massachusetts, Inc. as part of a peer review for the Board.
  - a. In this review, it is recommended that all stormwater management and design questions presented by qualified individuals be reviewed and addressed by the applicant.
  - b. FWS recommends that all decisions for approval or denial of the project be held until all peer review of the stormwater design has been completed, including relevant review findings submitted as part of the Planning Board peer review.



- c. Recommended essential items for review include but are not limited to the following.
  - i. Verification of drainage calculations as they relate to groundwater conditions and design assumptions.
  - ii. Evaluation of the potential for downstream impacts to Bank stability and flooding potential.
  - iii. Reviewing the basins, swales, subdrains and other underground stormwater management features design as it relates to shallow groundwater conditions in all seasons to ensure design capacity is achieved.
  - iv. Please clarify if a poly pond liner is specified for the wetland creation/rain garden areas or only the parking area rain garden. If it is to be utilized in the wetland creation areas, please detail the function of this feature in consideration of high groundwater conditions. If these areas are to be constructed differently, please clarify any associated details.
- d. Site observations by FWS indicated that in early spring, a notable portion of the site had inundated conditions due to low stormwater infiltration rates and recent rainfall. These areas were primarily restricted to areas with lower topography or proximity to adjacent wetlands. FWS utilized a hand auger to observe soil conditions and found that a reduced soil matrix profile was near to if just within 12” of the soil or organic surface horizon.

**ProTerra is currently working with Wood Massachusetts, Inc. on review of the stormwater management system. Calculations and mitigation procedures have been provided as recommended above. A poly liner is proposed under the rain garden feature in the parking island due to the proximity of the season high groundwater elevation and the inability to provide additional offset to groundwater without adding more fill. Depending on the type of underground storage system chosen by the contractor under the basketball court (i.e., chambers vs. pipes), a poly liner will be proposed in that area to wrap the storage chambers. In both locations, the liner will be adjusted to be at or above the estimated high groundwater elevation. The other BMP’s such as the constructed stormwater wetlands and wet swale will be unlined.**

*FWS notes that in Wood’s May 19, 2022 Peer Review Letter that all comments have been satisfactorily addressed as it relates to the stormwater management design and submission to the Deerfield Planning Board. In addition to the response to comments from GZA above, this comment has been satisfactorily addressed.*

- 2. The “Limited Stormwater Hydrology Report” test pits and monitoring well locations and data are presented.
  - a. Test Pit Hole #1 – The Soil Suitability Assessment documents that at 7-inches, a soil matrix of 5YR 5/1, and high chroma mottles were noted at 12-inches. Soils with this matrix chroma at that depth are an indicator of hydric soil conditions. As soil by itself does not designate a jurisdictional wetland, it is recommended that a wetland data plot be completed, documented, surveyed onto the project plans, and submitted for review to determine if hydric vegetation or hydrology are also present. Please note, the DOA for the wetland delineation remains valid at this time.



- b. Test Pit Hole #3 – Same comment as presented in item 2.a.
- c. Test Pit Hole #10 – Same comment as presented in item 2.a.
- d. Monitoring wells were noted in the field and their data and location was noted within the NOI Application. The monitoring well data does not indicate the date of observation and if observations are still being made and recorded. If so, it is recommended that this data be supplied once available to fully understand the year-round site subsurface hydrology.

**We concur with FWS that the Site has a valid Determination of Applicability that confirmed the regulated wetlands within the Site boundaries. We acknowledge that it is not uncommon to have anomalies where a few of the soil test pits may be inconsistent with the overall soil characteristics on a given property. However, the valid DOA for the Site means that the wetland boundary is set and cannot be revised for period of three years. Therefore, the wetland limits are approved as valid until 2023 and the request to conduct an additional wetland assessment does not seem reasonable or necessary under the Wetlands Protection Act regulations, 310 CMR 10.00.**

*FWS is in agreement with GZA’s response to this comment as it relates to the validity of the current wetland resource area boundary determination and their “Clarification of Resources Onsite” letter dated May 16, 2022 that addresses the small portion of RA that is contained within the property as it relates to the project design and regulatory requirements. Comments 2a-c have been adequately addressed.*

*Please address item d. of this comment. Please also note if the monitoring wells are included on the project plans. If not, it is recommended that they be added to the existing conditions layer of the project plans.*

- 3. It is noted that the proposed project design maintains the majority of the existing tree line. The project plans depict a fire department access way within the tree line to the north. Please expand upon the intended access from the east of the site, as the access way does not appear to intercept any existing vehicular access.

**The fire department access will follow the paved driveway, parking area, and basketball court. The Town requested to have fire department access just beyond the proposed bleacher area along the south side of the large playing field. A reinforced turf is proposed along the sidewalk to provide a stable surface for the emergency vehicles. The hatched area within the northern tree line is the location of an existing/proposed drainage swale. That location is proposed to be cleaned of debris and re-graded to maintain the drainage pattern toward the western property line.**

*This comment has been satisfactorily addressed.*

- 4. Educational signage is recommended to be designed and located as part of the proposed project. Signage is recommended to be utilized for fertilizer and herbicide treatment, wetland areas, pervious pavement/surfaces, and rain gardens. Signage should be designed to educate the public on LID design features, wetland resource areas, and to create awareness for those who maintain



the fields.

**Based on discussions with the Town, educational signage is planned at the park with final design and installation locations to be determined.**

*FWS recommends that the DCC include this as a condition of approval if granted.*

5. Please detail the functions and values of the wetland system and how they will be preserved, enhanced, or reduced by the proposed project. It is of specific interest how the site will perform as it relates to flood control and nutrient attenuation as it relates to the current use and condition of the land.

**The proposed replacement wetlands are located immediately adjacent to the existing BVW and Bank complex and this proximity is expected to increase the overall wetland habitat in the area and enhance the uses of the area for wildlife. The proposed plantings in the replacement wetlands will uptake nutrients and support the retention of sediment that may enter the basin. These well know functions of a wetland system will result in a positive effect on the existing wetland by increasing habitat. Furthermore, because the replacement wetlands comply with and exceeds the regulatory requirements, the performance standards identified at 310 CMR 10.55(2) are sufficiently protected. The replacement wetlands will benefit one or more of the eight (8) interests of the Wetlands Protection Act.**

*This comment has been satisfactorily addressed.*

6. Please clarify how the site will be utilized during the winter months. Will snow plowing be necessary? If so, it is recommended that snow storage areas be identified, and de-icing methods be listed for review.

**At this time, the playing fields will be used during spring, summer, and fall seasons. It is not anticipated that full utilization will occur during winter months. This would mean that the park would be available for walking, snowshoeing, or special events such as ice skating if made available. These uses would likely have significantly less parking demand than athletic fields. If plowing will occur, there are areas near the basketball court and along the southeast side of the parking lot for snow storage which leaves more than enough parking for daily visitors and small events.**

*The response to this comment indicates that it is not anticipated but there is potential for winter use of the site. FWS recommends that the site plan show the limits of the snow storage area as well as include signage on-site as to its location for reference for plow crews. This will aid in preventing snow and related treatment mediums to not be directly piled in adjacent wetlands and stormwater management features and in an appropriate location for protection of site resources. FWS recommends that this requirement be reflected in the conditions of approval if granted.*



7. This project requires that a Stormwater Pollution Prevention Plan (SWPPP) be submitted prior to the start of construction. FWS recommends that the Conservation Commission be provided a copy of this document as well as all inspection reports in a timely manner. This may be included as a condition of approval if the DCC so desires.

**Erosion control notes have been added to the plans providing directions for the contractor on temporary and permanent erosion controls at the project site. Because the total project disturbance area is above one acre, the awarded Contractor will be required to create a Stormwater Pollution Prevention Plan (SWPPP) and obtain coverage under the EPA's General Permit for Discharge from Construction Activities prior to starting construction. Specifications for erosion control and the SWPPP will be prepared for the public bid process for the selected contractor to complete.**

*FWS finds that this comment has been satisfactorily addressed and recommends this requirement be included as a condition of approval if granted. It is recommended that the condition shall include the submission and DCC review of the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan (CPPPP) required by Standard 8 (310 CMR 10.05(6)(k)) as recommended by DEP review comment #2 in their 2.28.2022 file number comments.*

8. FWS recommends that trees and shrubs be additionally planted for mitigation to the north of wetland flag A17B, extending east within the tree line where there is a path, an area void of woody vegetation in this area. This will aid in enhancing the biological stormwater system as well as establish native vegetation to outcompete the establishment of invasive species within this cleared area.

**ProTerra will take this suggestion under advisement and consult with the Landscape Architect who prepared the planting plans.**

*This comment remains to be addressed.*

9. Per Woods 4.15.22 letter, Item 36, FWS agrees with the management of invasive species. However, the rain garden/basin areas are not included in this required mitigation process of review and reporting, as they are not considered wetland replication areas. Therefore, FWS recommends that a condition of approval requires that the site be monitored for invasive species for a period of 2-years post construction. Post 2-years, the Operation and Maintenance Plan for the site should include provisions for managing invasive species within the stormwater management system.

**GZA agrees with FWS that the rain gardens and stormwater basins should be incorporated into an invasive species management plan for the first two (2) years post-construction. We propose that for a period of 2-years, monitoring of the stormwater system shall be conducted monthly during the growing season (i.e., April 15 to November 1). During these monitoring events, a qualified individual will identify the approximate location and density of invasive plant species including, but not limited to, Oriental bittersweet, multiflora rose, Tartarian honeysuckle, glossy**



buckthorn, etc. To support proper identification and reporting of these commonly invasive species, the monitor will carry USDA NRCS Plant Fact Sheets. GZA recommends that herbaceous invasive vegetation be pulled by hand when observed during the monthly observations. Woody vegetation should be cut by hand and flush to the ground level. It is the intention of this plan to avoid herbicide use within the stormwater system.

*FWS recommends that the measures presented in GZA's response to comment be added to the project plans as well as the DCC includes these measures as a condition of approval if granted.*

10. FWS recommends that the methods or regulatory guidelines for invasive species control be specified.

**The proposed methods are included in the response to item 9 above and are similar in methods and purpose to the 2004 Massachusetts Strategic Recommendations for Managing Invasive Plants in Massachusetts.**

*This comment has been satisfactorily addressed.*

11. FWS recommends that the Operations and Maintenance Plan be prepared and submitted as part of this review. This will ensure that the long-term maintenance items are performed in a manner that maintains the functions and values of wetland resource areas on the property. If the applicant and Commission decide that it is not feasible or prudent to present this document for review at this time, it is recommended that it be submitted for review and approval prior to the start of construction. This may be included as a condition of approval.

**GZA suggest the following items be considered as part of the Operation and Maintenance Plans for the Project: 1) Conduct periodic observations of the above ground stormwater management system for the establishment of invasive species. 2) Remove observed invasive plant species by hand or cut flush to the ground level. 3) If a large population is observed (greater than 200 square feet) a licensed herbicide applicator will be contracted to develop a plan for species control, and we anticipate that a focused application of herbicide will quickly control the expanding invasive plant population. Because the removal and treatment methods are directed at newly observed invasive species, we expect that the proposed management will be effective to reduce or eliminate the invasive plant populations. Based upon our experience with vegetation management practices, we have seen that suppressing the invasive population allows the native or non-invasive plants species to increase and reduce the chance for re-emergence of the invasive plants.**

*FWS recommends that the measures presented in GZA's response to comment be added to the project plans as well as the DCC includes these measures as a condition of approval if granted.*

12. FWS recommends a decision be withheld until the Planning Board has decided on the request to waive the requirement for 4-inch caliper trees. If the waiver is granted, revised plans shall be submitted for review and approval. FWS does not see a significant benefit to the installation of



larger trees. However, in lieu of planting larger trees, a greater number of woody plantings may be substituted to achieve the required cover. This cover may also include shrub species to create enhanced vertical stratification.

**The Applicant has requested a waiver on the 4-inch caliper trees and will provide revised plans with updated sizes if the waiver is granted for construction.**

*Please confirm that the most recent plans include the sized trees that are proposed to be planted. FWS recommends that the final landscape plans be reviewed prior to closing the hearing to ensure that adequate mitigation plantings are provided.*

13. FWS recommends that the applicant verify the details of the potential point source discharges per the Stormwater Management Regulations Standard 1 comments from Chessia Consulting Services, LLC, 4.1.22 DEP review letter. It is depicted on the Utility Project Plans that multiple pipe outlet stormwater flows to an existing stream channel and would qualify as point source discharges. The details for the outfall were not observed. Please clearly present the construction details for these outfalls so that it may be determined if they should be considered point source discharges and accounted for as such. Please modify the NOI Application and fee calculation sheet to reflect such findings.

**ProTerra is currently working with Wood Massachusetts, Inc. on review of the stormwater management system. Calculations, mitigation procedures, and details have been provided at the pipe outfall locations as recommended above.**

*FWS notes that in Wood's May 19, 2022 Peer Review Letter that all comments have been satisfactorily addressed as it relates to the stormwater management design and submission to the Deerfield Planning Board. Please define the number and location of point source outfalls and modify the NOI Application as necessary.*

#### 14. General Plan Notes

- a. Please verify the construction sequence as it relates to the stabilization of the wetland creation/rain gardens, specifically as it relates to seed germination and preventing excessive inundation until germination. These areas are proposed to be excavated to below the reported level of seasonal high groundwater.

**During our soil testing, which occurred outside of the seasonal high groundwater season, the observed groundwater level was recorded at a depth of 23" or greater below grade. The seasonal high groundwater for design was estimated based the presence of redoximorphic features and confirmation by test wells. Based upon the anticipated timeline of construction, we anticipate the majority of earthwork to occur in the Summer or Early fall where seasonal groundwater would be lower and allow construction without dewatering. We anticipate the wetland replication area and stormwater management construction to occur early in the process to allow sufficient time from stabilization prior to impervious surfaces being added. Also, standard requirements of the monitoring of**



**the replication area requires inspections for a two year time period which will ensure proper germination.**

*FWS notes that the Test Pit data (TP#1, TP#2, TP#14) indicate that seasonal high groundwater is at 12-18 inches in the area of the westerly rain gardens and wetland replication area. Please clarify the findings of a depth of 24-inches as presented in the response to comment.*

*It is also noted that these areas are proposed to have a reduction in grade of a minimum of 12-inches and the adjacent BVW is at an elevation of approximately 209. Due to the potential for encountering groundwater during times of year with high groundwater, it is recommended that GZA's recommendations as it relates to construction timing be included in the project plans in addition to listed as a condition of approval if granted. These rain garden areas, while stormwater management features, are also intended as habitat and wetland buffer zone mitigation features and ensuring proper stabilization aids the protection of existing and proposed wetland areas.*

- b. FWS recommends that the applicant detail and submit for review specific project sequencing and the location for temporary stormwater control areas.

**Section 2 of the “Limited Stormwater Hydrology Report” provides a construction phasing outline for the project. Be-cause the total project disturbance area is above one acre, the contractor shall create a Stormwater Pollution Prevention Plan (SWPPP) and obtain coverage under the EPA’s General Permit for Discharge from Construction Activities prior to starting construction. The SWPPP document prepared by the contractor shall follow specifications for erosion control prepared for the public bid process for the selected contractor to complete which will address phasing requirements.**

*FWS finds this comment to be addressed, however, FWS also recommends that a note or depiction be added to the plans that specifies that wetland creation areas and other initially constructed features shall be protected from sedimentation during construction. This may also be included as a condition of approval if granted.*

#### 15. New Comments.

- a. ProTerra May 17, 2022 letter includes a blow-up plan of the “Basin Between Fields” showing a base elevation of 210. The base elevation shown is likely in error, however, the contour differs from that shown on the most current project plans with a revision date of 5.9.22. It is recommended this deviation be confirmed for accuracy for depiction on the project plans.
- b. The basin referenced in item 15.a. appears to not have been included on sheet LS-1 of the project plans. A walkway and tree plantings are shown in the location of the basin. It is recommended this deviation be confirmed for accuracy and depicted on the project plans.
- c. A proposed gravel path is proposed around most of the site. In the southwesterly portion of the site the path is proposed to be at elevation 209, the same elevation as the existing



wetland and where test pits indicated groundwater would be within the elevation of the gravel path design. FWS recommends considering if this portion of the path may require alternative drainage methods to ensure year-round usability. FWS recommends that if the applicant concurs, that a detail be added to the plans for how these high groundwater path areas will be constructed for clarification and accurate construction bidding efforts.

- d. FWS recommends that a wetland scientist be on-site during the construction of the wetland replication areas and is preparing a draft condition for consideration by the DCC regarding specific requirements for inspection. Essentially, inspections are recommended be completed when sub-grade and final grade are established, and plantings are being installed.
- e. FWS recommends that note 10 on sheet ES-1 be expanded to specify that concrete washout may not be discharged to any wetland resource areas.
- f. Due to the high groundwater site conditions, it may be financially beneficial to install groundwater monitoring wells in areas of the site that require specific groundwater elevations as part of construction to be successful: wetland replication areas, rain gardens, etc. This will aid in reducing design elevation field changes as test pits and well data indicate high groundwater outside of the seasonal high groundwater period. This may be a good project for a local education organization to reduce costs. Local professionals may also be obtained for this effort.

However, if the DCC finds this impracticable due to project timing or available budget, it is essential that the required professionals be onsite during the excavation of these sensitive areas and be provided with the opportunity to make field changes accordingly. This may be included as a condition of approval if granted.

FWS finds that additional data submission and ensuring plan accuracy is recommended prior to closing the public hearing to allow for a comprehensive review of the application. FWS will review and commend accordingly once submitted. In addition, as stated, FWS will create draft conditions of approval for the DCC to consider after the 5.26.22 meeting and receiving the remaining responses to comments. As always, please feel free to contact me at 413-695-2195 or freshwaterwetland@gmail.com with any comments or questions.

Sincerely,



KATE BEDNAZ, PWS #1906  
FRESHWATER WETLAND SERVICES  
Registered Soil Scientist | President

