KEENE DILLANT-HOPKINS AIRPORT

WILDLIFE PERIMETER FENCE PROJECT

DRAFT ENVIRONMENTAL ASSESSMENT

JUNE 2025

NHDOT PROJECT #: SBG 08-28-2023

Prepared by:

McFARLAND JOHNSON

KEENE DILLANT-HOPKINS AIRPORT

New Hampshire DOT Department of Transportation

This State Block Grant Program Environmental Assessment becomes a final document when evaluated, signed, and dated by this responsible New Hampshire Department of Transportation Bureau of Aeronautics Official.

_____ _____

Michelle L. Winters
Director of Division of Aeronautics, Rail & Transit
New Hampshire Department of Transportation

Date

(This page is intentionally left blank)

Table of Contents

List of Tables

List of Figures

List of Appendices

Acronyms and Abbreviations

AC	Advisory Circular
ADG	Airplane Design Group
AGQS	Ambient Groundwater Quality Standard
AIP	Airport Improvement Plan
ALP	Airport Layout Plan
ALS	Approach Lighting System
AOA	Aircraft Operations Area
APE	Area of Potential Effect
ARM	Aquatic Resource Mitigation Fund
BFE	Base Flood Elevation
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
BOA	Bureau of Aeronautics
CAA	Clean Air Act
CATEX	Categorical Exclusion
CLOMR	Conditional Letter of Map Revision
CLS	Conservation Land Stewardship Program
CWA	Clean Water Act
DHR	New Hampshire Division of Historical Resources
EA	Environmental Assessment
EEN	Keene Dillant-Hopkins Airport
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
GA	General Aviation
GMP	Groundwater Management Permit
ILF	In-lieu Fee
IPaC	Information for Planning and Consultation Website
LAC	Local River Management Advisory Committee
LCHIP	New Hampshire Land and Community Heritage Investment Program
LCIP	Land Conservation Investment Program
LF	Linear Feet
LUST	Leaking Underground Storage Tank
LWCF	Land and Water Conservation Fund

MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
MPU	Master Plan Update
NAAQS	National Ambient Air Quality Standards
NAVAID	Navigation Aid
NEPA	National Environmental Policy Act
NFHL	National Flood Hazard Layer
NFIP	National Flood Insurance Program
NHB	New Hampshire Natural Heritage Bureau
NHDES	New Hampshire Department of Environmental Services
NHDOT	New Hampshire Department of Transportation
NHFG	New Hampshire Fish and Game Department
NHGP	New Hampshire General Permit
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPAIS	National Plan of Integrated Airports System
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OE/AAA	Obstruction Evaluation / Airport Airspace Analysis
OHWM	Ordinary Highwater Mark
OPUF	On-Premise Use Facilities
PEM	Palustrine Emergent
PFO	Palustrine Forested
PRA	Priority Resource Area
PSS	Palustrine Scrub-Shrub
PUB	Palustrine Unconsolidated Bottom
ROD	Record of Decision
ROFA	Runway Object Free Area
RPR	Request for Project Review
RSA	Runway Safety Area
RVZ	Runway Visibility Zone
RW	Runway
SBGP	State Block Grant Program
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SRE	Snow Removal Equipment
SWQPA	Shoreland Water Quality Protection Act
TCB	Tricolored Bat
THPO	Tribal Historic Preservation Office
TLOFA	Taxilane Object Free Areas
TMDL	Total Maximum Daily Load

TOB	Top of Bank
TOFA	Taxiway Object Free Areas
TW	Taxiway
UIC	Underground Injection Control
USACE	United State Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WAP	New Hampshire Wildlife Action Plan
WHPA	Wellhead Protection Areas
WOTUS	Waters of the United States

1. Introduction

The National Environmental Policy Act of 1969 (NEPA) requires federal agencies to assess the environmental effects of their proposed actions prior to making decisions. The City of Keene has prepared this Environmental Assessment (EA) document to satisfy the NEPA requirements for a proposed safety improvement project at the Keene-Dillant Hopkins Airport (EEN, or the Airport). The information and documentation herein are intended to evaluate the potential foreseeable social, economic, and environmental consequences associated with the installation of approximately 17,211 linear feet (LF), or roughly 3.26 miles of proposed wildlife exclusion fence along portions of the eastern, western, and northern perimeter of the airfield.

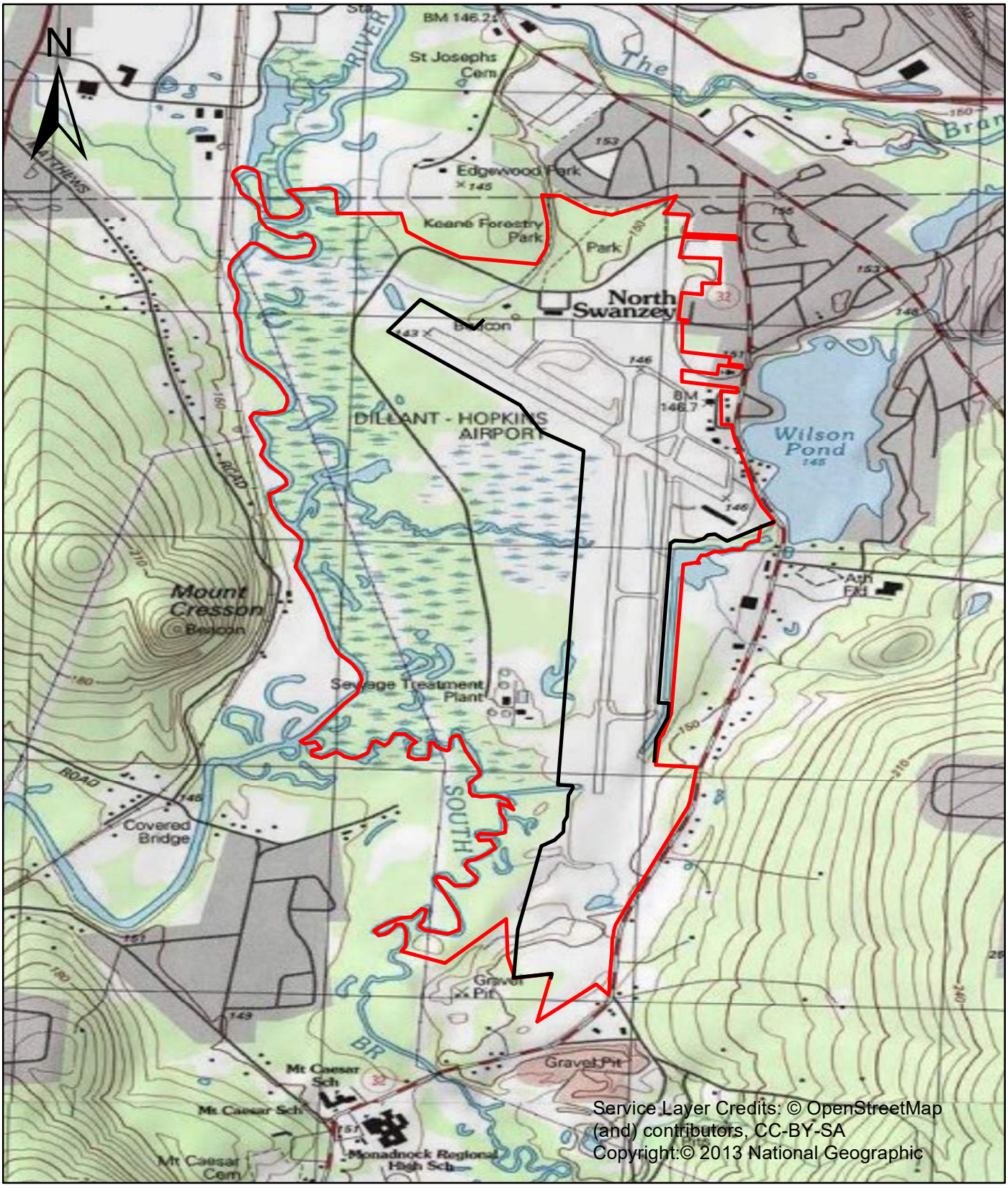
1.1. AIRPORT LOCATION & GENERAL INFORMATION

EEN is located in Cheshire County in the Town of Swanzey, New Hampshire, in the Monadnock Region, in the southwestern corner of the state (**Figure 1-1**). The Airport is located approximately 1.5 miles south of the City of Keene's Downtown Center, and provides a gateway to southwestern New Hampshire for tourists, businesspeople, and aviation enthusiasts. The Airport property is bound by the Ashuelot River and South Branch Ashuelot River to the west, residential development and the Keene-Swanzey town line to the north, and Old Homestead Highway (NH Route 32) to the east and south.

The Airport is classified as a Regional General Aviation (GA) Airport under the National Plan of Integrated Airports System (NPIAS). General aviation airports include both public- and private-use airports that do not have scheduled service or have less than 2,500 annual passenger boardings (49 USC 47102(8)). Regional GA Airports typically support regional economies by connecting communities to regional and national markets, and are generally located in metropolitan areas, serving relatively large populations. Regional airports have high levels of activity with some jets and multiengine propeller aircraft.

1.2. EXISTING FACILITIES

The Airport has two runways: Runway (RW) 2-20, the primary runway, measures 6,201 feet long and 100 feet wide, while Runway 14-32, the crosswind runway, is 4,001 feet long and 150 feet wide, with a 1,100-foot displacement on the Runway 32 approach, resulting in 2,901 feet of available runway for landing aircraft. Additional airside facilities include existing taxiways/taxilanes, navigation aids (NAVAIDs), runway lighting, instrument approaches, and Approach Lighting System (ALS). Landside facilities include 10 conventional hangars, 52 T-hangars units housed in three buildings, apron pavement areas, terminal building, Snow Removal Equipment (SRE) and maintenance building, fueling facilities, and parking areas. Airport property also contains portions of Airport Road, the City of Keene Wastewater Treatment Plant, and a solar farm. The existing Airport layout and facilities are depicted on **Figure 1-2**. The Airport has existing 8-foot-high chain link fence topped with three strand barbed wire around the portions of the northern, eastern, and southern perimeter of the airfield. However, the entire western side and a section along the eastern side of the airfield are currently unfenced.



EEN Airport Property Boundary

Preferred Alternative Fence Alignment

0 2,000 4,000

Feet

KEENE DILLANT-HOPKINS AIRPORT

PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

USGS LOCATION MAP

SCALE :	DATE :	FIGURE :
1 inch = 2,000 feet	MAY 2025	1

McFarland Johnson

K:\Keene\T-18956.01 Wildlife Perim Fence Ph I\Draw\GIS\NEPA EA Figures\CHAPTER 1\Figure 1-1 - USGS Location Map REV1.mxd

EEN Airport Property Boundary

Town Boundary

Preferred Alternative Fence Alignment

Existing Fence

Roads

Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)
NH DOT Roads (Source: NH GRANIT, 2023)

0 1,000 2,000
Feet

KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

AERIAL MAP

SCALE :	DATE :	FIGURE :
1" = 1,000'	May 2025	1-2

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\NEPA EA Figures\CHAPTER 1\Figure 1-2 - Aerial Map REV1.mxd

1.3. ROLES, RESPONSIBILITIES, AND FUNDING FOR THE PROPOSED SAFETY IMPROVEMENTS

The Airport is owned and operated by the City of Keene. The Airport/City of Keene is the project sponsor or proponent. In New Hampshire, the nonprimary airports in the NPIAS, including EEN, are included in the Federal Aviation Administration's (FAA) Airport State Block Grant Program (SBGP).

The FAA initiated the SBGP in 1989, which enabled certain states to assume the responsibility of administering federal Airport Improvement Plan (AIP) grants and project administration at nonprimary commercial service and GA airports. The State of New Hampshire, through its Department of Transportation (NHDOT) – Bureau of Aeronautics (BOA), was selected by the FAA's New England Region to be a member of the FAA's Airport SBGP in 2008. The state's inclusion into the SBGP enables NHDOT BOA to act as an extension of FAA's New England Region. The BOA provides input and decisions on project-related issues and questions, and the FAA provides input only upon request. The BOA continues to utilize FAA regulations, guidance, and policies to implement projects within the SBGP.

Because FAA does not retain funding for, or approval of SBGP actions, actions under the SBGP technically do not qualify as federal actions. Nevertheless, FAA determined it to be good environmental policy and stewardship to require SBGP states that are not subject to state laws comparable to NEPA to consider the environmental consequences that SBGP actions would cause. As a result, each SBGP has contractually committed to consider the environmental effects of their actions, meet the requirements of NEPA, and special purpose laws outside NEPA that would have applied to the actions, had FAA been responsible for those actions. New Hampshire does not have a state law that is functionally equivalent to NEPA.

Acting as the agency responsible for AIP grant administration, NHDOT BOA is the principal agency responsible for the implementation of NEPA with regard to airport development projects at nonprimary commercial service and GA airports in New Hampshire. NHDOT BOA is responsible for overseeing the NEPA process and is responsible for issuing the determinations of significance regarding potential environmental impacts associated with proposed actions. Because NHDOT acts as FAA in this capacity, any reference to the term "FAA" regarding NEPA requirements is interchangeable with "NHDOT." For the purposes of this document, New Hampshire SBGP officials are responsible for issuing a determination with regard to proposed airport actions.

1.4. NATIONAL ENVIRONMENTAL POLICY ACT REQUIREMENTS

The Proposed Action includes approval of the revised Airport Layout Plan (ALP) to include the new fence and federal funding through the SBGP. This EA has been developed to satisfy the terms of the SBGP contractual agreement, and was prepared pursuant to the FAA's orders and guidance documents outlining the FAA's policies and procedures for compliance with NEPA and implementing the regulations including, FAA Order 1050.1F, *Environmental Impacts Policies and Procedures* (July 2015) and FAA Order 5050.4B, *National Environmental Policy Act Implementing Instruction for Airport Projects* (April 2006).

Under FAA Order 1050.1F, Paragraph 5-6.4(f), construction and Airport Layout Plan (ALP) approval of fences is typically categorically excluded unless Extraordinary Circumstances (listed in Paragraph 5-2) apply. Extraordinary Circumstances include conditions that may cause a proposed action, which would otherwise qualify for a categorical exclusion (CATEX), to have significant environmental impacts. A preliminary review suggested this project may affect specific Extraordinary Circumstances, prompting this EA.

An EA is a concise public document prepared under NEPA to evaluate the potential environmental impacts of a proposed federal action. The EA evaluates and analyzes the effects of a proposed action on environmental resources, identified potential adverse impacts, and proposes mitigation measures, to determine in impacts are significant.

Upon review of this EA, if the NHDOT BOA determines that the Proposed Action has no significant impacts or that impacts can be mitigated below significant thresholds, a Finding of No Significant Impact (FONSI) would be issued, concluding the NEPA process and allowing the project to proceed. If significant impacts remain after mitigation, an Environmental Impact Statement (EIS) would be required.

2. Purpose and Need

The Purpose and Need Statement provides justification for the project based on the problem(s) that the project intends to address and provides the basis for evaluating the effectiveness of the alternatives.

2.1. PURPOSE

The purpose of the proposed action is to improve aviation safety at EEN by reducing the potential for wildlife strikes, particularly with large mammals such as white-tailed deer (*Odocoileus virginianus*), in a manner that is cost feasible, environmentally practicable, effective, and that does not impede Airport operations.

2.2. NEED

The need for the project is to reduce wildlife incursions into the Air Operations Area (AOA)[1] and to reduce the number of related wildlife strikes and associated property damage and potential human injury in accordance with FAA Airport Sponsor Grant Assurances No. 19 and 20 that state, in part:

> 19. *Operation and Maintenance. a. The airport and all facilities which are necessary to serve the aeronautical users of the airport, other than facilities owned or controlled by the United States, shall be operated at all times in a safe and serviceable condition and in accordance with the minimum standards as may be required or prescribed by applicable Federal, state, and local agencies for maintenance and operation. It will not cause or permit any activity or action thereon which would interfere with its use for airport purposes.*
>
> 20. Hazard *Removal and Mitigation. It will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards.*

[1] This area includes aircraft movement areas [runways, taxiways, aprons], aircraft parking areas, loading ramps, and safety areas, for use by aircraft regulated under 49 CFR parts 1542, 1544, and 1546, and any adjacent areas (such as general aviation areas) that are not separated by adequate security systems, measures, or procedures.

Since the Airport has been the recipient of past FAA grants, the Airport Sponsor is subject to additional requirements outlined in FAA Advisory Circular (AC) 150/5220-33C, that states, in part:

> 1.1.1. Airport *operators should maintain an appropriate environment for the safe and efficient operation of aircraft, which entails mitigating wildlife strike hazards by fencing, modifying the landscape in order to deter wildlife, or by hazing or removing wildlife hazardous to aircraft from congregating on airports.*

There is a well-documented and urgent need to protect human life and property from hazardous wildlife interactions at the Airport. The development of the Purpose and Need Statement is based on existing conditions, EEN wildlife strike data, observations of wildlife on the AOA, a recent Wildlife Hazard Site Visit completed in June 2024, and current guidance from the FAA.

2.2.1. Existing Perimeter Fence at EEN

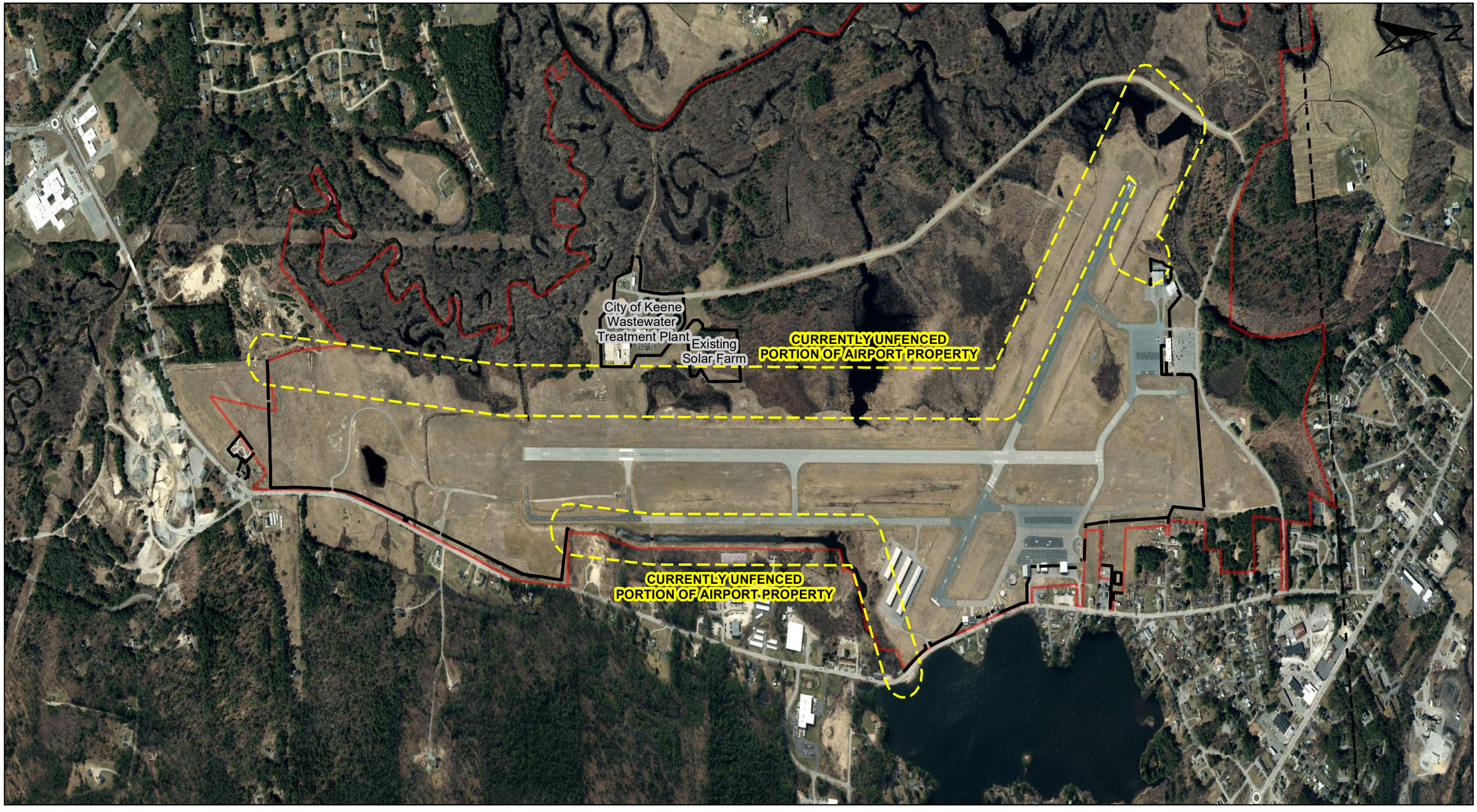
The Airport is currently partially enclosed by an 8-foot-high chain link fence topped with three-strand barbed wire. The existing fence is located along the northern, southern, and portions of the eastern sides of the airfield. There is also an existing 6-foot-high chain link fence surrounding a recently constructed solar farm (no barbed wire) on the west side of the airfield. The City of Keene Wastewater Treatment Plant is located west of Runway 2-20 and has an 8-foot-high chain link fence topped with three-strand barbed wire surrounding the facility. However, approximately 12,000 LF along the western and northwestern sides of the airfield and 4,200 LF along the eastern side of Airport property are currently unfenced. **Figure 2-1** shows the existing chain link fence as well as the currently unfenced areas surrounding the airfield. These large gaps in the existing perimeter fence allow potentially hazardous wildlife, primarily white-tailed deer, unrestricted access into the AOA, posing a potential safety risk to aircraft operations.

2.2.2. Wildlife Strikes at EEN

EEN reports wildlife strikes to the FAA via submittal of Form 5200-7, *Bird/Other Wildlife Strike Report*. According to the FAA's Wildlife Strike Database (https://wildlife.faa.gov/home), between June 2004 and June 2024 there have been 11 reported wildlife strikes at EEN. Three of these strikes (27.3 percent) involved white-tailed deer, while the remaining eight (72.7 percent) were associated with Canada geese (*Branta canadensis*) and other unknown bird species.

The most recent incident involving a white-tailed deer at EEN occurred on November 11, 2019, when a Bombardier BD-100-1A10 aircraft struck a deer on RW 2 while completing its landing roll. The collision resulted in damage to the landing gear of the aircraft. No injuries were reported. However, the deer did not survive the strike.

On May 11, 2016, a second incident involving white-tailed deer occurred when two deer entered RW 2 while an aircraft was completing its landing roll. The plane struck one of the deer, exited the right side of the runway and nosed over. The airplane sustained substantial damage to the vertical stabilizer and rudder. Injuries to the pilot and passenger were minor.



EEN Airport Property Boundary

Town Boundary

Unfenced Areas

Existing Fence

Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)
New Hampshire Political Boundaries (Source: NH GRANIT, 1992)

0 1,000 2,000
Feet

KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

EXISTING FENCE

SCALE :	DATE :	FIGURE :
1" = 1,000'	May 2025	2-1

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\NEPA EA Figures\CHAPTER 2\Figure 2-1 - Existing Fence REV1.mxd

The third incident involving a white-tailed deer occurred on July 10, 2009. No additional documentation regarding this incident was available.

The Airport documents occurrences of wildlife interactions on the airfield in a Wildlife Log. According to the Airport's Wildlife Log, between January 2019 – June 2024[2], there were a total of 133 occurrences of Canada Geese, 128 occurrences of white-tailed deer, 78 occurrences of eastern wild turkey (*Meleagris gallopavo silvestris*), 18 occurrences of red fox (*Vulpes vulpes*), six occurrences of eastern coyote (*Canis latrans var.*), and one occurrence of a moose (*Alces alces*) on the airfield. In most cases wildlife was either chased or scared off using vehicles or acoustic deterrents, but occasionally lethal controls were required.

2.2.3. Wildlife Hazard Site Visit

Loomacres Wildlife Management (Loomacres) completed a Wildlife Hazard Site Visit at the Airport in June 2024. The purpose of a Wildlife Hazard Site Visit is to provide an abbreviated analysis of an airport's wildlife hazards, determine if a Wildlife Hazard Assessment is warranted, and provide actionable information that allows the airport to expedite mitigation of the hazards identified.

In their Final Wildlife Hazard Site Visit Report, dated July 10, 2024 (Appendix A), Loomacres recommended that EEN construct a perimeter fence around the airfield to deter wildlife. The large gaps in the existing perimeter fence leave expansive openings where wildlife can enter the airfield with unrestricted access to the AOA. These gaps are recommended to be eliminated by constructing additional fencing that would provide a continuous barrier around the entire AOA, resulting in a more effective wildlife barrier and deterrent.

Loomacres also recommended that the proposed perimeter fence should exclude as much wetland, forested, and tall grass habitats inside the fence as possible. These areas of habitat act as wildlife attractants on the airfield. In addition, minimizing wildlife habitat inside the fence would make it easier for EEN maintenance and operations staff to monitor the airfield for wildlife and find and remove hazardous wildlife in the event wildlife becomes trapped inside the fence.

A minimum fence height of eight feet with three-strand barbed wire was recommended, per FAA guidance.

2.2.4. Wildlife Hazards and FAA

The FAA issued the *National Part 139 CertAlert No. 16-03, Recommended Wildlife Exclusion Fencing*, dated August 3, 2016, which provided guidance and recommendations to airports across the United States on airfield exclusion methods for deer and other large mammals. In the memo, the FAA identifies deer and coyote as the most frequently struck terrestrial mammals and

[2] No data available for 2021

emphasizes the importance of controlling deer and other medium to large terrestrial mammals around airfields.

The FAA recommends proper fencing as the best way of keeping deer and coyotes off aircraft movement areas. According to the memo, "The FAA recommends a 10-foot fence with three-strand barbed wire outriggers. In some cases, an airport may be able to use an 8-foot fence with three-strand barbed-wire outriggers, depending on the amount of deer activity in a local area." The fence should also be constructed of a material that is difficult to penetrate and should be constructed fully around the airfield without any gaps either between fence and gate sections or beneath the fence. The FAA notes that deer and coyotes can fit through very small gaps between gates and under fencing. Deer have been observed squeezing through a 7.5-inch gap at the bottom of a fence.

The need for the proposed action is evident based on the history of wildlife strikes and observations at EEN, deficiencies in the existing fence, and the FAA's requirements, recommendations, and guidelines.

3. Alternatives

This chapter describes the alternatives evaluated for the proposed wildlife perimeter fence project and outlines the rationale for selecting the proposed action. The alternatives were evaluated against the Purpose and Need Statement in **Chapter 2** while minimizing environmental, social, and economic impacts.

The alternatives considered include:

- **No-Build Alternative**
  The alternative maintains existing conditions without constructing additional perimeter fence.

- **Runway Object Free Area (ROFA) Alternative**
  This alternative provides a fence alignment based on FAA safety requirements and standards. The fence alignment along the west side of RW 2-20 and RW 14-32 is constrained by and roughly follows the ROFA along the majority of its length. Therefore, this alternative is referred to as the ROFA Alternative.

- **Airport Road Alternative**
  This alternative provides a fence alignment that follows Airport Road along the northwest and northern sides of the Airport. This alternative was considered in concept but was not selected for the reasons discussed herein.

While the ROFA Alternative is presented as a single alternative herein, the ROFA Alternative underwent an extensive analysis and multiple refinements to the fence alignment during preliminary design. The fence alignment on the airfield was constrained by FAA safety design standards and protection zones including, Runway Safety Areas (RSA), ROFAs, Runway 14 Visual Approach, the Runway Visibility Zone (RVZ), Taxiway Object Free Areas (TOFA), and Taxilane Object Free Areas (TLOFA). These constraints were balanced with engineering feasibility, environmental resources and impacts, wildlife exclusion effectiveness, input from various stakeholders, and recommendations from the Wildlife Hazard Site Visit Report, which emphasized minimizing the amount of suitable wildlife habitat enclosed inside the fence. These design refinements and constraints are discussed in greater detail in the following sections.

3.1. BACKGROUND

The 2017 *Dillant-Hopkins Airport Master Plan Update* (MPU) evaluated two preliminary fence alternatives:

- **Alternative 1:** Follow Part 77 Primary Surface

- **Alternative 2:** Follow Airport Road

The approximate locations of the two preliminary fence alignment alternatives from the 2017 MPU are depicted on Figure 3-1.

Along the western and northwestern sides of the airfield the preliminary alignment for Alternative 1 in the MPU followed along and outside of the Part 77 Primary Surface, aligning more closely with the alignment of the existing runways, while Alternative 2 followed the existing alignment of Airport Road. Both alternatives, tied into the existing perimeter fence in the vicinity of the SRE Building and aircraft hangar west of the terminal building at the northern terminus of the proposed fence. Both alternatives also tied into the existing Keene Wastewater Treatment Plant fence, west of RW 2-20 at the southern end of Airport Road. The two alternatives shared the same alignment from the Keene Wastewater Treatment Plant southward along the west side of the Airport to the southern boundary of Airport property where it ties into the existing perimeter fence along the southern end of the Airport. The two alternatives also shared the same proposed fence alignment along the eastern side of the Airport. The proposed fence alignment on the east side tied into the existing fence east of the southern end of Taxiway (TW) A, and continued north, along the east side of the unnamed ditched stream. The proposed fence alignment crossed the stream and associated wetland complex in a northeasterly direction south of the T-hangar buildings, and continued east where it tied into the existing perimeter fence along the east side of the Airport and Old Homestead Highway.

The Part 77 Primary Surface fence alignment was located closer to the existing runway infrastructure and roughly paralleled the FAA Part 77 Primary Surface. The FAA Part 77 Primary Surface as defined by 14 CFR Part 77, is a surface within which, any construction or alteration of existing structures requires notification to the FAA for analysis. The width of the Part 77 Primary Surfaces can vary based on the type of aircraft typically utilizing that runway and the type of instrument approach available or planned for that runway. The Primary Surface for Runway 2-20 is 1,000 feet wide, centered on the runway centerline and extends 200 feet beyond each physical end of the runway. The Primary Surface for Runway 14-32 is 250 feet wide, centered on the runway centerline, and also extends 200 feet beyond each physical end of the runway. The elevation of any point on the Primary Surface is the same as the elevation of the nearest point on the runway centerline. The Part 77 Primary Surface Alternative minimized the area enclosed inside the fence, however, this fence alignment encroached upon the expansive wetland complex around the northern and western sides of the airfield. This alternative also minimized the visual impacts of the proposed fence compared to a proposed alignment along Airport Road, minimized the amount of wildlife habitat fragmentation, and minimized the amount of unmanaged wildlife habitat located inside the proposed fence.

The Airport Road alignment continued north from the Keene Wastewater Treatment Plant along the east side of Airport Road, following the existing roadway alignment. During the public outreach process for the 2017 MPU, the local conservation commissions and the public expressed strong opposition to Airport Road Alternative, primarily due to the popularity of Airport Road as a birdwatching and outdoor recreation area. The primary concern associated with the Airport Road Alternative is that a chain link fence along Airport Road would detract from the scenic quality of the area and obstruct sight lines into the surrounding wetland habitats, resulting in visual impacts to this popular walking and birdwatching hotspot. The Airport Road Alternative seemingly reduces

N

EEN Airport Property Boundary
2017 MPU Alt 1: Follow Part 77 Primary Surface
2017 MPU Alt 2: Airport Road
Existing Fence
RSA
ROFA
Primary Surface
RVZ
Keene Delineated Wetlands (MJ 2024)
Keene Delineated OHW (MJ 2024)
Keene Delineated OHW-TOB (MJ 2024)
Keene Delineated TOB (MJ 2024)

Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)

0 800 1,600
Feet

KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

2017 MASTER PLAN UPDATE PRELIMINARY ALTERNATIVES

SCALE :	DATE :	FIGURE :
1" = 800'	May 2025	3-1

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\NEPA EA Figures\CHAPTER 3\Figure 3-1 - 2017 MPU Preliminary Alternatives REV1.mxd

wetland impacts by following the previously disturbed fill areas associated with the existing roadway embankment. However, this alternative would fragment a much larger area of valuable, high-quality wildlife habitat and result in a substantially greater area of habitat enclosed inside the fence on the airfield. There are additional challenges associated with this alignment including conflicts with existing utilities and required clear zones and site lines for motorists travelling along the roadway.

The two conceptual designs from the 2017 MPU provided a foundation for the Preliminary Design and NEPA phase of the wildlife perimeter fence project. However, it was evident that the designs presented in the 2017 MPU were very high-level, conceptual designs, that did not consider some of the design constraints and challenges that were identified during the subsequent Preliminary Design Phase. The proposed fence alignment Alternatives discussed herein were refined further and modified to avoid and minimize impacts to sensitive environmental resources. The alternatives considered in this EA are discussed in Sections 3.2 through 3.4 below.

3.2. ALTERNATIVE 1: NO-BUILD

NEPA requires the consideration of a No-Build Alternative. The No-Build Alternative serves as a baseline comparison for the environmental analysis that reflects conditions as they are expected to exist in the future if the proposed project is not implemented or constructed. This provides a benchmark to compare the environmental, social, and economic impacts of the Build Alternatives.

Under the No-Build Alternative (Alternative 1), the existing sections of perimeter fence around the Airport would remain unchanged with no extensions, modifications, or construction of additional fence. This alternative would result in no action, leaving almost the entire western side of the airfield, and approximately 4,200 feet along the eastern side of the airfield unfenced as it currently exists.

While the No-Build Alternative would have no direct environmental impacts and would incur no implementation costs, it would allow continued wildlife access to aircraft movement areas, posing an ongoing safety risk. In particular, species such as white-tailed deer would retain unrestricted overland access to the airfield. The No-Build Alternative does not meet the project's purpose and need, and therefore, this alternative was not considered further.

3.3. ALTERNATIVE 2 – ROFA ALIGNMENT (SPONSOR'S PROPOSED ACTION)

Based on recommendations from the 2017 MPU and the 2024 Wildlife Hazard Site Visit Report prepared by Loomacres (**Appendix A**), the City of Keene is proposing to construct two new sections of fence along the western and eastern sides of the Airport. The proposed fence sections would connect to the existing perimeter fence, providing a complete enclosure around the airfield to prevent and deter wildlife, specifically white-tailed deer, from entering the AOA.

3.3.1. Fence Dimensions

According to the FAA CertAlert No. 16-03, the FAA recommends a 10-foot fence with three-strand barbed wire outriggers for wildlife exclusion. However, the guidance allows for an 8-foot fence

with three-strand barbed-wire outriggers, depending on the amount of deer activity in a local area. Additionally, the FAA recommends incorporating a 4- to 5-foot skirt of buried fencing material, attached to the bottom of the fence and buried at a 45-degree angle on the outside of the fence, to prevent animals from burrowing under the fence and to reduce the chance of washouts.

Length

The proposed fence alignment on the west side of the airfield is approximately 12,632 LF, and the proposed eastern fence alignment is approximately 4,579 LF. The total length of the proposed fence for the entire project is approximately 17,211 LF.

Height

Following discussions with the Airport, the proposed fence was designed to be an 8-foot-high chain link fence topped with three-strand barbed wire outriggers, resulting in an effective fence height of nine feet. The 8-foot fence alternative was selected over a taller 10-foot fence primarily due to cost constraints and environmental considerations. The taller fence would increase the project costs substantially, due to increased materials costs. In addition, a taller 10-foot fence would have also likely required shifting the fence alignment further away from the existing runway infrastructure to avoid impacting FAA safety and protection zones, and into sensitive environmental resource areas, likely resulting in increased impacts to these areas. Therefore, the 10-foot fence alternative was not evaluated further.

In some locations of proposed wetland impacts, primarily south and west of the intersection of RW 2-20 and RW 14-32, a 6-foot fence was conceptually evaluated to attempt to further avoid and minimize wetland impacts. This modification to the fence design was requested by the New Hampshire Department of Environmental Services (NHDES) and the New Hampshire Fish and Game Department (NHFG) staff at a field review meeting in October 2024, to further avoid and minimize wetland impacts. However, the 6-foot fence height would result in reduced effectiveness in deterring white-tailed deer, due to the lower height, and is not consistent with FAA recommendations for wildlife exclusion fencing. Furthermore, the 6-foot fence was unable to completely avoid wetland impacts at this location, and due to the existing ground and runway elevations and the location of the ROFA and RVZ, the lower fence did not result in a substantial reduction in environmental impacts as compared to the more effective 8-foot alternative. Therefore, the 6-foot-high fence alternative was not pursued further.

Depth (Wildlife Skirt)

The proposed design does not include a buried wildlife skirt installed below grade as a burrowing deterrent, as white-tailed deer, the primary species of concern are not known to burrow. The addition of a wildlife skirt would not improve the fence's effectiveness for deterring deer but would substantially increase costs associated with increased material expenses and required trenching for installation. The associated trenching and excavation would also increase ground disturbance from the project, resulting in increased environmental impacts and disturbance in

wetland resource areas. Thus, through input from the Airport and for the reasons outlined above, a buried wildlife skirt was excluded from consideration.

3.3.2. Fence Location

The proposed fence alignment for ROFA Alternative (Alternative 2), which is the Sponsor's proposed action, roughly follows the ROFAs along the west side of RW 2-20 and RW 14-32. For this reason, the alignment is referred to as the ROFA Alternative in this document. The ROFA Alternative fence alignment is depicted on **Figure 3-2**. The ROFA Alternative was adapted from the original Part 77 Primary Surface Alternative from the 2017 MPU, and was refined through further analysis in order to bring the proposed fence alignment as close to the existing runway and taxiway infrastructure as allowable per FAA safety and design standards. These efforts helped to minimize the environmental, social, and economic impacts of the proposed fence project.

The ROFA is a clear area limited to equipment necessary for air and ground navigation and provides wingtip protection in the event of an aircraft excursion from the runway. Part 77 establishes the following: 1) requirements to provide notice to the FAA of certain proposed construction, or the alteration of existing structures; 2) standards used to determine obstructions to air navigation, and navigational and communication facilities; 3) a process for aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities or equipment; and 4) a process to petition the FAA for discretionary review of determinations, revisions, and extensions of determinations.

The location of the proposed fence was constrained by several FAA safety standards, surfaces, and clearances, including the following:

- RSA
- ROFA
- RVZ
- Part 77 Primary Surface
- Runway Approach Surfaces
- TOFA
- TLOFA

In addition, the proposed fence alignment was also constrained by several environmental resources including existing wetlands, floodplains, wildlife habitat, rare species, and visual/aesthetic impacts.

The Proposed Action also includes a reconfiguration of the existing fence in the southwest corner of Airport property. The Airport recently sold a piece of the southern portion of Airport property, however, the existing fence was never removed or realigned to reflect the change in the property boundary. Approximately 389 LF of existing perimeter fence is now located on the parcel that was sold. This section of the existing fence would be removed, and the proposed fence would be reconfigured and constructed to align with the current, updated Airport property boundary. Approximately 495 LF of new fence would be installed along the southern boundary of Airport property.

N

EEN Airport Property Boundary
Alternative 2: ROFA Alignment (Proposed Action)
Proposed Gate Locations
2017 MPU Alt 1: Follow Part 77 Primary Surface
2017 MPU Alt 2: Airport Road
Existing Fence

RSA
ROFA
Primary Surface
RVZ

Keene Delineated Wetlands (MJ 2024)
Keene Delineated OHW (MJ 2024)
Keene Delineated OHW-TOB (MJ 2024)
Keene Delineated TOB (MJ 2024)

Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)

0 800 1,600
Feet

KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

ALTERNATIVE 2: ROFA ALIGNMENT

SCALE :	DATE :	FIGURE :
1" = 800'	May 2025	3-2

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\NEPA EA Figures\CHAPTER 3\Figure 3-2 - ROFA Alignment REV1.mxd

The Proposed Action includes the installation of eight gate locations along the proposed fence alignment for access and maintenance purposes. The gate locations are depicted on **Figure 3-2**.

3.3.3. Design Refinements within the Proposed Action

The following sections describe specific locations where further analysis and design modifications were made in order to avoid and minimize impacts associated with the Proposed Action. These specific refinements and modifications in and of themselves are not considered separate alternatives, but rather part of the overall design process and avoidance and minimization measures for the Proposed Action.

Part 77 Surface & Runway Object Free Area

As previously mentioned, the original fence alignment from the 2017 MPU alternative roughly followed the Part 77 Primary Surface. The original fence alignment was located approximately 200 feet west of the RW 2-20 Part 77 Primary Surface, and approximately 230-300 feet from the RW 14-32 Part 77 Primary Surface. RW 2-20 has a total width of 100 feet and RW 14-32 has a total width of 75 feet. The Part 77 Primary Surface along RW 2-20 extends 500 feet laterally from the centerline of the runway or 450 feet from the edge of existing pavement, and the Part 77 Surface along RW 14-32 extends 125 feet laterally from the centerline of the runway or 87.5 feet from the edge of pavement. Therefore, the preliminary alignment from the 2017 MPU had the proposed fence located approximately 650 feet west of the existing edge of RW 2-20 pavement, encroaching into the expansive wetland complex to the west. The original fence alignment also encroached into the wetlands at the RW 14 end.

In general, encroachments on Part 77 Surfaces should be avoided whenever possible. However, in instances where safety is not compromised and sufficient justification exists (such as minimizing environmental impacts), the FAA has, in some cases, considered the Part 77 Surfaces as notification surfaces. Based on discussions with NHDOT, there is precedent at other New Hampshire airports for locating perimeter fences within the Part 77 Primary Surface. Therefore, the decision was made to relocate the fence along the ROFA, within the Part 77 Primary Surface, to position the fence as close as practicable to the existing runway infrastructure. This design change substantially reduced wetland impacts and decreased the area of potential wildlife habitat enclosed within the perimeter fence.

However, locating the fence within the Part 77 Primary Surface is anticipated to require approval through the FAA's Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) process. This coordination would be completed during the final design phase of the project, and FAA concurrence is not guaranteed. Additional coordination with FAA will be necessary to secure approval of the selected ROFA Alternative.

The ROFA is a two-dimensional clear area centered on the runway centerline provided to enhance the safety of aircraft operations by providing wingtip protection in the event of an aircraft excursion from the runway. As its name implies, the ROFA must be kept clear of above-ground

objects (including fences) protruding above the elevation of the nearest point of the RSA, except for equipment that is necessary for air navigation or aircraft ground maneuvering.

The ROFA width for a given runway can vary depending on the runway design standards, the Airplane Design Group (ADG), and the type of operations. The ROFA ½ width for RW 2-20 is 400 feet from the runway centerline (800 feet total), and the ROFA ½ width for RW 14-32 is 250 feet from the runway centerline (500 feet total).

The proposed fence alignment for the ROFA Alternative was offset approximately 10 feet outside the ROFA. Therefore, the proposed fence alignment is approximately 360 feet west of the edge of pavement along RW 2-20. The distance of the proposed fence from the edge of the RW 14-32 pavement is more variable due to realignments intended to avoid existing drainage ditches and wetlands and ranges from approximately 230 to 270 feet. The existing RVZ also increased the required offset from the edge of the existing runway pavements west of the intersection of the two runways (refer to the RVZ section below).

By following the ROFA as opposed to the Part 77 Primary Surface, the proposed fence alignment west of RW 2-20 was shifted approximately 120 feet closer to the edge of the existing runway pavement, along approximately 2,100 LF of proposed fence. The proposed fence alignment was unable to completely avoid wetland impacts along RW 2-20, due to the size and locations of the existing wetlands and existing runways. However, the ROFA Alternative resulted in an approximately 290-foot shift of the 2017 MPU Part 77 Surface Alternative to east, closer to the runway. This shift to the east substantially minimized the area of wetland habitat enclosed inside the fence and brings the fence closer to the wetland edge or boundary, as opposed to cutting across the middle of the wetland complex. The ROFA Alternative, as compared to the 2017 MPU alignment, effectively reduced the area of wetland habitat enclosed inside the proposed fence by approximately 24.6 acres and eliminated the proposed fence stream crossing on west sides of the Airport (refer to the Unnamed Stream Outlet West of Runway 2 End section below).

Runway Visibility Zone

The proposed Part 77 Primary Surface alignment was initially modified to accommodate the RVZ west of the intersection of RW 2-20 and RW 14-32. The preliminary Part 77 Primary Surface Alternative included in the 2017 MPU did not appear to take the RVZ into consideration. The RVZ is a protected area where an unobstructed line-of-sight must be maintained between intersecting runways to ensure that pilots can visually see and avoid aircraft operating on the crossing runway. No buildings, vegetation, or other obstructions (including fences) that could block a pilot's view of aircraft on an intersecting runway are permitted within this area. The RVZ shape is determined by the runway end locations and varies based on the type of runway(s).

During preliminary design it was disclosed that RW 14 would not likely be extended the 400-feet as shown on the 2017 MPU in the foreseeable future. Therefore, the RVZ shape used considers the existing RW 14 end location.

An analysis was completed during preliminary design that evaluated the existing runway centerline elevations, existing ground surface elevations, and assumed a 9-foot fence height, to ensure that

any point five feet above the runway centerline in the RVZ is mutually visible with any other point five feet above the crossing runway and inside the RVZ. The purpose of this analysis was to attempt to bring the fence closer to the existing runways and out of the sensitive environmental resource areas and to ensure that the proposed fence alignment would not result in line-of-sight impacts between the two runways within the RVZ.

Based on this analysis, the proposed fence alignment was able to be shifted approximately 450 feet, at its furthest point, closer to the existing runways. This effectively reduced the area of wetland habitat enclosed inside the proposed fence by approximately 8.3 acres compared to the proposed fence following the limits of the RVZ.

Runway 14 End

The 2017 MPU fence alignment off of the RW 14 end extended northwest all the way to Airport Road. The Ultimate Airport Layout Plan (ALP) includes a 400-foot extension of RW 14 and construction of a parallel taxiway. However, based on conversations with the Airport and NHDOT, these projects are not anticipated to be constructed in the foreseeable future, and are unlikely to receive the federal funding required for completion. Therefore, the proposed fence alignment did not consider these potential future conditions. This allowed the proposed fence alignment to move substantially closer to the end of RW 14. An additional analysis was completed at the end of RW 14, evaluating the RW 14 approach surface, the existing ground surface elevations, and assumed a 9-foot fence height. The approach surface is a FAA defined operational surface that protects the landing of aircraft. While the proposed fence location was clear of these FAA operational surface, the proposed fence is within Part 77 Approach Surface. Locating the fence within Part 77 Approach Surface is anticipated to require approval under the FAA's OE/AAA process. This coordination will be completed during the final design phase of the project. The purpose of this analysis was to attempt to bring the fence away from Airport Road and minimize the visual impacts along the roadway, as well as minimizing the impacts to the wetland resources in the vicinity of the RW 14 end.

Based on the results of this analysis, there is enough of an elevation change northwest of the RW 14 end to accommodate the proposed fence alignment approximately 290 feet northwest of the end of the runway. The impacts to the wetland could not be completely avoided in the vicinity of the RW 14 end, however, the modifications to the fence alignment effectively reduced the total length of fence in the wetland areas by approximately 600± feet and reduced the amount of wetland habitat enclosed by the proposed fence by approximately 9.7 acres. The proposed fence alignment is located approximately 450 to 525 feet from the edge of Airport Road.

Unnamed Stream Outlet West of Runway 2 End

There is an existing 60-inch diameter reinforced concrete culvert that carries an unnamed perennial stream under RW 2-20 in the southern portion of the Airport. The existing culvert outlet is located west of RW 2. The existing culvert headwall is located approximately 20 feet within the RSA. The steep slope (approximately 50%) behind the headwall extends an additional 30 feet into the RSA. The slope exceeds the maximum RW 2-20 RSA 3% grade. The steep slope further

encroaches into the RSA by about 30 feet. However, the FAA states in AC 150/5300-13B, Change 1, Airport Design, Appendix G, footnote 13 that, "When an RSA width of 500 feet is not practical, an RSA width of 400 feet is permissible." This was discussed with and accepted by the Airport and NHDOT during preliminary design. Therefore, no change to the headwall location nor slope is required.

An analysis was completed evaluating the RSA elevation, ROFA elevation, ground surface elevations, and assumed a 9-foot fence height. Based on the results of the analysis, and due to the steep slope resulting in a substantial elevation change between the runway centerline and the existing headwall, the proposed fence was able to be sited around the stream and behind the existing headwall without impacting the RSA and ROFA. This alignment avoids impacts to the stream and avoids the associated design and maintenance challenges with installing a fence across a stream with flowing water.

To the south of the unnamed stream, wetland impacts were further minimized by bringing the proposed fence alignment inside the ROFA to the east. Again, this was possible at this location based on the existing topography and the analysis that was completed during the preliminary design. There is enough of an elevation change west of the RW 2 end to permit the fence inside the ROFA, without penetrating above the elevation of the nearest point of the RSA that defines the elevation of the ROFA.

The modifications to the fence alignment as compared to the 2017 MPU alignment effectively eliminated the proposed unnamed stream crossing with the proposed fence. Installing a fence across a flowing stream presents many design challenges and is not an ideal configuration. Stream channel and bank impacts have been completely avoided through the design modifications.

Wetland Crossing on the East Side of the Airport

The 2017 MPU fence alignment on the east side of the Airport originally had the proposed fence located on the east side of the ditched portion of the unnamed perennial stream. This alignment required a crossing of the unnamed stream channel and the associated expansive wetland marsh near the northern end of the proposed fence, south of the T-Hangars. In addition to the impacts to the sensitive environmental resources, this alignment also presented several design and constructability challenges associated with the fence stream crossing at this location.

The 2017 MPU fence location was based on previous Taxiway Object Free Area (TOFA) width requirements in effect at that time. However, the FAA's updated Airport Design AC 50/5300-13B, issued August 16, 2024, included revised airport design standards, including reduced TOFA widths and taxiway separation distances. The critical design aircraft at EEN is classified as ADG-II. The FAA AC 150/5000-17 defines the critical aircraft as:

> "…the most demanding aircraft type, or grouping of aircraft with similar characteristics, that make regular use of the airport. Regular use is 500 annual operations, including both itinerant and local operations but excluding touch-and-go operations. An operation is either a takeoff or landing."

Based on the revised standards in the updated AC 50/5300-13B, the required TOFA width for ADG-II was reduced from 131 feet to 124 feet. This 7-foot reduction in the TOFA width allowed the proposed fence alignment to be shifted to the west side of the ditched stream, avoiding the wetland and stream crossing shown in the 2017 MPU. Additional coordination with the Airport and the tenant operating the aircraft with the largest wingspan at EEN, the Bombardier Global 5000, was conducted. The Global 5000 is classified as ADG-III with a Taxiway wingtip clearance requirement of 26.5 feet. However, this aircraft does not achieve enough annual operations at EEN to be considered the critical design aircraft, and ADG-II remains the basis for airport design.

An analysis of the Global 5000 taxiing on Taxiway A was completed and confirmed a wingtip clearance of 26.5 feet to the proposed fence. The clearance meets the required FAA standard and was therefore found acceptable to the Airport, NHDOT, and stakeholders including the operators at the Airport. While the Global 5000 is not the critical aircraft, the fence will still be sited to provide sufficient wingtip clearance for ADG-III aircraft, ensuring operational flexibility. No objections were raised regarding the relocation of the fence to the west side of the ditch.

This modification resulted in eliminating the wetland and stream crossing on the east side of the Airport completely, and a reduction of approximately 1,100 feet of fence across the middle of the marsh and stream. The proposed fence alignment is anticipated to still require minor wetland impacts at the northern end, south of the T-Hangars, but the proposed impacts would be located along the edge of the existing wetland as opposed to traversing across the middle and bisecting the wetland complex. The modifications to the fence alignment on the east side of the airport effectively reduced the amount of wetland habitat enclosed by the proposed fence by approximately 2.0 acres.

Summary

The ROFA Alternative underwent a comprehensive preliminary design process that evaluated multiple fence alignments and height options. The primary objective of the various analyses described above was to avoid and minimize impacts to sensitive environmental resources, including wetlands, streams, floodplains, rare species, and wildlife habitat. The design process also sought to address stakeholder input by reducing visual impacts along Airport Road, a popular birdwatching and recreation area.

Despite these efforts, complete avoidance of impacts was not feasible due to constraints imposed by the locations of existing aviation infrastructure (i.e., runways and taxiways), FAA design and safety standards, and locations of existing resources including the expansive wetland complex associated with the floodplain of the Ashuelot and South Branch Ashuelot Rivers on the west side of the Airport.

Following the alternatives analysis, the ROFA Alternative was identified as the preferred alternative due to its ability to balance the effectiveness of the fence, aviation safety, environmental protection, stakeholder input, and project costs. Impacts from the Proposed Action have been avoided and minimized to the maximum extent practicable.

3.4. ALTERNATIVES CONSIDERED AND DISMISSED

3.4.1. Alternative 3: Airport Road Alternative

The fence alignment for the Airport Road Alternative on the western and northern sides of the Airport follows the existing alignment of Airport Road north of the existing solar farm and Keene Wastewater Treatment Plan. The Airport Road Alternative was laid out conceptually during Preliminary Design and is depicted on **Figure 3-3**. Unlike the preliminary alignment from the 2017 MPU, the current alignment does not tie into the existing Keene Wastewater Treatment Plant fence. As outlined in the Wildlife Hazard Site Visit Report, the existing Wastewater Treatment Plant fence and solar farm fence have deficiencies from a wildlife exclusion standpoint. In addition, from a maintenance and ownership perspective it is beneficial to the Airport to have a standalone perimeter fence on a separate alignment. The Airport Road Alternative and the ROFA Alternative alignments converge just north and east of the existing solar farm fence. From this point the Airport Road alignment continues west for approximately 1,500 feet before turning north and continuing along the east side of Airport Road. The fence alignment follows along Airport Road and wraps around the north side of the airfield to the existing driveway for the SRE building and existing hangar, where it connects to the existing perimeter fence.

During Preliminary Design, the Airport Road Alternative was considered further at the request of NHDES, in an attempt to minimize and avoid wetland impacts and demonstrate the least environmentally impacting alternative. However, as design progressed further, several challenges and issues with this alternative were identified and presented. The ROFA Alternative and Airport Road Alternative are overlaid on **Figure 3-4** to provide a comparison.

Fence Location

The clear zone for a low-speed, low-volume roadway such as Airport Road is typically approximately seven feet. This means that the proposed fence would likely need to be located a minimum of seven feet from the edge of the existing roadway pavement. However, further analysis would be required to evaluate sight distances around the existing curves in the roadway to determine the required offset to ensure these sight distances are not impeded. The proposed fence location could potentially be shifted further from the edge of existing pavement in order to accommodate these sight distances, particularly around the existing curves in the roadway.

There are also existing utility poles along the east side of Airport Road, located approximately 15 feet from the edge of the existing roadway pavement. In the RW 14 approach, the utilities are buried in order to avoid obstructions. Therefore, a fence located outside the 7-foot clear zone of the roadway would be approximately eight feet from the existing utility poles and would result in enclosing the existing utility poles inside the proposed fence, creating an access and maintenance issue for the various utility companies utilizing the existing poles.

EEN is a GA Airport, and not a Part 139 Commercial Service Airport, and therefore, the proposed wildlife exclusion fence is not technically required to meet the design recommendations of a "security fence" which requires a 10-foot clear zone on both sides of the fence to deter

N

EEN Airport Property Boundary
Alternative 3: Airport Road Alignment
2017 MPU Alt 1: Follow Part 77 Primary Surface
2017 MPU Alt 2: Airport Road
Existing Fence

RSA
ROFA
Primary Surface
RVZ

Keene Delineated Wetlands (MJ 2024)
Keene Delineated OHW (MJ 2024)
Keene Delineated OHW-TOB (MJ 2024)
Keene Delineated TOB (MJ 2024)

Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)

0 800 1,600
Feet

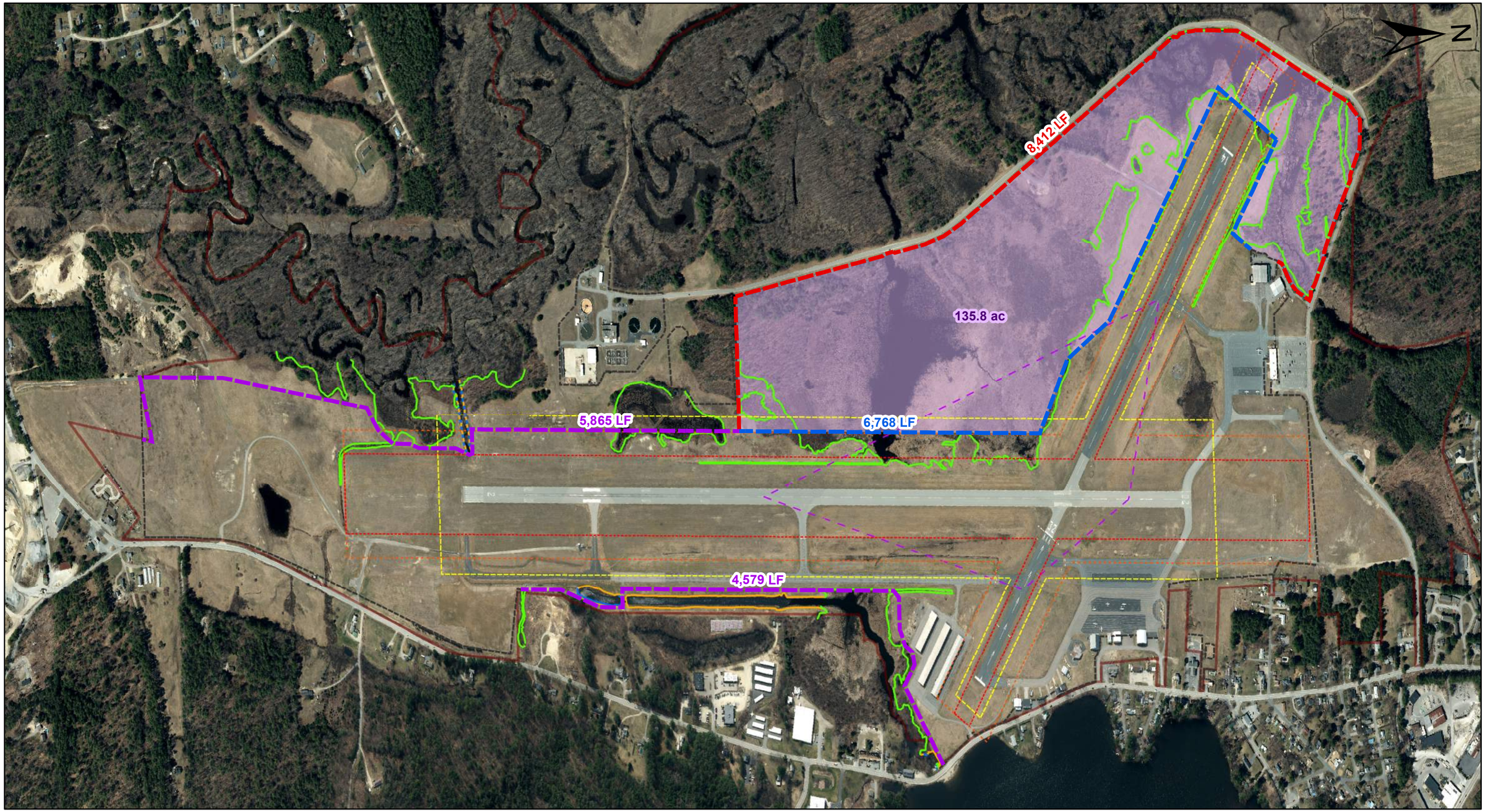
KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

ALTERNATIVE 3: AIRPORT ROAD ALIGNMENT

SCALE :	DATE :	FIGURE :
1" = 800'	May 2025	3-3

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\NEPA EA Figures\CHAPTER 3\Figure 3-3 - Airport Road Alignment REV1.mxd



EEN Airport Property Boundary
Alternative 2: ROFA Alignment
Alternatives 2 & 3: Shared Alignment
Alternative 3: Airport Road Alignment
Area between ROFA & Airprot Road Alts

Existing Fence
RSA
ROFA
Primary Surface
RVZ

Keene Delineated Wetlands (MJ 2024)
Keene Delineated OHW (MJ 2024)
Keene Delineated OHW-TOB (MJ 2024)
Keene Delineated TOB (MJ 2024)

Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)

0 800 1,600
Feet

KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

ROFA ALTERNATIVE & AIRPORT ROAD ALTERNATIVE

SCALE :	DATE :	FIGURE :
1" = 800'	May 2025	3-4

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\NEPA EA Figures\CHAPTER 3\Figure 3-4 - ROFA Alt & Airport Road Alt REV1.mxd

unauthorized access. However, this 10-foot clear zone is generally recommended from both a security and maintenance/access standpoint for perimeter fences at any airport.

Therefore, in order to avoid impacting the Airport Road clear zone and sight distances, and in order to avoid enclosing the existing utility poles inside the fence, while providing the recommended 10-foot clear zone for the fence, the proposed Airport Road Alternative fence alignment would be located approximately 25 feet from the edge of existing pavement. Moving the utility poles or burying the utilities lines as part of the proposed fence project are not feasible alternatives due to the associated costs. In addition, due to the size and locations of the wetlands in the vicinity, any additional work such as moving or relocating utilities would likely result in additional wetland impacts.

Wetland Impacts

At a distance of approximately 25 feet from the edge of pavement, the majority of the proposed Airport Road Alternative fence alignment would be located within the expansive wetland complex located along the toe-of-slope of the roadway embankment. The Airport Road Alternative did not effectively avoid or minimize wetland impacts due to the proximity to the expansive wetland complexes surrounding the majority of Airport property and directly adjacent to Airport Road.

Visual/Recreation Impacts

There are numerous informal pull-offs and parking areas along Airport Road that include various improvements such as benches and picnic tables. These areas would be blocked and access restricted by a fence along Airport Road. A proposed fence along Airport Road would block access to these areas that are regularly utilized by the general public. Additionally, a fence along Airport Road would obstruct sight lines into the surrounding areas of wetland habitat, reducing the scenic nature of the area and impeding birdwatchers and photographers. Additionally, Airport Road is frequented by local schools where students are introduced to various wetlands and wildlife elements in a safe environment. A fence along the roadway would restrict access and eliminate pull-offs where buses are currently able to park.

Wildlife Habitat Impacts

The Airport Road Alternative would result in substantially greater wildlife habitat fragmentation by placing the proposed fence further away from the existing Airport infrastructure. The Airport Road Alternative effectively eliminates approximately 136-acres of high-quality wildlife habitat by restricting overland wildlife access with the installation of the fence along Airport Road. According to NHFG mapping layers, the majority of this area has been identified in the 2020 NH Wildlife Action Plan (WAP) as Highest Ranked Habitat in the State of New Hampshire, and part of a NH Priority Habitat Block. Furthermore, the Wildlife Hazard Site Visit Report recommended minimizing areas of on-Airport wildlife habitat inside the proposed wildlife exclusion fence. The various marshes, scrub-shrub wetlands, and forested areas all provide wildlife habitat and serve as a potential wildlife attractant inside the fence, as well as potential wildlife cover. In the event wildlife become trapped inside the fence, this refugia inside the fence would make it much more

challenging, time consuming, and costly to find and remove the potentially hazardous wildlife from inside the fence, all while increasing the dangers imposed on aircraft operations due to the presence of wildlife within the fence, and on the wildlife themselves.

Summary

For the reasons discussed above, including wetland impacts, visual and recreational impacts, wildlife habitat impacts, increased costs, potential conflicts with utility right-of-way, and inability to exclude large areas of wildlife cover or refugia inside the proposed fence, the Airport Road Alternative was not considered beyond conceptual design.

The Airport Road Alternative was not considered a viable option due to the strong public opposition to this alternative and the popularity of Airport Road as a wildlife viewing, birdwatching, walking, and educational area. The project was presented and discussed at two Swanzey Conservation Commission Meetings (**Appendix M**), and the Commission was strongly opposed to the Airport Road Alternative.

The Airport Road Alternative was not considered a viable option from the Airport's perspective due to the inability of this alternative to minimize on-Airport habitat inside the fence. This reduces the effectiveness of the fence and presents potential safety concerns and challenges associated with locating and removing problem wildlife in the event wildlife becomes inadvertently entrapped inside the fence.

Furthermore, upon conceptual layout of the preliminary alignment, the Airport Road Alternative did not appear to substantially reduce the wetland impacts due to required setbacks and clearances along the roadway and utility poles/lines and the proximity of the expansive wetland complexes to the existing roadway.

The total length of fence for the Airport Road Alterative was approximately 18,856 LF, or approximately 1,645 LF longer than the ROFA Alternative. The additional fencing required for the Airport Road Alternative results in an approximately 10 percent increase in the total fence length, resulting in increased materials and construction costs.

For these reasons, the Airport Road Alternative was only considered conceptually and is only discussed in general terms in this document.

4. Affected Environment

This chapter describes the existing natural, ecological, cultural, social, and economic conditions that could be impacted by the Proposed Action. The characterization of the site is based on the information gathered from technical studies, on-site investigations, a review of available and published scientific information, agency correspondence, and discussions with Airport personnel and public officials. Field investigations completed in the spring and summer of 2024 in support of the project included a wetlands and surface waters delineation, Phase IA/IB archaeological surveys and subsequent point mitigation, and a Wildlife Hazard Site Visit. The information presented herein serves as the basis for the assessment of environmental, social, and economic consequences (refer to **Chapter 5**) associated with the proposed action and the reasonable alternatives.

There are a total of 14 environmental impact categories identified by FAA Order 1050.1F, Paragraph 4-1, that may be relevant to FAA actions. The 14 environmental impact categories identified by FAA are as follows:

- **Air Quality**
- **Biological Resources (including fish, wildlife, and plants)**
- Climate
- Coastal Resources
- **Department of Transportation Act, Section 4(f)**
- **Farmlands**
- **Hazardous Materials, Solid Waste, and Pollution Prevention**
- **Historical, Architectural, Archeological, and Cultural Resources**
- Land Use
- Natural Resources and Energy Supply
- Noise and Compatible Land Use
- Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks
- **Visual Effects (including light emissions)**
- **Water Resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers)**

The eight environmental impact categories in **bold** are the environmental impact categories that have the potential to be affected by the Proposed Action. The remaining six environmental impact categories not in bold are not anticipated to be affected, either because they are not present or not applicable. Therefore, these environmental impact categories are not considered relevant to the Proposed Action or any of the reasonable alternatives and are not analyzed or evaluated further in this EA.

4.1. GENERAL SITE DESCRIPTION

The Airport is located within the Worcester/Monadnock Plateau Ecoregion (United States Environmental Protection Agency [EPA] Level IV Ecoregion), a subregion of the Northeastern Highlands Ecoregion (US EPA Level III Ecoregion). In general, this region is sparsely populated, and the dominant land cover consists of forested areas. Typical forest types include northern hardwood and transitional hardwood forests dominated by maple-beech-birch and oak-hickory forests. The terrain consists of a rolling plateau with scattered monadnocks. Lakes and ponds are numerous in this region. The region is underlain primarily by metamorphic rock including gneiss and schist, as well as granite, an igneous rock type. Soils are primarily derived from glacial till.

The Airport is located east of the Ashuelot River and the South Branch Ashuelot River, and the majority of the western side of the Airport property is located within the floodplain of these major river systems. There are expansive forested, scrub-shrub, and emergent wetland complexes located on the west side of the Airport associated with these floodplains. Wilson Pond is located east of the Airport and Old Homestead Highway. An unnamed stream originates from the outlet of Wilson Pond and flows east under Old Homestead Highway and onto Airport property. The stream has been ditched and modified along Taxiway A, before flowing under the airfield via an existing culvert. There is another relatively large wetland complex associated with the stream on the east side of the airfield, north of the ditched portion of the unnamed stream and south of the T-Hangars.

The land use surrounding the Airport is a mix of rural residential, industrial/commercial, and recreational uses, with large tracts of undeveloped, forested lands. Land use north and northeast of EEN is dominated by industrial and commercial uses along NH Route 12 (Main Street – Keene / Monadnock Highway – Swanzey) and NH Route 32 (Old Homestead Highway), with relatively dense residential development to the northeast. Old Homestead Highway runs along the eastern side of the Airport and includes residential and commercial development interspersed along this corridor. Wilson Pond is a small waterbody located east of the Airport with dense residential development along its shoreline. Immediately south of the Airport, land use is dominated by industrial and commercial uses including a sand and gravel quarry, gas station, post office, and recent commercial developments. The western side of the Airport property is largely undeveloped and consists of forested floodplains associated with the Ashuelot and South Branch Ashuelot Rivers. Airport Road runs along the northern and western sides of the Airport and terminates at the City of Keene Wastewater Treatment Plant. Airport Road is a popular recreation area for walking and birdwatching and includes several informal pull-offs and parking areas, picnic tables, and is used by local schools as an educational site.

In general, lands to the east, west, and south of the Airport consist of rural residential development, with large tracts of forested land, and commercial/industrial development along the major roadways. Urban lands associated with the City of Keene are located north of the Airport, and this area is dominated by dense residential, commercial, and industrial development.

4.2. AIR QUALITY

The Clean Air Act (CAA) is a comprehensive federal law administered by the U.S. Environmental Protection Agency (EPA) intended to reduce and control air pollution and protect and improve the nation's air quality and the stratospheric ozone layer. The EPA has established National Ambient Air Quality Standards (NAAQS) for ambient outdoor concentrations of the following "criteria pollutants" to protect public health, welfare, and the environment:

- carbon monoxide (CO)
- nitrogen dioxide (NO_2)
- ozone (O_3)
- particulate matter with a diameter of 10 microns or less (coarse) and 2.5 microns or less (fine) (PM_{10} and $PM_{2.5}$)
- sulfur dioxide (SO_2)
- lead (Pb)

Under the CAA, the EPA designates geographical areas as "attainment" and "nonattainment areas" based on compliance with the NAAQS for these six criteria pollutants. An area with measured pollutant concentrations that are below the NAAQS is designated as "attainment", while an area with pollutant concentrations that exceed the NAAQS is designated as "nonattainment". States must develop a State Implementation Plan (SIP) to outline specific measures for achieving the NAAQS in nonattainment areas. After air pollutant concentrations in a nonattainment area are reduced to levels in compliance with the NAAQS, the EPA re-designates the area to be a "maintenance area"— a designation that is maintained for a period of 20 years. Finally, an area is designated as unclassifiable when there is a lack of sufficient data to determine the status of a pollutant.

The General Conformity Rule of the CAA prohibits federal agencies (including the FAA) from permitting or funding projects that do not conform to an applicable SIP. If the emissions exceed the thresholds, a formal Conformity Determination is required to demonstrate that the action conforms to the applicable SIP. Under the General Conformity Rule, project-related emissions of the applicable nonattainment/maintenance pollutants are compared to de minimis level thresholds.

The EPA's Green Book website was reviewed in April 2025, and Cheshire County, New Hampshire, is in attainment for all of the NAAQS. Therefore, the General Conformity Rule does not apply to the Proposed Action.

4.3. BIOLOGICAL RESOURCES

Biological resources include fish, wildlife, plants, and their habitats as well as both federally listed threatened and endangered species and state listed rare, threatened, and endangered species and exemplary natural communities. The assessment of biotic communities utilized existing data and mapping, agency coordination, field investigations, wildlife sign/sightings, and the field identification of general vegetation communities. The following subsections describe the existing

ecological/vegetation communities, fish and wildlife habitats, and federally and state listed rare species, in the vicinity of the Airport and the proposed action.

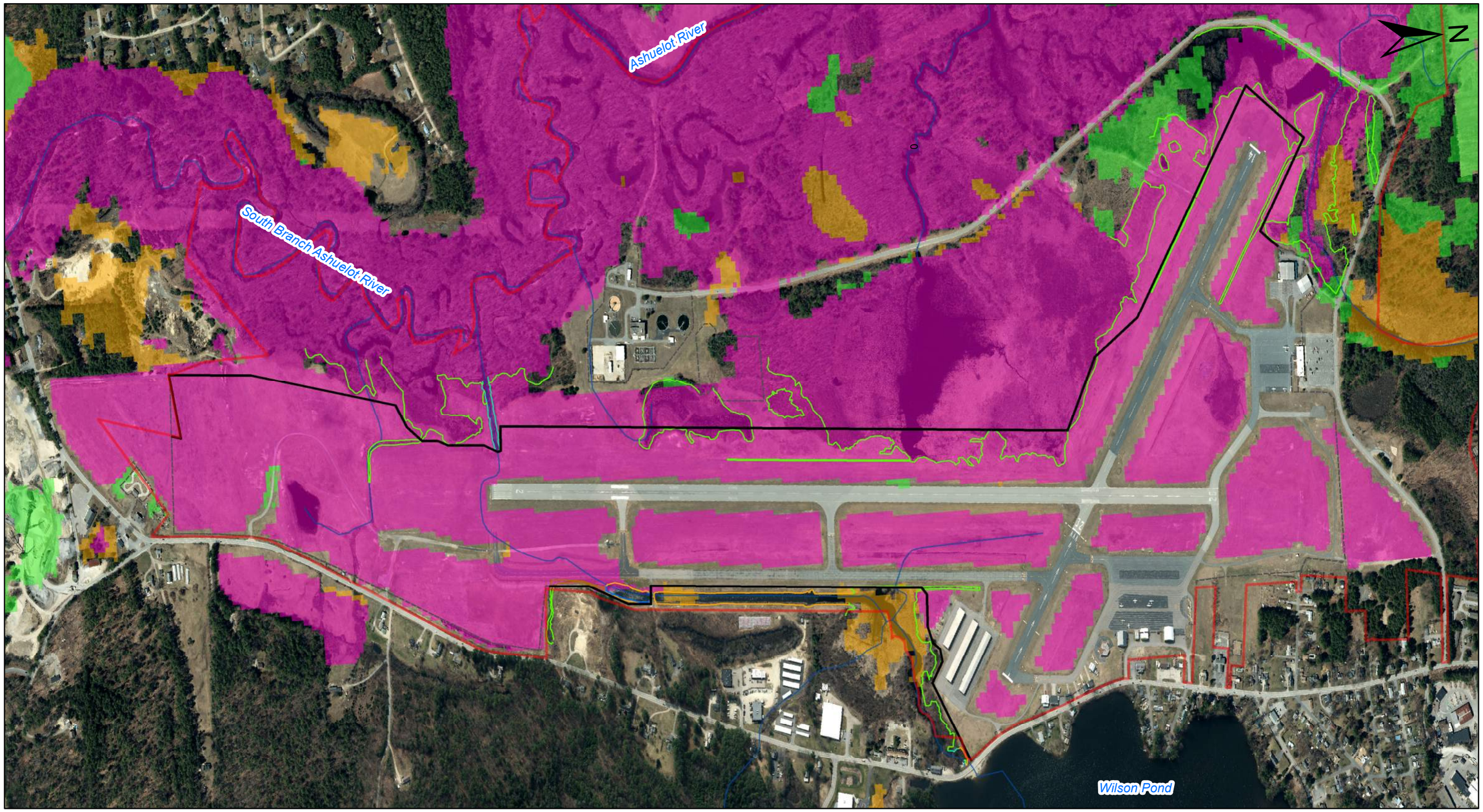
4.3.1. Ecological Communities and Wildlife Habitat

The existing Airport property contains a mosaic of existing natural habitats and developed areas. The majority of the property consists of existing runways, taxiways, aviation buildings, and frequently mowed grassland areas surrounding these facilities. Grassland areas within the Runway and Taxiway Safety Areas are mowed on a more frequent basis and vegetation heights are kept below six inches to comply with FAA safety recommendations. Areas outside of the Safety Areas are mowed on a regular basis, but generally less frequently, allowing more variable vegetation heights in these areas. The eastern side of the Airport property borders Old Homestead Highway, and there is relatively dense residential and commercial development along this corridor. The northern and western sides of the Airport property contain a mosaic of predominantly forested floodplain wetlands, with areas of scrub-shrub wetlands, emergent wetlands, and open water primarily located east of Airport Road. These wetlands are associated with the floodplains of the Ashuelot River and South Branch Ashuelot Rivers which define the western boundary of Airport property.

The majority of the project area consists of cleared, upland grasslands that are mowed on a regular basis. Additional vegetation communities and habitats in the project area include emergent wetlands and scrub shrub wetlands. The wetland resources are described in greater detail in Section 4.9.1.

The New Hampshire Fish and Game Department (NHFG) prepares and updates the New Hampshire Wildlife Action Plan (WAP) every 10 years. The current WAP was published in 2015 and is anticipated to be revised in 2025. The WAP is intended to serve as a blueprint for conserving New Hampshire's 169 Species of Greatest Conservation Need and their habitats. The WAP also includes the Habitat Land Cover Map and Highest Ranked Habitat by Ecological Condition Map. These maps are updated every five years and were last revised in 2020. The Highest Ranked Wildlife Habitat by Ecological Condition Map shows where the wildlife habitat is in the best relative condition in New Hampshire. Habitats are ranked by Highest Ranked Habitat in New Hampshire, Highest Ranked Habitat in Biological Region, and Supporting Landscapes. The majority of the open grassland areas on the Airport and the expansive floodplain wetland complex on the western side of Airport property have been identified as Highest Ranked Habitat in the State. Portions of Airport property also contain Highest Ranked habitat in the Biological Region and Supporting Landscapes. The NH WAP habitats in the project area are depicted in **Figure 4-1**.

The NHFG Wildlife Corridors and Prioritized Habitat Blocks mapping were also reviewed and are depicted in **Figure 4-2**. The large wetland complex on the west side of the Airport and the forested riparian areas associated with the Ashuelot River and South Branch Ashuelot River have been mapped as a Prioritized Habitat Block over 50 acres in size. Existing Wildlife Corridors are also mapped across the Airport. However, these outputs do not represent locations of known wildlife corridors, rather it is a display of how a model of habitat suitability and movement behavior translates into patterns of landscape connectivity.



EEN Airport Property Boundary
Proposed Fence
Existing Fence
Rivers & Streams (NHD Lines)
Keene Delineated Wetlands (MJ 2024)
Keene Delineated OHW (MJ 2024)
Keene Delineated OHW-TOB (MJ 2024)
Keene Delineated TOB (MJ 2024)
Keene Non-Jurisdictional Ditch (MJ 2024)

2020 NH Wildlife Action Plan

WAPTIER

1 Highest Ranked Habitat in New Hampshire
2 Highest Ranked Habitat in Biological Region
3 Supporting Landscapes

Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)
NH Wildlife Action Plan 2020 - Highest Ranked Wildlife Habitat (Source: NH GRANIT, 2020)
New Hampshire Hydrography Dataset (Source: NH GRANIT, 2006)

0 800 1,600
Feet

KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

NH WAP HABITAT TIERS

SCALE :	DATE :	FIGURE :
1" = 800'	May 2025	4-1

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\NEPA EA Figures\CHAPTER 4\Figure 4-1 - NH WAP Habitat Tiers REV1.mxd

EEN Airport Property Boundary
Proposed Fence
Existing Fence
Rivers & Streams (NHD Lines)
Keene Delineated Wetlands (MJ 2024)
Keene Delineated OHW (MJ 2024)
Keene Delineated OHW-TOB (MJ 2024)
Keene Delineated TOB (MJ 2024)
Keene Non-Jurisdictional Ditch (MJ 2024)
Prioritized Habitat Blocks
Wildlife Corridors
Wildlife Secondary Corridors

Service Layer Credits: Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)
NH Wildlife Corridors (Source: NH GRANIT, 2020)
New Hampshire Hydrography Dataset (Source: NH GRANIT, 2006)

0 2,000 4,000
Feet

KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

NH WILDLIFE CORRIDORS & PRIORITIZED HABITAT BLOCKS

SCALE :	DATE :	FIGURE :
1" = 2,000'	May 2025	4-2

McFARLAND JOHNSON

K:\KeeneIT-18956.01 Wildlife Perim Fence Ph I\Draw\GIS\NEPA EA Figures\CHAPTER 4\Figure 4-2 - NH Wildlife Corridors & Priority Habitat Blocks REV1.mxd

The diverse habitats on Airport property provide potential suitable habitat for a variety of common wildlife species including white-tailed deer, eastern coyote, red fox, striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), bobcat (*Lynx rufus*), eastern cottontail (*Sylvilagus floridanus*), woodchuck (*Marmota monax*), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), eastern wild turkey, Canada goose, red-tailed hawk (*Buteo jamaicensis*), American crow (*Corvus brachyrhynchos*), and a variety of songbirds. Airport property also provides potential suitable habitat for a number of state and federally listed rare species. These species are discussed in greater detail in Sections 4.4.2 and 4.4.3 below.

The unnamed stream that originates from the outlet of Wilson Pond provides aquatic habitat on Airport property. However, the potential for aquatic organism and terrestrial wildlife passage along this stream corridor is greatly reduced by the existing modifications to the stream. First, the outlet structure in Wilson Pond consists of a monk outlet structure, or a vertical concrete shaft with a steel grate over the top where water flows into the structure before flowing under Old Homestead Highway via an existing culvert. Due to the vertical shaft and steel grate, the existing structure acts as a complete barrier to both aquatic and terrestrial organism passage. The stream continues west on Airport property in a relatively natural condition, but as it approaches Taxiway A, south of the existing T-hangars, the stream turns sharply south and flows via a constructed ditch parallel to Taxiway A. The stream continues south for approximately 2,200 feet, before entering an approximately 1,200-foot long, 60-inch diameter reinforced concrete pipe that carries the stream under RW 2 and the southern portion of the airfield. The 60-inch culvert outlets west of the Runway 2 end. Due to the length of the existing culvert, it is unlikely to provide effective aquatic organism or terrestrial wildlife passage. There are other smaller areas of open water within the wetland areas, including Wetlands A and D. However, these areas are relatively shallow, with variable water levels and hydroperiods, and are not assumed to support fish populations. There are no other surface waters in the immediate vicinity of the proposed action.

The Ashuelot River is located west of Airport Road, approximately 1,300 feet from the proposed action (at its closest point). The Ashuelot River flows to the south along the western boundary of the Airport. The South Branch Ashuelot River is located along the southwestern portion of the Airport, approximately 400 to 1,000 feet west of the Proposed Action. The South Branch Ashuelot River flows primarily from south to north before turning west, south of the City of Keene Wastewater Treatment Plant, then flows west to the confluence with the Ashuelot River.

4.3.2. Federally Threatened and Endangered Species

The United States Endangered Species Act (ESA) of 1973 establishes protections for federally listed threatened and endangered species and their designated Critical Habitats. The ESA is administered by the US Fish and Wildlife Service (USFWS) for terrestrial and freshwater species and the National Marine Fisheries Service (NMFS) for marine and anadromous species. Section 7 of the ESA applies to federal actions and requires federal agencies to ensure that their activities do not jeopardize the continued existence of listed species or destroy or adversely modify their critical habitats.

The USFWS Information for Planning and Consultation (IPaC) webtool was accessed on April 22, 2025, and an updated Official Species List (**Appendix B**) was generated to review the proposed action for federally listed species and Critical Habitats protected under the ESA. The Official Species List identified one federally listed endangered species, the dwarf wedgemussel (*Alasmidonta heterodon*); one proposed endangered species, the tricolored bat (*Perimyotis subflavus*, TCB); and one proposed threatened species, the monarch butterfly (*Danaus plexippus*), as having the potential to occur within the proposed action area. There is no designated Critical Habitat for any federally listed species identified in the vicinity of the Proposed Action.

The dwarf wedgemussel is a federally endangered species of freshwater mussel known to be found in the Connecticut River and the Ashuelot River. The Ashuelot River is located approximately 1,300 feet west of the proposed action at its closest point. Therefore, dwarf wedgemussel are not anticipated to occur within the proposed action area.

The USFWS has proposed to list the TCB as endangered under the ESA. However, a final determination regarding the listing the TCB has not been issued by the USFWS at the time of the preparation of this EA. If the TCB is listed as endangered and the project has not been completed prior to the effective listing date, additional consultation with USFWS may be required for any proposed impacts to TCB and/or their suitable habitat. Avoidance and minimization measures may need to be incorporated into the project for the TCB if it is listed under the ESA. TCB has the potential to occur throughout much of New Hampshire. According to the USFWS, suitable spring, summer, and fall habitat (non-hibernating seasons) for TCB consists of a variety of forested habitats. This species primarily roosts in trees, among live and dead leaf clusters of deciduous hardwood trees and have also been observed roosting during summer among pine needles, and within artificial roosts such as barns, beneath roofs, bridges, concrete bunkers, and rarely within caves. Tricolored bats overwinter in hibernacula such as caves and mines. Neither the New Hampshire Natural Heritage Bureau (NHB) nor the NHFG reported any known winter hibernacula or maternity roost trees in the vicinity of the Proposed Action.

The USFWS has also proposed to list the monarch butterfly as threatened under the ESA. A final determination regarding the listing of the monarch butterfly has not been issued by the USFWS at the time of the preparation of this EA. If the monarch butterfly is listed as threatened and the project has not been completed prior to the effective listing date, additional consultation with USFWS may be required for potential impacts to monarch butterflies and their suitable habitat. Avoidance and minimization measures may need to be incorporated into the project for the monarch butterfly if it is listed under the ESA. Monarch habitat includes non-forested, non-shrubby areas where there is potential for nectar species (flowering plants) and/or milkweed plants, including, but not limited to, regularly or semi-regularly mowed areas. Portions of the grassland areas on Airport property provide potential suitable habitat for monarch butterflies.

4.3.3. Essential Fish Habitat

Under the Magnuson-Stevens Fishery Conservation and Management Act, Essential Fish Habitat (EFH) is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding,

or growth to maturity." This Act is the primary law that governs marine fisheries management in US federal waters and is administered by the NMFS.

The proposed action is located within the Ashuelot River Watershed, which is part of the larger Connecticut River Watershed. The Connecticut River and its tributaries are designated as Atlantic Salmon EFH. However, based on prior correspondence between NOAAA NMFS and NHDOT (Appendix C), consultation with NOAA/NMFS is not required for projects within the Connecticut River Watershed, as long as measures to avoid and minimize permanent impacts to diadromous fish habitat are incorporated into the project.

The only surface water located in the immediate vicinity of the Proposed Action is the unnamed perennial stream originating from the outlet of Wilson Pond. The Ashuelot River and South Branch Ashuelot River are located west of the Proposed Action.

4.3.4. Migratory Birds

Migratory birds are protected under the United States Migratory Bird Treaty Act (MBTA) of 1918. Federal agencies must comply with the MBTA, which prohibits the "take" of any migratory birds, their eggs, or nests without a permit pursuant to 50 CFR 21. A "take" is defined by the MBTA as to "pursue, hunt, shoot, wound, kill, trap, capture, or collect." The habitat on the Airport and adjacent areas provide potential foraging and nesting habitat for a variety of bird species that are protected under the MBTA. Migratory and resident bird species that were identified on Airport property during the Wildlife Hazard Site Visit include: alder flycatcher (*Empidonax alnorum*), American crow (*Corvus Brachyrhynchos*), American goldfinch (*Spinus tristis*), black-and-white warbler (*Mniotilta varia*), blue jay (*Cyanocitta cristata*), bobolink (*Dolichonyx oryzivorus*), brown thrasher (*Toxostoma rufum*), Canada goose (*Branta canadensis*), Carolina wren (*Thryothorus ludovicianus*), cedar waxwing (*Bombycilla cedrorum*), chestnut-sided warbler (*Setophaga pensylvanica*), common grackle (*Quiscalus quiscalus*), common mergansers (*Mergus merganser*), common raven (*Corvus corax*), common yellowthroat (*Geothlypis trichas*), dark-eyed junco (*Junco hyemalis*), eastern kingbird (*Tyrannus tyrannus*), eastern meadowlark (*Sturnella magna*), field sparrow (*Spizella pusilla*), great-crested flycatcher (*Myiarchus crinitus*), gray catbird (*Dumetella carolinensis*), grasshopper sparrow (*Ammodramus savannarum*), hermit thrush (*Catharus guttatus*), house finch (*Haemorhous mexicanus*), least flycatcher (*Empidonax minmus*), marsh wren (*Cistothorus palustris*), northern cardinal (*Cardinalis cardinalis*), northern mockingbird (*Mimus polyglottos*), ovenbird (*Seiurus aurocapilla*), pine warbler (*Setophaga pinus*), prairie warbler (*Setophaga discolor*), red-tailed hawk, red-winged blackbirds (*Agelaius Phoeniceus*), rose-breasted grosbeak (*Pheucticus ludovicianus*), red-eyed vireo (*Vireo olivaceus*), song sparrow (*Melospiza melodia*), savannah sparrow (*Passerculus sandwhichensis*), swamp sparrow (*Melospiza georgiana*), tufted titmouse (*Baeolophus bicolor*), turkey vulture (*Cathartes aura*), veery (*Catharus fuscescens*), vesper sparrow (*Pooecetes gramineus*), warbling vireo (*Vireo gilvus*), willow flycatcher (*Empidonax traillii*), wood duck (*Aix sponsa*), wood thrush (*Hylocichla mustelina*), white-throated sparrow (*Zonotrichia albicollis*), yellow warbler (*Setophaga petechia*), an yellow-rumped warbler (*Setophaga coronate*).

The USFWS IPaC review identified 17 migratory bird species including: Bald eagle (*Haliaeetus leucocephalus*), bay-breasted warbler (*Setophaga castanea*), black-billed cuckoo (*Coccyzus erythropthalmus*), bobolink, Canada warbler (*Cardellina canadensis*), Cape May warbler (*Setophaga tigrine*), chimney swift (*Chaetura pelagica*), eastern whip-poor-will (Antrostomus vociferus), evening grosbeak (*Coccothraustes vespertinus*), golden eagle (*Aquila chrysaetos*), lesser yellowlegs (*Tringa flavipes*), olive-sided flycatcher (*Contopus cooperi*), prairie warbler, rose-breasted grosbeak, semipalmated sandpiper (*Calidris pusilla*), veery, and wood thrush.

Bald eagles and golden eagles are further protected under the Bald and Golden Eagle Protection Act (BGEPA), which prohibits anyone without a permit issued by the Secretary of the Interior from "taking" bald eagles or golden eagles, including their parts, nests, or eggs. The BGEPA defines "take" as to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." The term “disturb” means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. Neither bald eagle nor golden eagles have been reported by the NHB or NHFG as a potential concern in the vicinity of the project and no evidence of eagles or nests was observed in the immediate project area.

4.3.5. State Listed Rare, Threatened, and Endangered Species and Exemplary Natural Communities

In New Hampshire, the NHB is responsible for keeping records of documented or known locations of rare species and exemplary natural communities in the state, and assisting with the protection of state listed rare, threatened, and endangered plants. The NHFG is responsible for the protection of state listed rare, threatened, and endangered fish and wildlife species.

The proposed action was submitted to the NHB via the online NHB DataCheck Tool, and the NHB DataCheck Results Letter (NHB25-0962) was issued by NHB April 22, 2025 (**Appendix D**). The NHB Results Letter included one Exemplary Natural Community:

1) Silver Maple-False Nettle-Sensitive Fern Floodplain Forest

Based on the field review, there is no Silver Maple-False Nettle-Sensitive Fern Floodplain Forest located within the project area. This natural community is associated with the floodplain of the Ashuelot and South Branch Ashuelot River and is found west of the project area closer to these rivers.

The NHB Results Letter also included eight vertebrate wildlife species, as shown below in **Table 4-1**, including six birds, one amphibian, and one reptile:

Table 4-1: NH State Listed Rare Species

Common Name	Scientific Name	Taxa	State Listing Status	General Habitat Descriptions
Eastern Meadowlark	*Sturnella magna*	Bird	Threatened	Open grasslands, hayfields, pastures, airports
Grasshopper Sparrow	*Ammodramus savannarum*	Bird	Threatened	Dry, open grasslands with sparse vegetation, airports
Horned Lark	*Eremophila alpestris*	Bird	Special Concern	Open grasslands, barren fields, airports
Marsh Wren	*Cistothorus palustris*	Bird	Not Listed	Freshwater marshes with dense cattails
Sora	*Porzana carolina*	Bird	Special Concern	Shallow wetlands with emergent vegetation
Vesper Sparrow	*Pooecetes gramineus*	Bird	Special Concern	Open grasslands and shrublands
Northern Leopard Frog	*Lithobates pipiens*	Amphibian	Special Concern	Emergent wetlands, ponds, wet meadows
Wood Turtle	*Glyptemys insculpta*	Reptile	Special Concern	Rivers, streams and riparian areas

Eastern Meadowlark

The eastern meadowlark is a New Hampshire state listed threatened species of grassland bird. Eastern meadowlarks utilize various types of large, open habitats including tallgrass prairie, xeric grassland, cultural grasslands, pastures/hayfields, and airports.[3] In general, eastern meadowlarks require grassland areas greater than 15-20 acres for breeding purposes.[4] The expansive grassland habitat on Airport property provides potential breeding, nesting, and foraging habitat for eastern meadowlarks. This species was confirmed to be present during the 2024 Wildlife Hazard Site Visit. Eastern meadowlark populations have been in decline in New Hampshire and much of the Northeast, largely due to habitat loss. It's important to note that this species exists on the Airport

[3] Massachusetts Natural Heritage & Endangered Species Program. (2020). Eastern Meadowlark. Retrieved April 16, 2025, from https://www.mass.gov/doc/eastern-meadowlark/download

[4] National Audubon Society. (n.d.). Eastern Meadowlark. Retrieved April 16, 2025, from https://stateofthebirds.nhaudubon.org/bird_database/eastern-meadowlark/

property largely due to the Airport's existence and current management practices, which help to maintain the expansive open grassland habitats.

Grasshopper Sparrow

The grasshopper sparrow is a New Hampshire state listed threatened grassland bird species. Grasshopper sparrows utilize various types of grassland habitats including sandplain grasslands, pastures/hayfields, and airfields characterized by bunch grasses (rather than sod-forming grasses).[5] They generally prefer areas with sparser vegetation cover with areas of bare ground. The grassland areas in the southern portions of Airport property provide drier, grassland areas with open sand and bare ground interspersed. These areas likely provide some of the more suitable potential habitat for grasshopper sparrows at EEN. This species was confirmed to be present at the Airport during the 2024 Wildlife Hazard Site Visit.

Horned Lark

The horned lark is a New Hampshire state listed special concern grassland bird species. In New Hampshire the majority of horned larks are seen during migration and winter. Most of these birds nest and breed in the Canadian tundra and migrate south as far as the Gulf of Mexico. However, New Hampshire does support a small breeding population of horned larks.[6] This species is typically associated with large, open, and often barren habitats such as sand dunes, sandplain grasslands, and airports. According to ebird.org, a global citizen science platform managed by the Cornell lab of Ornithology, that collects real-time bird observation data from birders worldwide, horned larks have been observed at EEN, most recently in 2024. The expansive grassland areas on Airport property provide potential suitable habitat for this species.

Marsh Wren

The marsh wren is not a New Hampshire state listed species. However, this species was included on the NHB DataCheck Results Letter and has been identified as a rare species tracked by NHB that has not yet been added to the official state list. The marsh wren utilizes large freshwater, brackish, and salt marshes with an abundance of tall emergent vegetation (cattails, sedges, rushes).[7] The marsh habitat off the Runway 14 end in the northwestern portion of the airfield provides the highest quality potential suitable habitat for marsh wren. Additionally, the wetland complex associated with the unnamed perennial stream on the east side of the Airport may

[5] Massachusetts Natural Heritage & Endangered Species Program. (2015). Grasshopper Sparrow. Retrieved April 16, 2025, from https://www.mass.gov/doc/grasshopper-sparrow/download

[6] National Audubon Society. (n.d.). Horned Lark. Retrieved April 16, 2025, from https://stateofthebirds.nhaudubon.org/bird_database/horned-lark/

[7] Massachusetts Natural Heritage & Endangered Species Program. (2015). Marsh Wren. Retrieved April 16, 2025, from https://www.mass.gov/doc/marsh-wren/download

provide suitable habitat for this species; however, vegetation is dominated by lower growing herbaceous vegetation such as sedges and lacks dense cattails. This species was confirmed to be present at the Airport during the 2024 Wildlife Hazard Site Visit.

Sora

The sora is a New Hampshire state listed special concern bird species. This species of rail is a small, secretive bird that inhabits freshwater marshes dominated by cattails, with an interspersion of emergent, floating-leaved, and submergent vegetation and open water.[8] The marsh habitat off the Runway 14 end in the northwestern portion of the airfield provides the highest quality potential suitable habitat for sora. Vegetation in this portion of the wetland is dominated by dense cattails with areas of open water. According to eBird.org records, this species has been documented at EEN, as recently as 2021.

Vesper Sparrow

The vesper sparrow is a New Hampshire state listed special concern bird species that utilizes a variety of grassland shrubland habitats. This species is more of a habitat generalist compared to other grassland sparrows (i.e., the grasshopper sparrow) and includes dry, well-drained sites with a mixture of grasslands, bare ground, shrubs, and trees. However, the vesper sparrow is not considered a forest species.[9] The majority of the existing airfield and adjacent habitats provide potential suitable vesper sparrow habitat. This species was confirmed to be present at the Airport during the 2024 Wildlife Hazard Site Visit.

Northern Leopard Frog

The northern leopard frog is a New Hampshire state listed special concern amphibian species. This species utilizes both aquatic and terrestrial habitats throughout its lifecycle. Aquatic habitats typically consist of floodplain marshes with emergent vegetation or scrub-shrub swamps associated with the margins of streams, rivers, lakes, and ponds. These aquatic habitats are primarily used for breeding and overwintering. During late spring through early fall northern leopard frogs disperse widely into upland habitats including fields, grasslands, wet meadows, and forested areas.[10] The wetland complexes surrounding the airport and the adjacent uplands provide potentially suitable habitats for northern leopard frogs.

---

[8] Massachusetts Natural Heritage & Endangered Species Program. (2015). Sora. Retrieved April 16, 2025, from https://www.mass.gov/doc/sora/download

[9] Massachusetts Natural Heritage & Endangered Species Program. (2015). Vesper Sparrow. Retrieved April 16, 2025, from https://www.mass.gov/doc/vesper-sparrow/download

[10] Massachusetts Natural Heritage & Endangered Species Program. (2015). Northern Leopard Frog. Retrieved April 16, 2025, from https://www.mass.gov/doc/northern-leopard-frog/download

Wood Turtle

The wood turtle is primarily associated with riparian habitats including slower moving, mid-sized streams and rivers, with a sandy substrate and vegetated stream banks. Wood turtles will overwinter in the stream bottom and banks. Wood turtles are known to occupy a variety of habitats during late spring to early fall including mixed or deciduous forests, fields, hayfields, wet meadows, riparian wetlands, bogs, and beaver ponds.[11] The Ashuelot River and South Branch Ashuelot River located along the western edge of the Airport property likely provide the highest quality wood turtle overwintering habitat in the vicinity of the proposed action. The large wetland complexes surrounding the Airport and the adjacent upland areas provide potentially suitable terrestrial habitats for foraging and dispersing wood turtles. The existing unnamed perennial stream on Airport property could also provide potential wood turtle habitat. However, the existing barriers to aquatic and terrestrial wildlife passage including the existing culvert under the end of Runway 2 and the outlet structure at Wilson Pond severely restrict wildlife (including wood turtles) movement along this stream corridor.

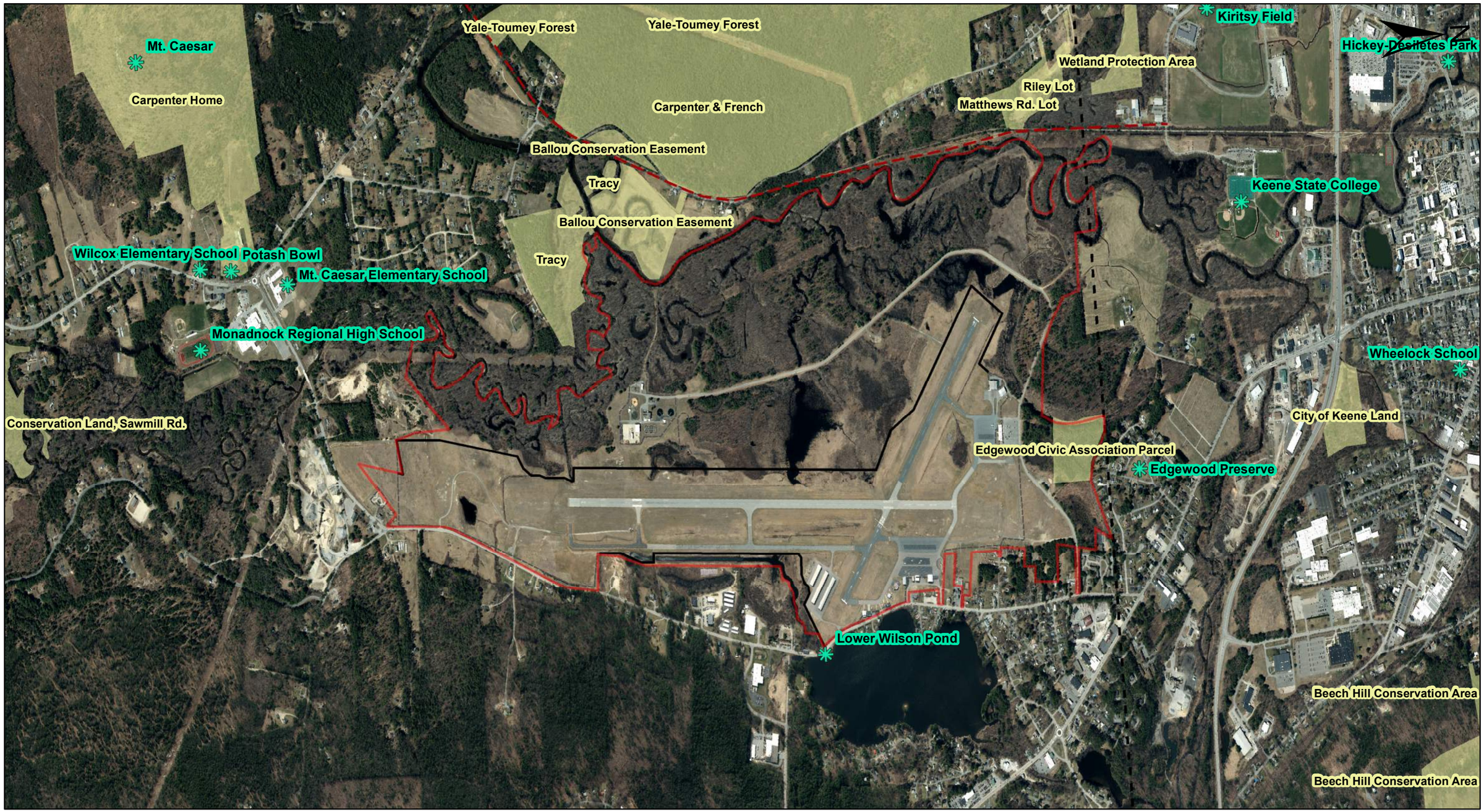
4.4. SECTION 4(F)

Section 4(f) of the U.S. Department of Transportation Act of 1966 provides consideration and protection of publicly owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites of national, state, or local significance during transportation project development.

If an action involves the use of a Section 4(f) property listed above and if a de minimis impact determination cannot be made, a Section 4(f) evaluation must be prepared. A use occurs when the property is permanently incorporated into the transportation project through a taking of land; when it is temporarily occupied; or when its significant features are substantially impaired such that its value as a 4(f) resource will be meaningfully diminished or lost. The latter is termed a constructive use. Section 4(f) provides that the Secretary of Transportation may approve a transportation program or project requiring the use of a Section 4(f) property, only if there is no feasible and prudent alternative to the using that land and the program or project includes all possible planning to minimize harm resulting from the use. A property must be a significant resource for Section 4(f) to apply.

The Proposed Action is located entirely on existing Airport Property owned by the City of Keene. There are no publicly owned parks, recreational areas, and/or wildlife and waterfowl refuges in the vicinity of the Proposed Action. Conservation, recreation and public lands located in the general vicinity of the Proposed Action are depicted on **Figure 4-3**.

[11] Massachusetts Natural Heritage and Endangered Species Program. (2015). Wood Turtle (Glyptemys insculpta). Retrieved April 16, 2025, from https://www.mass.gov/files/documents/2016/08/tm/glyptemys-insculpta.pdf



EEN Airport Property Boundary

Town Boundary

Proposed Fence

Existing Fence

NH Recreation Points

NH Trails

NH Conservation & Public Lands

Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)
New Hampshire Conservation/Public Lands (Source: NH GRANIT, 2025)
NH Recreational Trails (Source: NH GRANIT, 2022)
NH Recreation Inventory (Source: NH GRANIT, 2010)
New Hampshire Political Boundaries (Source: NH GRANIT, 1992)

0 1,500 3,000
Feet

KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

CONSERVATION, RECREATION & PUBLIC LANDS

SCALE :	DATE :	FIGURE :
1" = 1,500'	May 2025	4-3

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph I\Draw\GIS\NEPA EA Figures\CHAPTER 4\Figure 4-3 - Conservation, Recreation & Public Lands REV1.mxd

One archaeologically sensitive area was identified within the proposed action area, that is potentially eligible for listing on the National Register of Historic Places (NRHP). However, the proposed action is not anticipated to result in an Adverse Effect under Section 106 of the National Historic Preservation Act (NHPA). There are no other historic sites documented in the vicinity of the Proposed Action. Therefore, the Proposed Action is not anticipated to result in a use of a Section 4(f) property and a Section 4(f) evaluation Is not required.

The Conservation Land Stewardship (CLS) Program is responsible for monitoring and protecting the conservation values of conservation easement lands in which the State of New Hampshire has invested through the Land Conservation Investment Program (LCIP). The CLS Program is located within the NH Office of Energy & Planning. The project has been reviewed by the CLS Program Coordinator, and it was determined that there are no LCIP properties within the project area (Appendix E).

The Land and Water Conservation Fund (LWCF) is a program established by Congress in 1964 to create parks and open spaces; protect wilderness, wetlands and refuges; preserve wildlife habitat; and enhance recreational opportunities. The NH Division of Parks and Recreation is the State LWCF Manager. Section 6(f) of the Land and Water Conservation Act requires all property acquired or developed with LWCF assistance to be maintained perpetually in public outdoor recreation use. Any permanent or temporary use of a LWCF property must be reviewed and approved by the LWCF Manager and the National Park Service, and conversion of LWCF property requires mitigation. Based on a review of their LWCF files, the NH Division of Parks and Recreation has advised that there are no LWCF properties present in the project area (Appendix F).

The New Hampshire Land and Community Heritage Investment Program (LCHIP) is an independent state authority that makes matching grants to communities and non-profits to conserve and preserve natural, cultural and historic resources. LCHIP has reviewed the project and determined that no LCHIP properties exist in the area (Appendix G).

4.5. FARMLANDS

The Farmland Protection Policy Act (FPPA) is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. For the purpose of the FPPA, special consideration is given to soils identified as “Important Farmland” by the Natural Resources Conservation Service (NRCS). Important Farmland includes soils designated as: “Prime Farmland”, “Unique Farmland”, or “Local Importance”. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land. Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency. The FPPA does not apply to land already committed to “urban development” or water storage, including airport developed areas.

The NRCS Soil Survey mapping was reviewed to determine the classifications of soils within the project area. Portions of the proposed fence alignment are underlain by Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance (**Figure 4-4**). Prime Farmlands in the project area include Ninigret fine sandy loams and Scio very fine sandy loams.

However, the Proposed Action is located entirely on existing Airport property, on lands that have been committed to aviation land use. There are no active agricultural lands located in the vicinity of the Proposed Action. The NRCS was contacted regarding the Proposed Action and confirmed that if the land that the fence is going on has a current land use of aviation then the project should be exempt from FPPA (**Appendix H**).

4.1. HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

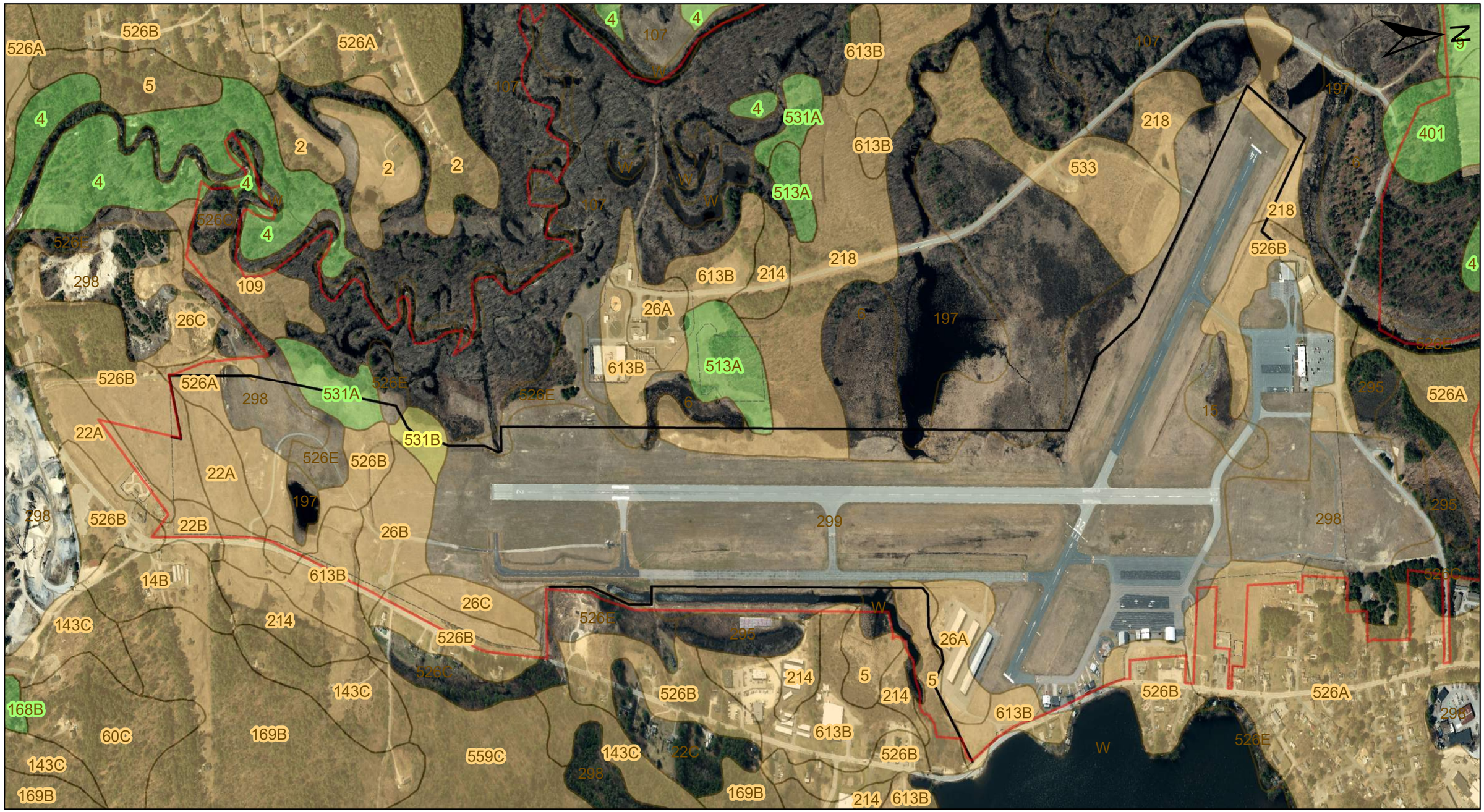
4.1.1. Remediation Sites

The NHDES OneStop GIS Database, accessed in April 2025, has records of four remediation sites located within 1,000 feet of the proposed project. These records are summarized in **Table 4-2**, and depicted graphically on **Figure 4-5**.

Table 4-2: NHDES Remediation Sites Located within 1,000 feet of the Proposed Project

SITE #	FACILITY	ADDRESS	TOWN	TYPE	STATUS
200006003	FRAZIER AND SON FURNITURE	233 OLD HOMESTEAD HWY	SWANZEY	OPUF	CLOSED
200310007	GREEN RIVER AERO SERVICES	OLD HOMESTEAD HWY	SWANZEY		
202305004	FLATLEY APARTMENTS	244 OLD HOMESTEAD HWY	SWANZEY	UIC	REGISTRATION
199409061	SWANZEY NEIGHBORS	472 RTE 32	SWANZEY	LUST	CLOSED

Site 200006003 is a leaking on-premise use facilities (OPUF) site associated with Frazier and Son Furniture, located at 233 Old Homestead Highway in Swanzey, New Hampshire. The site is located approximately 785 feet east of the proposed fence alignment along the eastern side of the Airport. A release of fuel oil occurred during the removal of an underground fuel storage tank in 2000. However, the site was remediated and has been closed out. A Certificate of No Further Action was issued by NHDES on July 3, 2003.



EEN Airport Property Boundary
Proposed Fence
Existing Fence

Farmland Soils

Classification

- All areas are prime farmland
- Farmland of statewide importance
- Farmland of local importance
- Not prime farmland

Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)
Soil Survey Geographic Database (Source: NRCS, 2025)

0 800 1,600
Feet

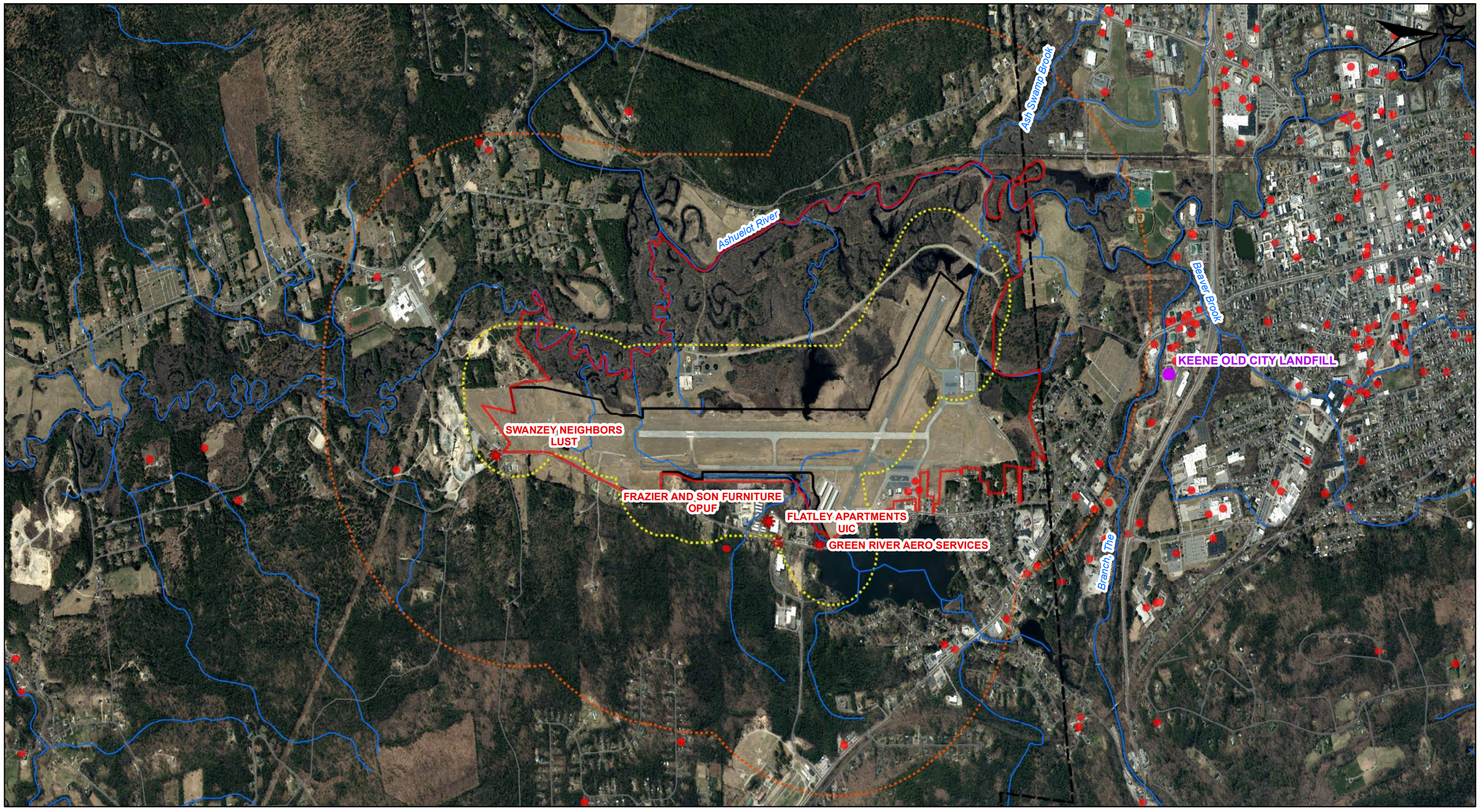
KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

FARMLAND SOILS

SCALE :	DATE :	FIGURE :
1" = 800'	May 2025	4-4

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\NEPA EA Figures\CHAPTER 4\Figure 4-4 - Farmland Soils REV1.mxd



EEN Airport Property Boundary
Proposed Fence
Town Boundary
Roads

1,000-ft Project Buffer
4,000-ft Project Buffer

Solid Waste Facilities
NHDES Remediation Sites with 1,000'
NHDES Remediation Sites

Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)
NH DOT Roads (Source: NH GRANIT, 2023)
New Hampshire Political Boundaries (Source: NH GRANIT, 1992)
Solid Waste Facilities (Source: NHDES OneStop, 2025)
Remediation Sites (Source: NHDES OneStop, 2025)

0 2,000 4,000
Feet

KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

HAZARDOUS MATERIALS

SCALE :	DATE :	FIGURE :
1" = 2,000'	May 2025	4-5

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\NEPA EA Figures\CHAPTER 4\Figure 4-5 - HAZMAT REV1.mxd

There is no additional information in the NHDES OneStop Database regarding Site 200310007 other than it is an aboveground storage tank facility associated with Green River Aero Services. The site is located approximately 240 feet south of the eastern terminus of the proposed fence along Old Homestead Highway.

Site 202305004 is an underground injection control (UIC) site associated with the Flatley Apartments, located at 244 Old Homestead Highway in Swanzey, New Hampshire. The UIC program is a federal program managed by NHDES to regulate and inventory the discharge of wastewater into the ground and groundwater of New Hampshire. The site is located approximately 1,100 feet east of the proposed fence alignment along the eastern side of the Airport. A UIC registration was issued by NHDES on May 2, 2023, for the registration of a storm water infiltration structure.

Site 199409061is associated with a leaking underground storage tank (LUST) located at the Neighbors Mobile gas station, at 472 Old Homestead Highway. The site was closed out by NHDES and the Certificate of No Further Action was issued in 1996. All sources of groundwater contamination at the subject site were eliminated and ambient groundwater quality standards were met. The site is located approximately 1,100 feet southeast of the southern terminus of the fence on the west side of the airfield, and approximately 3,500 feet south of the southern terminus of the fence along the eastern side of the airfield.

There are no other documented hazardous waste sites in the vicinity of the Proposed Action.

4.1.2. Solid Waste Facilities

The NHDES OneStop GIS Database was also reviewed for solid waste facilities located within 4,000 feet of the proposed project. In New Hampshire, solid waste facilities are categorized into three types of regulated facilities and sites:

1) Collection, storage, and transfer facilities,
2) Processing and treatment facilities, and
3) Landfills

Based on the NHDES Solid Waste Facilities data layer, there are no solid waste facilities located within 4,000 feet of the Proposed Action. The Keene Old City Landfill is located approximately 4,600 feet north the northern limits of the Proposed Action (**Figure 4-5**). Landfills are facilities that collect and dispose of solid waste by the intentional placement of the waste in or on land where it will remain after closure of the facility. The Keene Old City Landfill is an unlined facility, that is no longer operating. According to the 2024 Annual Monitoring Report for the Keene Old City Landfill, the existing Groundwater Management Permit (GMP) for the site expired, and a new application was submitted in October 2019; however, a current GMP has not yet been issued. Groundwater sampling was performed in May 2024, in accordance with the expired GMP. Contaminant booms have been installed along the Branch River adjacent to the landfill site. Trichloroethylene and volatile organic compounds were detected in some of the ground water samples from the site. However, based on the distance from the Proposed Action, and the

presence of the Branch River located between the Old City Landfill and the Proposed Action, contamination from the landfill is not anticipated to be encountered in the Proposed Action area.

4.1.3. Per- and Polyfluoroalkyl Substances (PFAS)

Per- and polyfluoroalkyl substances, collectively referred to as PFAS, are a group of synthetic chemicals that have historically been widely used in industrial and consumer products due to their resistance to heat, water, and oil. These chemicals are persistent in the environment and human body, and have been detected in soil, groundwater, surface water, and air, raising concerns regarding human and environmental health.

In New Hampshire, the current health-based Maximum Contaminant Levels (MCLs) and Ambient Groundwater Quality Standard (AGQS) for four PFAS compounds as signed into law on July 23, 2020, include 12 nanograms per liter (ng/L) for perfluorooctanoic acid (PFOA), 15 ng/L for perfluorooctane sulfonic acid (PFOS), 18 ng/L for perfluorohexane sulfonic acid (PFHxS), and 11 ng/L for perfluorononanoic acid (PFNA).

The NHDES maintains an interactive map known as the PFAS Sampling Dashboard that displays current existing PFAS water quality data. The PFAS Sampling Dashboard was reviewed on April 30, 2025, and there are no existing PFAS sample points located within 4,000 feet of the Airport that exceeded the AGQS (**Appendix I**). The closest AGQS exceedances are two sites (Station Numbers: 70910 and 70911) associated with the Keene Old City Landfill located approximately 4,600 feet north of the project. These two groundwater sampling stations had PFOA and PFOS concentrations that exceeded the previous 2016 AGQS of 70 parts per trillion (PPT).

4.2. HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act (NHPA) of 1966 requires federal agencies to consider the effects of their actions on historic properties that are listed in or eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the NHPA mandates consultation with the New Hampshire State Historic Preservation Office (SHPO), federally recognized Tribal Historic Preservation Offices (THPOs), and other consulting parties to evaluate potential adverse effects on historic properties. There are no federally recognized tribes in New Hampshire. Therefore, coordination with THPOs has not been completed and is not anticipated to be required for the Proposed Action.

For the purposes of Section 106, historic properties are defined as prehistoric and historic sites (greater than 50 years old) including buildings, structures, districts, landscapes, and objects that are either eligible for or listed in the NRHP, as well as artifacts, records, and remains related to such properties.

Historic properties must demonstrate importance in history, architecture, archaeology, engineering, or culture, and must also demonstrate integrity.

The Area of Potential Effect (APE) is defined in accordance with Section 106 of the NHPA as the geographic area within which a project may directly or indirectly cause changes in the character

or use of historic, architectural, archaeological or cultural resources. The APE for the proposed action was determined based on the potential for direct and indirect effects resulting from the construction, operation, and long-term presence of the proposed fence. The APE for the Proposed Action included an approximately 211.9-acre area along the west side of the airfield, and a 29.2-acre area along the east side of the airfield that are currently unfenced.

Based on a review of the NHDHR Enhanced Mapping & Management Information Tool, no previously inventoried properties identified as listed in or eligible for listing in the NRHP were identified within the APE.

A Request for Project Review (RPR) was submitted to the New Hampshire Division of Historical Resources (DHR), New Hampshire's SHPO, in June 2024 to initiate Section 106 consultation. DHR's response dated July 9, 2024, indicated that, "No above-ground survey appears necessary", and an archaeological sensitivity assessment was also requested.

A Phase IA Archaeological Sensitivity Assessment and a Phase IB Intensive Archaeological Investigation were completed by Monadnock Archaeological Consulting LLC in May, June, and July 2024. A single archaeologically sensitive site (27CH270) located on the east side of the Airport, west of Wilson Pond, was documented within the APE. Site 27CH270 was determined to be potentially eligible for inclusion on the NRHP.

4.3. VISUAL EFFECTS

Visual effects describe the extent to which the Proposed Action or alternative(s) would either produce light emissions that create annoyance or interfere with activities, or contrast with, or detract from the visual resources and/or the visual character of the existing environment.

The Airport is set in a relatively rural area just south of the City of Keene. The surrounding land use consists of undeveloped forested areas, residential and commercial development. The majority of the existing development is along Old Homestead Highway, east of the Airport. Airport Road runs along the northern and western sides of the Airport. The existing roadway is paved and dead-ends at the City of Keene Wastewater Treatment Plant. There is also an existing solar farm north of the Wastewater Treatment Plant on Airport property.

The majority of the buildings on Airport property are single-story buildings consistent with aviation land use including the terminal building, SRE building, and various hangars located along the northern and eastern perimeter of the Airport.

Light emissions from the existing Airport facilities and operations include existing medium and high intensity runway edge lighting, runway end identifier lights, medium intensity approach light system, precision approach path indicators, medium intensity taxiway edge lighting, a green and red rotating beacon adjacent to the terminal building, vehicle parking lot lights, various building interior/exterior lighting, and airborne/ground-based aircraft operations.

Airport Road is a popular recreation area for birdwatching and walking. Despite the existing Airport development, the views from Airport Road provide generally unobstructed site lines of high-quality wildlife habitats associated with the large wetland complexes that provide a diversity

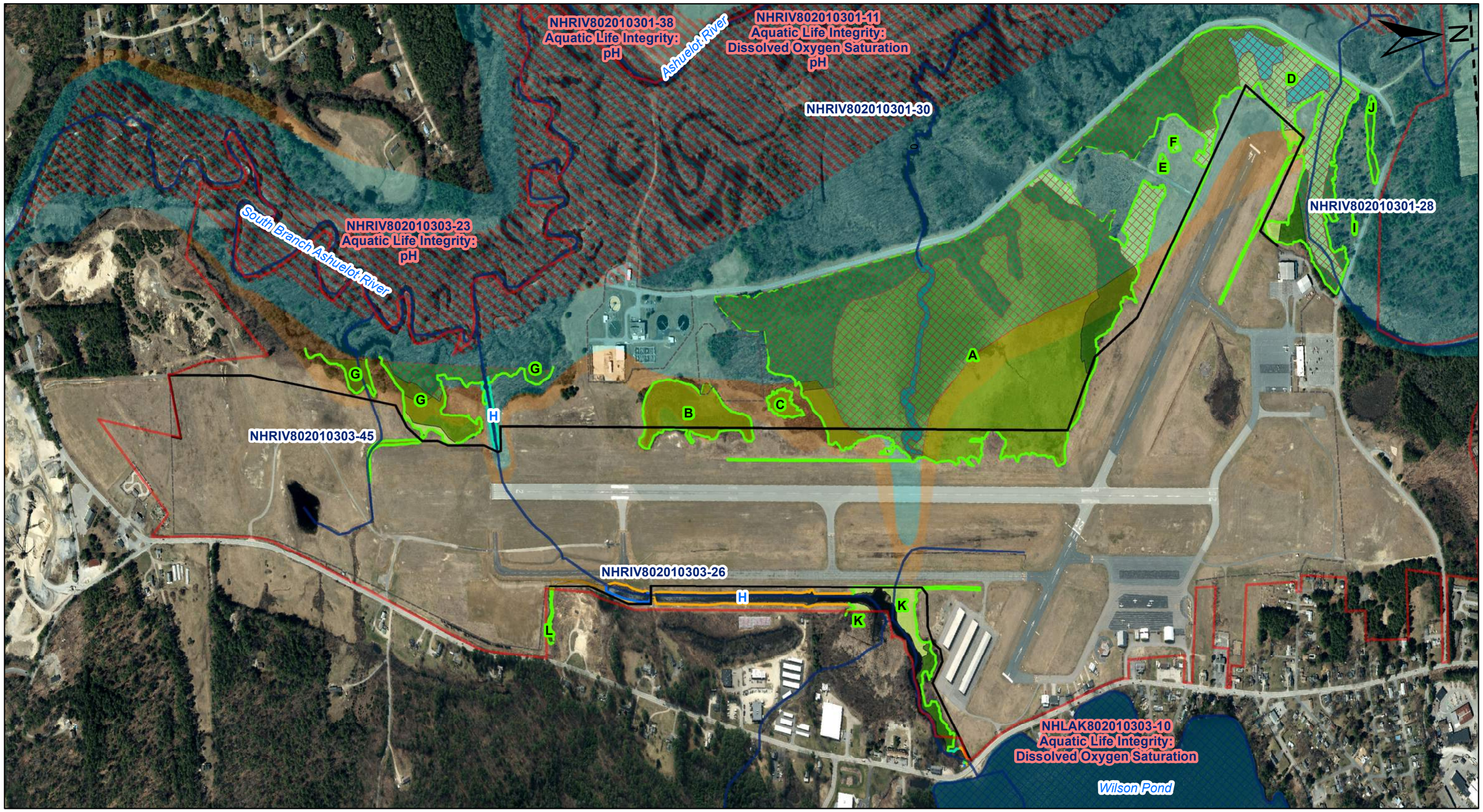
of wildlife habitats. The area is a well-known birding hotspot due to the accessibility, proximity to populated areas, and existing habitats. According to eBird.org, Airport Road in Swanzey is listed at #15 on the list of Checklist Leaders Hotspots in New Hampshire, as of April 2025. Picnic tables have been installed at various locations along Airport Road and informal pull-offs and parking areas are located along the Roadway. This scenic area is just a short drive from highly populated, urban areas.

4.4. WATER RESOURCES

Wetlands, surface waters, Wild and Scenic Rivers, floodplains, and groundwater are grouped under the Water Resources environmental impact category because they represent interconnected components of the hydrologic system. Water moves continuously between these systems through processes such as precipitation, infiltration, runoff, and groundwater recharge, meaning impacts to one component often influence the others. Grouping them together allows for a more holistic assessment of how the Proposed Action could affect water quantity, quality, flow patterns, and ecosystem functions across the entire watershed. Surface water resources including wetlands, streams, rivers, lakes, ponds, floodplains, and impaired surface waters are depicted on **Figure 4-6**.

4.4.1. Wetlands

At the federal level, wetlands are protected under Section 404 of the Clean Water Act (CWA) which regulates the discharge of dredged or fill material into Waters of the United States (WOTUS), including wetlands. According to the United State Army Corps of Engineers (USACE), *Corps of Engineers Wetlands Delineation Manual* (1987), wetlands are defined as, "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." The USACE is primarily responsible for implementing Section 404 of the CWA and issuing permits authorizing dredge and fills in WOTUS. In addition, the EPA also retains some authority to oversee and regulate certain aspects of Section 404 as well as other components of the CWA. Actions requiring authorization under Section 404 are also subject to Section 401 of the CWA, which precludes federal agencies from issuing a permit or license to conduct any activity that may result in any discharge into WOTUS unless a Section 401 water quality certification is issued, or the certification is waived. Wetlands adjacent to navigable waters are also regulated under Section 10 of the Rivers and Harbors Act of 1899. Wetland resources are further protected under Executive Order 11990 Protection of Wetlands, which requires federal agencies to "avoid to the extent possible the long and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative."



EEN Airport Property Boundary
Town Boundary
Proposed Fence
Existing Fence
Assessment Unit ID Lines
Assessment Unit ID Poly

Keene Delineated Wetlands (MJ 2024)
Approximate Wetland Boundaries
Keene Delineated OHW (MJ 2024)
Keene Delineated OHW-TOB (MJ 2024)
Keene Delineated TOB (MJ 2024)
Keene Non-Jurisdictional Ditch (MJ 2024)

Flood Hazard Zones
Zone Type
1% Annual Chance Flood Hazard
Regulatory Floodway
0.2% Annual Chance Flood Hazard

Keene Wetland Polygons (Approx)
Wetland Class, PRA Status
PEM1E, NO
PEM1E, YES
PEM1Ed, NO
PEM1Ed, YES
PFO1E, NO
PFO1E, YES
PSS1E, NO
PSS1E, YES
PUBFh, YES
PUBHh, YES

Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)
New Hampshire Political Boundaries (Source: NH GRANIT, 1992)
National Flood Hazard Layer (Source: FEMA, 2015)
Assessment Unit ID Lines/Polys (Source: NHDES, 2018)
Wetlands & Surface Waters (Source: MJ Field Delineated, May 2024)

0 800 1,600
Feet

KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

WETLANDS & SURFACE WATERS

SCALE :	DATE :	FIGURE :
1" = 800'	May 2025	4-6

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\NEPA EA Figures\CHAPTER 4\Figure 4-6 - Wetlands & Surface Waters REV1.mxd

In New Hampshire, the USACE has issued the New Hampshire General Permit (NHGP) which authorizes certain activities under Section 404 and Section 10 in New Hampshire that are subject to USACE's jurisdiction and have no more than minimal individual and cumulative impacts in WOTUS. The NHGP is intended to streamline reviews and increase efficiency by reducing duplication between state and federal reviews. Activities authorized under the NHGP are assumed to comply with the surface water quality standards outlined in Section 401 of the CWA. The NHDES has issued a Water Quality Certification for activities authorized under the NHGP.

The state of New Hampshire also regulates wetlands at the state level through the Fill and Dredge in Wetlands Act (RSA 482-A). Activities in wetlands and surface waters such as excavation, removal, filling, dredging, and/or construction of structures in or on any bank, flat, marsh, forested wetland, or adjacent to waterbodies generally requires review and approval by NHDES, pursuant to the NHDES Wetland Rules (Env-Wt 100-1000).

In New Hampshire, Priority Resource Areas (PRAs) are areas within the jurisdiction of the NHDES Wetlands Bureau protected under state law in RSA 482-A and identified by rule in Env-Wt 103.68, for which a greater level of protection is required. PRAs means a jurisdictional area that:

1) Has documented occurrences of protected species or habitat;
2) is a bog;
3) is a floodplain wetland contiguous to a tier 3 or higher watercourse;
4) is a designated prime wetlands;
5) is a duly-established 100-foot buffer of a designated prime wetlands;
6) is a sand dune, tidal wetland, tidal water, or undeveloped tidal buffer zone; or
7) is any combination of (1) through (6), above.

Protected species or habitats are further defined in Env-Wt 103.71 to include any state and/or federally listed threatened or endangered species. State listed Special Concern species are not afforded additional protection under the definition of protected species or habitat and would not result in a PRA classification of a wetland resource area.

A wetlands and surface waters delineation was completed by MJ between May 7-9, 2024, and May 16-17, 2024, in accordance with NHDES requirements and the *Corps of Engineers Wetlands Delineation Manual* (1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, Version 2.0 (January 2012). The study area for the wetland delineation was approximately 241 acres in size and included approximately 212 acres on the west side of the Airport, and 29 acres on the east side of the Airport. The results of the wetland delineation including USACE Wetland Determination Data Forms, Wetland Function-Value Evaluation Forms, and photographs are included in **Appendix K**. A total of 11 wetland areas were delineated within the wetland delineation study area and are summarized below in **Table 4-3**. Delineated wetlands and surface waters are depicted on **Figure 4-6**.

Table 4-3: Delineated Wetlands within Study Area

Wetland ID	Approximate Size (ac)	Wetland Classification (Approximate Percent Cover)			
		PFO	PSS	PEM	PUB
Wetland A	88.1	28.3%	65.4%	4.0%	2.3%
Wetland B	5.6		100.0%		
Wetland C	0.8		100.0%		
Wetland D	29.0	34.0%	18.6%	38.2%	9.2%
Wetland E	0.1			100.0%	
Wetland F	0.1			100.0%	
Wetland G	7.4	59.2%	31.4%	9.4%	
Wetland I	0.1		100.0%		
Wetland J	0.7	100.0%			
Wetland K	3.2	34.6%		65.4%	
Wetland L	0.2	100.0%			

Note: No Wetland H, this was the ordinary highwater mark and top of bank of the unnamed perennial stream (R2UBFx).

Wetlands are classified by the USFWS using the Cowardin Classification System, outlined in, *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et. al. 1979). There are four main types of palustrine (inland, nontidal, freshwater wetlands with ocean-derived salts in concentrations of less than 0.5 parts per thousand) wetlands delineated at the Airport, as described below.

- Palustrine Forested (PFO): Trees (i.e., woody plants at least 20 feet in height) are the dominant life form (i.e., the tallest life form with at least 30 percent areal coverage).
- Palustrine Scrub-Shrub (PSS): Woody plants less than 20 feet in height (including saplings and true shrubs) are the dominant life form (i.e., the tallest life form with at least 30 percent areal coverage).
- Palustrine Emergent (PEM): Emergent plants (i.e., erect, rooted, herbaceous hydrophytes, excluding mosses and lichens) are the tallest life form with at least 30 percent areal coverage.
- Palustrine Unconsolidated Bottom (PUB): The unconsolidated bottom class includes all wetlands and deepwater habitats with at least 25 percent cover of particles smaller than stones and a vegetative cover less than 30 percent. This classification is typically associated with small, shallow, ponds and areas of open water that lack vegetation.

A Wetlands Functions and Values Assessment was completed, using the USACE Highway Methodology to evaluate functions and values provided by the delineated wetlands (Appendix K). The USACE Highway Methodology includes the following eight functions and five values:

1) Groundwater Recharge/Discharge (Function)
2) Floodflow Alteration (Function)
3) Fish and Shellfish Habitat (Function)
4) Sediment/Toxicant/Pathogen Retention (Function)
5) Nutrient Removal/Retention/Transformation (Function)
6) Production Export (Function)
7) Sediment/Shoreline Stabilization (Function)
8) Wildlife Habitat (Function)
9) Recreation (Value)
10) Educational/Scientific Value (Value)
11) Uniqueness/Heritage (Value)
12) Visual Quality/Aesthetics (Value)
13) Threatened or Endangered Species Habitat (Value)

No vernal pools were identified in the wetland delineation study area.

Portions of Wetlands A, D, E, F, I, and J, as well as Wetland G (associated with the South Branch Ashuelot River), are located within the limits of the Federal Emergency Management Agency (FEMA) mapped 100-year floodplain (refer to Section 4.8.4) and are classified as PRAs pursuant to Env-Wt 103.68. The Ashuelot River is a Tier 3 watercourse pursuant to Env-Wt 904.05, and, therefore, meets the criteria of a floodplain wetland contiguous to a tier 3 or higher watercourse. It is assumed that existing culvert structures under Airport Road provide a sufficient hydrologic connection between the Ashuelot River and the floodplain wetlands to the west and the floodplain wetlands on the east side of Airport Road, to consider these areas contiguous.

The two state listed threatened species identified by NHB, grasshopper sparrow and eastern meadowlark are grassland birds that inhabit upland grassland areas and are unlikely to utilize the wetland habitats in the vicinity of the Airport. The remaining state listed species identified by NHB, including those that utilize wetland habitats, are all Special Concern. Therefore, the potential presence of these species in the wetlands located in the project area does not elevate the classification of the wetlands to a PRA.

4.4.2. Surface Waters

Surface waters, including streams, rivers, lakes, and ponds, are protected under the CWA Section 404 and 401, Section 303(d), and Section 402, which establishes the National Pollutant Discharge Elimination System (NPDES), as well as Section 10 of the Rivers and Harbors Act, and the NHDES Wetland Rules, specifically Env-Wt 900, Stream Crossings.

Surface waters located in the vicinity of the proposed action were delineated in May 2024 during the wetlands and surface waters delineation. The ordinary high water mark (OHWM) and top of bank (TOB) of surface waters in the study area were delineated.

The only surface water delineated in the study area is an unnamed perennial stream that originates from the outlet of Wilson Pond located east of the Airport property and Old Homestead Highway (**Figure 4-6**). The existing Wilson Pond outlet structure is known as the Lower Wilson Pond Dam, according to the NHDES Dam Inventory dataset. The structure consists of a concrete monk outlet structure, consisting of a vertical concrete shaft with a steel grate over top, that leads to an existing 48-inch diameter culvert under Old Homestead Highway. Water levels in Wilson Pond are controlled by this dam structure. Wilson Pond (Lower Wilson Pond) and Upper Wilson Pond are manmade impoundments that were formed as part of a system that diverts water from the Branch River in Keene to form the two impoundments. The existing Lower Wilson Pond Dam was recently repaired/improved in 2019-2020.

According to the NH Hydrography dataset, the unnamed perennial stream is mapped as a second order stream. At the location of the Wilson Pond outlet/Old Homestead Highway culvert, the unnamed perennial stream has a watershed size of 1.51 square miles (approximately 966.4 acres) and at the location of the existing 60-inch culvert inlet east of the end of RW 2, the stream has a watershed size of approximately 2.14 square miles (approximately 1,369.6 acres). Pursuant to the NHDES Stream Crossing Rules (Env-Wt 904.05), at the location of the existing crossing structures in the vicinity of the Proposed Action, the stream would be classified as a Tier 3 watercourse based on watershed size (on a watercourse where the contributing watershed is 640 acres or greater).

The unnamed stream flows out of the existing culvert under Old Homestead Highway onto Airport property and continues southwest for approximately 1,200 to 1,300 feet before turning sharply south and continuing parallel to Taxiway A via an excavated, approximately 60-foot-wide ditch. The ditch continues south for approximately 2,300 feet before entering a 60-inch concrete culvert that carries the stream underneath TW A and the RW 2 end of the airfield. There is a secondary culvert structure located approximately 420 feet upstream from the inlet of the 60-inch culvert that carries an unimproved access road across the ditch. The existing outlet of the 60-inch culvert is located approximately 1,200 feet southwest of the inlet, where the stream daylights west of the end of RW 2. The unnamed stream continues west to its confluence with the South Branch Ashuelot River.

As noted above, the existing stream has been heavily modified by prior Airport construction and subsequent expansions and improvements over the years. The approximately 2,300-foot-long section along Taxiway A that was ditched also relocated the stream entirely. The historic, now relic stream channel is visible on the west side of the Airport, within Wetland A. However, there is no culvert under the airfield that hydrologically connects these two areas. The stream flow has been diverted to the south via the constructed ditch and culverts. Due to these existing modifications and structures, aquatic organism passage and terrestrial wildlife passage along the unnamed stream is severely impaired, as previously discussed in Section 4.3.1. The unnamed stream has a Cowardin Classification of Riverine (R), Lower Perennial (2), Unconsolidated Bottom (UB), with a Semipermanently Flooded Water Regime (F), with an Excavated Special Modifier (x), or R2UBFx.

Protected Shoreland

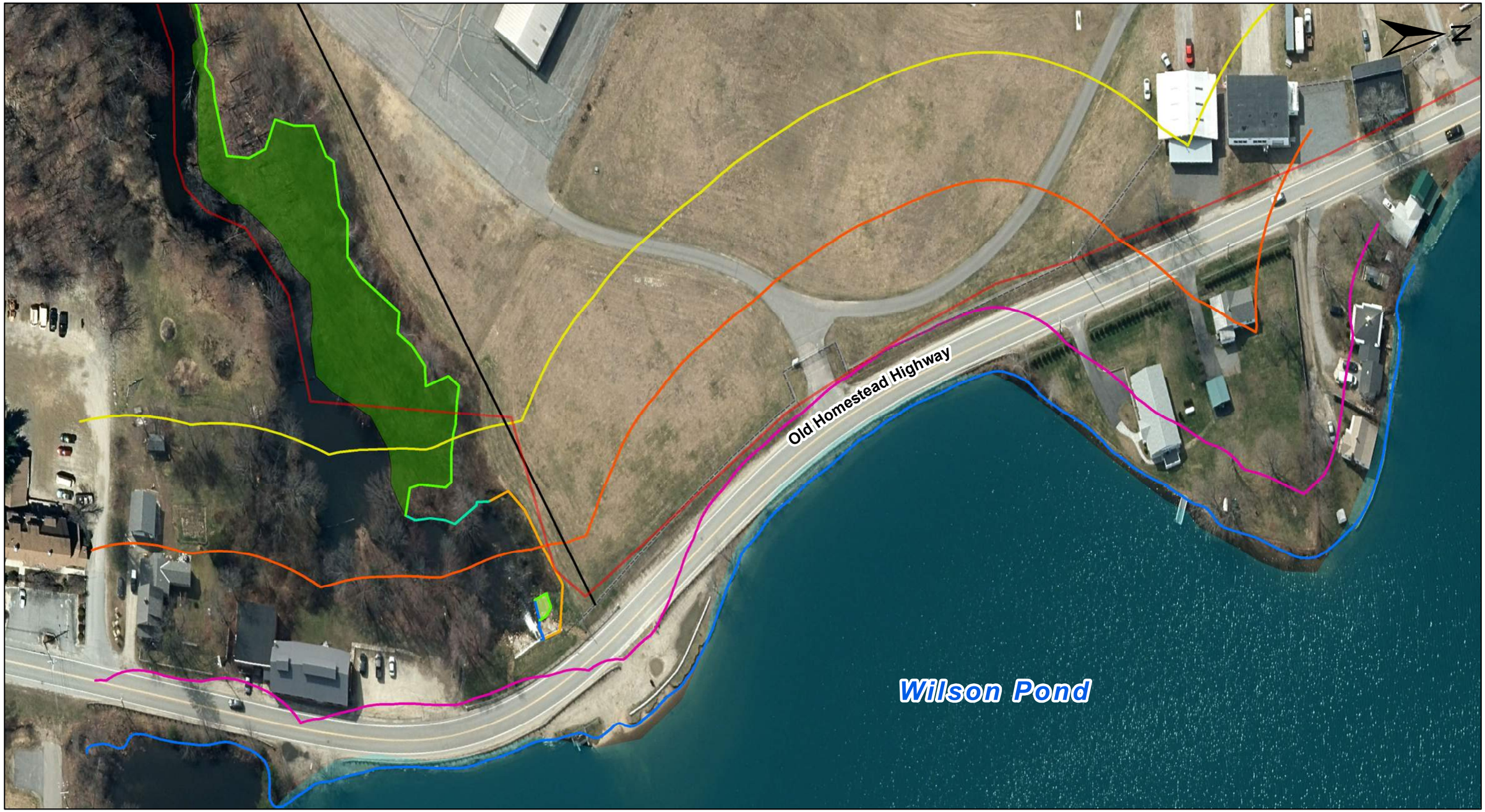
In New Hampshire, public waters are also subject to jurisdiction under the Shoreland Water Quality Protection Act (SWQPA, RSA 483-B) and the associated NHDES Shoreland Protection Rules (Env-Wq 1400). Public waters are defined as, all lakes and ponds greater than 10 acres in size, coastal waters subject to the ebb and flow of the tide (including the Great Bay Estuary and the associated tidal rivers), and rivers, meaning perennial (year-round) waters of fourth order or higher and all rivers and river segments designated as New Hampshire Designated Rivers pursuant to RSA 483:15 (refer to Section 4.8.3. below). Stream order is determined using the New Hampshire hydrography dataset. NHDES also maintains the Consolidated List of Waterbodies Subject to RSA 483-B the SWQPA, which provides a list of public waters by town.

Wilson Pond is approximately 72 acres in size and is included on the NHDES Consolidated List of Waterbodies Subject to RSA 483-B the SWQPA. According to this list, the surface elevation of the Reference Line of Wilson Pond is 476 feet above sea level. The eastern terminus of the proposed action is located approximately 100 feet from the Reference Line of Wilson Pond, or the approximate ordinary highwater mark located at 476 feet above sea level. Therefore, portions of the proposed action are located within the Natural Woodland Buffer (50 – 150 feet from the Reference Line) and within the Protected Shoreland (150 – 250 feet from the Reference Line). The Protected Shoreland buffers are depicted on **Figure 4-7**. The majority of the area within the Protected Shoreland at this location consists of disturbed, mowed grassland areas and does not contain trees or other natural vegetation.

The Proposed Action is not located within 250 feet of the Ashuelot or South Branch Ashuelot Rivers.

New Hampshire Designated Rivers

In New Hampshire, state Designated Rivers are managed and protected for their outstanding natural and cultural resources in accordance with the Rivers Management and Protection Act (RSA 483). The act established the New Hampshire Rivers Management and Protection Program, which is administered by NHDES and is staffed by a Rivers Coordinator. The act also established the statewide Rivers Management Advisory Committee and the river-specific Local River Management Advisory Committees (LACs). Each designated river has a LAC that is responsible for facilitating communication among the municipalities along the river in the management of their shared resource, development of a river corridor management plan to guide river protection efforts, and to provide local input into state management of their river. Designated River segments are classified as Natural, Rural, Rural-Community, or Community, based on the river's characteristics described in RSA 483:7-a. These classifications provide varying levels of protection appropriate to the river segment's features and surrounding land uses. The Designated River Corridor is defined as, "The river and the land area located within a distance of 1,320 feet of the normal high water mark or to the landward extent of the 100-year floodplain as designated by the [FEMA], whichever distance is larger."



EEN Airport Property Boundary
Proposed Fence
Existing Fence

Wilson Pond Shoreland Buffers

SHORELAND ZONE

- Reference Line (Elev. 476')
- Waterfront Buffer (0' - 50')
- Natural Woodland Buffer (0' - 150')
- Protected Shoreland (0' - 250')

- Keene Delineated Wetlands (MJ 2024)
- Keene Delineated OHW (MJ 2024)
- Keene Delineated OHW-TOB (MJ 2024)
- Keene Delineated TOB (MJ 2024)

Keene Wetland Polygons (Approx)

Wetland Class, PRA Status

- PEM1E, NO
- PFO1E, NO

Flood Hazard Zones

Zone Type

- 1% Annual Chance Flood Hazard

Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)
National Flood Hazard Layer (Source: FEMA, 2015)
Wetlands & Surface Waters (Source: MJ Field Delineated, May 2024)
Shoreland Buffers (Source: LiDAR Derived [Surface Elevation 476'], 2025)

0 100 200
Feet

KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

PROTECTED SHORELAND

SCALE :	DATE :	FIGURE :
1" = 100'	May 2025	4-7

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\NEPA EA Figures\CHAPTER 4\Figure 4-7 - Protected Shoreland REV1.mxd

The Ashuelot River is a NH Designated River, originally recognized in 1993 in part due to its highly valuable wildlife habitat for the federally endangered dwarf wedgemussel as well as associated cultural resource sites including one of New Hampshire's oldest known sites of human activity dating back 10,500 years. The Ashuelot River is approximately 64 miles long, originating in Washington, NH and flowing in a southwesterly direction to its confluence with the Connecticut River located in Hinsdale, NH. The segment of the river west of the proposed action has been classified as a rural segment. The Rural River Protection standards are outlined in RSA 483:9-a. Portions of the proposed action are located within the Designated River Corridor, with the lateral extent being the limits of the FEMA mapped 100-year floodplain. At its closest point, the Ashuelot River is located approximately 1,300 feet from the proposed action.

Impaired Surface Waters

Under Section 303(d) of the CWA, states are required to submit a list of impaired waters to the US EPA every two years to identify surface waters that are impaired by pollutants, not expected to meet water quality standards within a reasonable time, and require the development of a Total Maximum Daily Load (TMDL) study.

This list is prepared by NHDES as outlined in the draft 2024 Section 305(b) and 303(d) Consolidated Assessment and Listing Methodology. According to the NHDES 2024 303(d) list (most recent available) impaired surface waters in the vicinity of the Proposed Action include the South Branch Ashuelot River (AUID: NHRIV802010303-23) and Ashuelot River (AUIDs: NHRIV802010301-38 and NHRIV802010301-11) are impaired for aquatic life integrity due to pH. The Ashuelot River (AUID: NHRIV802010301-11) and Wilson Pond (AUID: NHLAK802010303-10) are also impaired for aquatic life integrity due to dissolved oxygen saturation.

The acidity, or pH, of freshwater streams can be influenced by bedrock composition, organic material in the water, and acid deposition. In New Hampshire, acid deposition, combined with the low prevalence of calcium-rich bedrock, can result in lower pH in freshwater systems across large areas of the landscape.

All aquatic species require a certain range of dissolved oxygen for survival. Dissolved oxygen concentrations in freshwater can vary naturally by season, temperature, and water depth, but can also be influenced by ecosystem disturbances that result in changes in water depth, water temperature, and/or photosynthetic activity. Extended periods of dissolved oxygen saturation can result from high temperatures or excessive photosynthetic activity and can lead to fish mortality.

4.4.3. Wild and Scenic Rivers

The National Wild and Scenic Rivers System was established by the Wild and Scenic Rivers Act of 1968 and authorizes Congress to protect certain free-flowing rivers with outstanding natural, cultural, and recreational values for the benefit and enjoyment of present and future generations. Designated Wild and Scenic River segments are classified and administered as wild, scenic, or recreational rivers. There are no federally designated Wild and Scenic Rivers located in the vicinity of the Proposed Action.

4.4.4. Floodplains

According to the FAA 1050.1F Desk Reference Chapter 14120, floodplains are lowland areas adjoining inland and coastal waters which are periodically inundated by flood waters. Floodplains are often discussed and identified in terms of the 100-year floodplain, which is land that has a one percent chance of flooding in any given year. Floodplains are valued for their natural flood and erosion control, enhancement of biological productivity, and socioeconomic benefits and functions.

Development in floodplains is regulated by EO 11988, Floodplain Management, which requires federal agencies to avoid long and short-term adverse impacts to the 100-year floodplain if practicable alternatives exist, such as occupancy, modification or development.

FEMA administers the National Flood Insurance Program (NFIP); a program established by Congress in 1968 to reduce the impact of flooding by offering insurance to property owners in participating communities. In return, participating communities must adopt and implement local floodplain management regulations that meet FEMA's minimum requirements and contribute to protecting lives and reducing the risk of new construction and substantial improvements from future flooding. The City of Keene is a participating community in the NFIP. The National Flood Hazard Layer (NFHL) is an online database and mapping system managed by FEMA that includes current flood hazard data. The NFHL is based on FEMA's FIRMs, that show various flood zones and associated risk levels.

The NFIP defines the "base flood" as, "A flood having a one percent chance of being equaled or exceeded in any given year." This is the regulatory standard also referred to as the "100-year flood." The base flood is the national standard used by the NFIP and all Federal agencies for the purposes of requiring the purchase of flood insurance and regulating new development. Base Flood Elevations (BFEs) are typically shown on FIRMs. These Special Flood Hazard Areas are typically designated as Zone A or AE on FIRMs.

The NFIP defines the "regulatory floodway" as, "The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height." This designated height is one foot for most NFIP communities. Communities must regulate development in regulatory floodways to ensure that there are no increases in upstream flood elevations. The City of Keene Floodplain Regulations require a CLOMR to be obtained from FEMA if a proposed activity will result in *any* increase in the BFE.

The 500-year floodplain, or 0.2 percent annual chance floodplain, is also included on FIRMs and the NFHL mapping, and is typically designated Zone X. Zone X includes areas with a moderate or low risk of flooding. Flood insurance is generally not required for structures within the 500-year floodplain, and there are no associated building or construction standards, or federal, state, or local regulatory requirements within the 500-year floodplain.

According to the FEMA NFHL, the western portions of Airport property contain mapped Regulatory Floodway, 100-year floodplain, and 500-year floodplain, associated with the Ashuelot River and South Branch Ashuelot River. The FEMA-mapped flood hazard areas are depicted on **Figure 4-8**.

The mapped regulatory floodway is associated with the channels of the Ashuelot and South Branch Ashuelot Rivers and is located along the western Airport Boundary, on the west side of Airport Road. The proposed action is not located within mapped regulatory floodways.

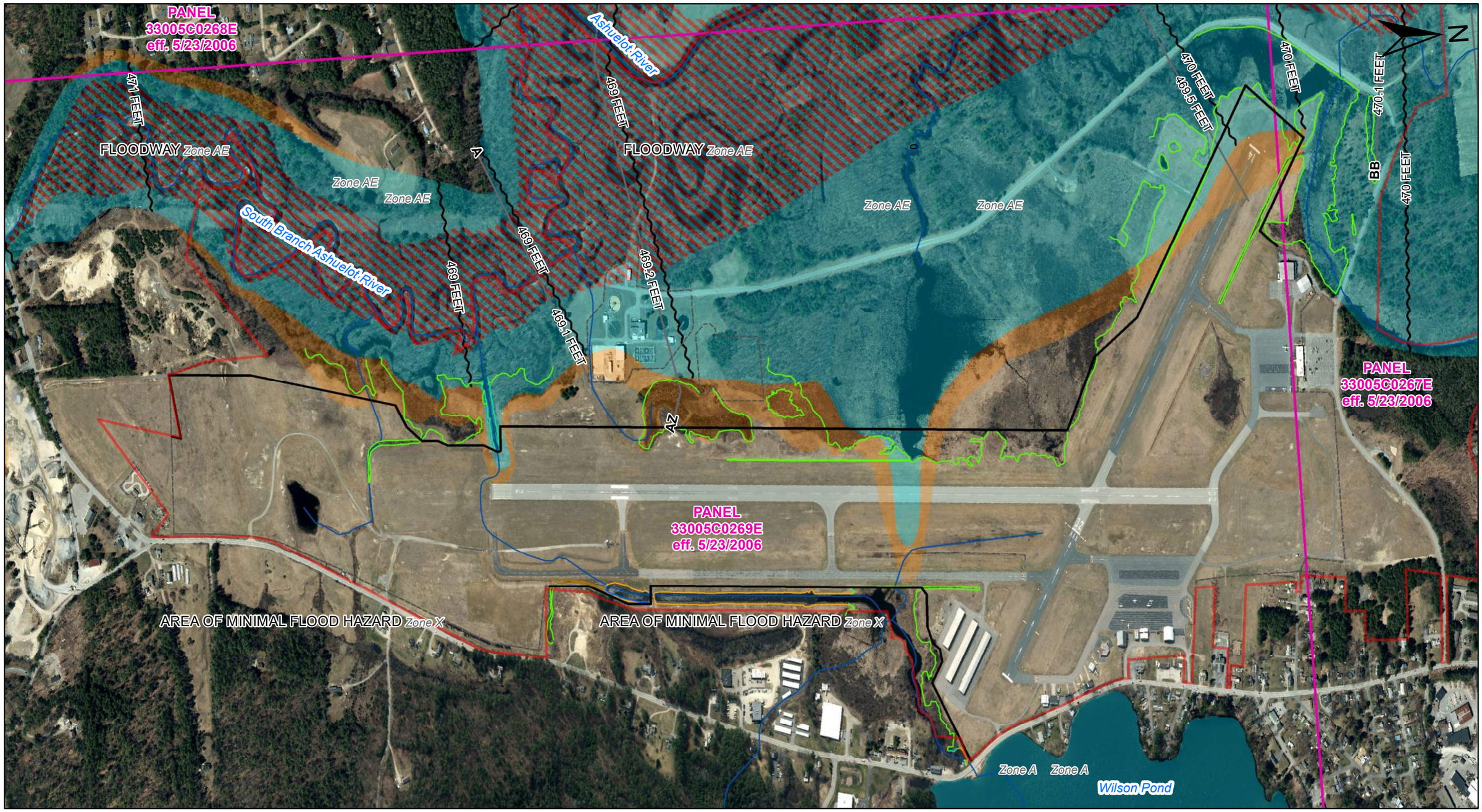
The proposed action is located within the expansive 100-year floodplain (Zone AE) associated with the Ashuelot River along the northern and western sides of the airfield. The floodplain areas are relatively flat, with little topographic relief. The BFEs on Airport property range from 470 feet to 469 feet above sea level. The FEMA mapped 100-year floodplains associated with the Ashuelot River are located north and west of the RW 14 end, southwest of RW 14-32, and west of RW 2-20, and are associated with Wetlands A, D, I, and J. The FEMA mapped 100-year floodplains associated with the South Branch Ashuelot River are located west of the RW 2 end and are associated with Wetland G.

4.4.5. Groundwater

Potential groundwater resources include aquifers, NH DES Groundwater Classification Areas, public/private drinking water wells, wellhead protection areas (WHPAs), and Water Supply Intake Areas. Groundwater resource in the vicinity of the proposed project are depicted on **Figure 4-9**.

The New Hampshire Groundwater Protection Act (Chapter 485-C) is administered by NHDES, and regulates large groundwater withdrawals, commercial discharges of wastewater, established BMPs for potential contamination sources, creates four classes of groundwater, and sets groundwater quality standards. Groundwater is classified into four categories under the Groundwater Protection Act, each with specific purposes and levels of protection.

- **Class GAA** – This is the most protected class and includes groundwater within wellhead protection areas for public water supply wells which are presently used or well sites which have been identified for future use as drinking water supply for public water systems. The purpose of the GAA classification areas are to ensure safe and reliable drinking water by preventing contamination of high-value aquifers used for public water supply.
- **Class GA1** – This class includes groundwater in areas identified as having high value for present or future public water supply wells, typically within high-yield stratified drift aquifers mapped by the USGS and NHDES.
- **Class GA2** – This class includes groundwater within highly productive aquifers, as identified by USGS and NHDES, for potential future use as a public water supply. Zones of stratified drift with a saturated thickness greater than 20 feet, and a transmissivity greater than 1,000 feet squared per day shall be designated as class GA2. Zones of bedrock with average well yields greater than 50 gallons per minute shall also be designated as class GA2.
- **Class GB** – This class is assigned to all other groundwater in the State not assigned to a higher class.



EEN Airport Property Boundary
Proposed Fence
Existing Fence

Keene Delineated Wetlands (MJ 2024)
Keene Delineated OHW (MJ 2024)
Keene Delineated OHW-TOB (MJ 2024)
Keene Delineated TOB (MJ 2024)
Keene Non-Jurisdictional Ditch (MJ 2024)

FIRM Panels
Cross-Sections
Base Flood Elevations

Flood Hazard Zones

Zone Type

1% Annual Chance Flood Hazard
Regulatory Floodway
0.2% Annual Chance Flood Hazard

Service Layer Credits: Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)
National Flood Hazard Layer (Source: FEMA, 2015)
Wetlands & Surface Waters (Source: MJ Field Delineated, May 2024)

0 800 1,600
Feet

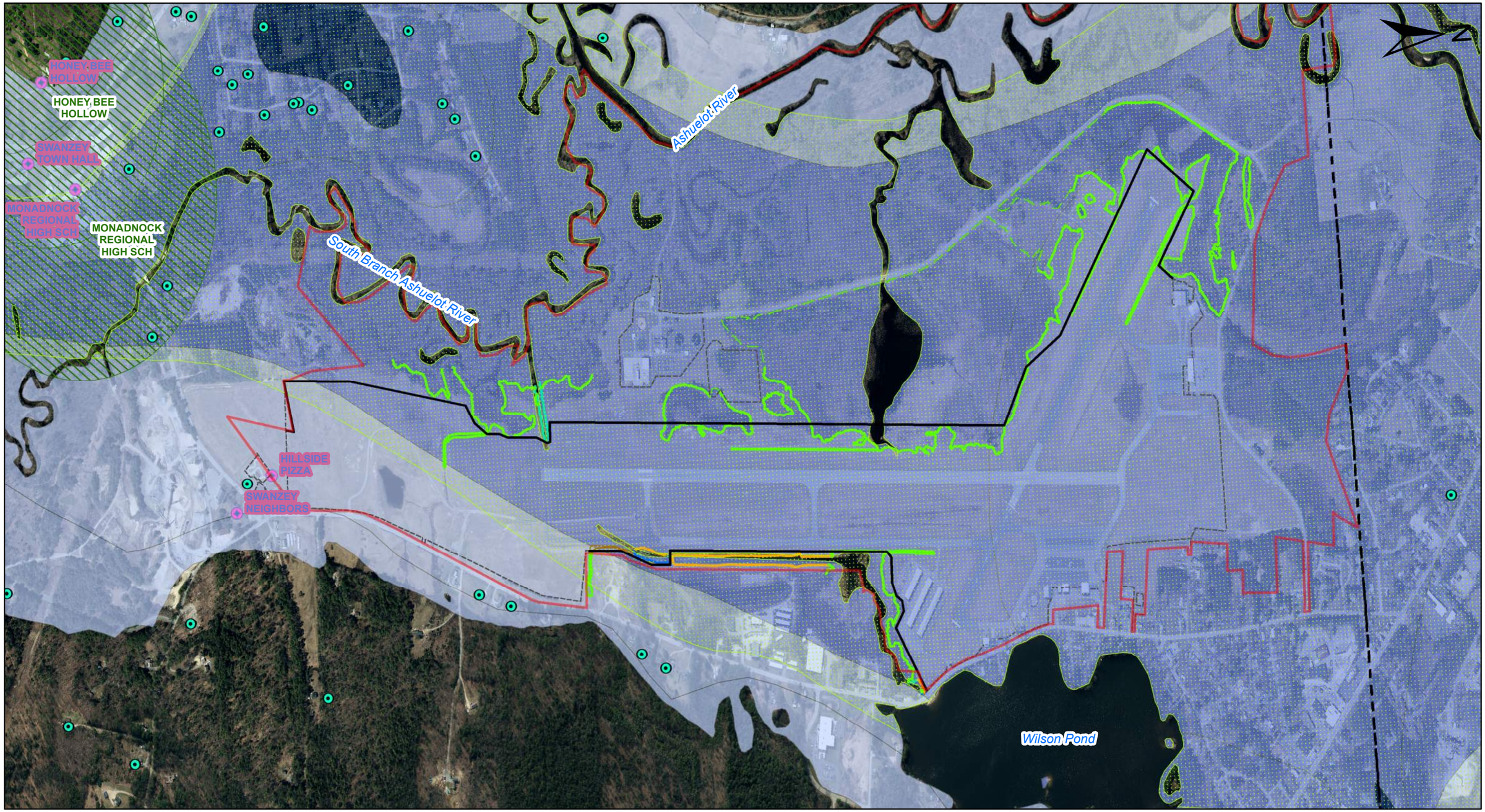
KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

FLOODPLAINS

SCALE :	DATE :	FIGURE :
1" = 800'	May 2025	4-8

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\NEPA EA Figures\CHAPTER 4\Figure 4-8 - Floodplains REV1.mxd



EEN Airport Property Boundary
Town Boundary
Proposed Fence
Existing Fence

Keene Delineated Wetlands (MJ 2024)
Approximate Wetland Boundaries
Keene Delineated OHW (MJ 2024)
Keene Delineated OHW-TOB (MJ 2024)
Keene Delineated TOB (MJ 2024)
Keene Non-Jurisdictional Ditch (MJ 2024)

Public Water Supply Wells
Water Well Inventory
Groundwater Classification Areas GA2
Wellhead Protection Areas

Aquifer Transmissivity
Less than 2000 feet sq./day
2,000 - 4,000 feet sq./day
Greater than 4,000 feet sq./day

Service Layer Credits: Service Layer Credits: USGS NH 2021\2022 6-inch Orthophotos (RGB)
New Hampshire Political Boundaries (Source: NH GRANIT, 1992)
Public Water Supply Wells (Source: NHDES, 2025)
Water Well Inventory (Source: NHDES, 2025)
Ground Water Classification Areas (Source: NHDES, 2025)
Wellhead Protection Areas (Source: NHDES 2025)
Aquifer Transmissivity (Source: NH GRANIT, 2022)
Wetlands & Surface Waters (Source: MJ Field Delineated, May 2024)

0 1,000 2,000
Feet

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\NEPA EA Figures\CHAPTER 4\Figure 4-9 - Groundwater REV1.mxd

KEENE DILLANT-HOPKINS AIRPORT
PHASE I - 30% PRELIMINARY DESIGN AND EA
WILDLIFE PERIMETER FENCE PROJECT

GROUNDWATER

SCALE :	DATE :	FIGURE :
1" = 1,000'	May 2025	4-9

McFARLAND JOHNSON

The majority of Airport property is underlain by a stratified drift aquifer with a transmissivity of 2,000 – 4,000 feet squared per day. Stratified drift aquifers consist of glacially derived unconsolidated sand and gravel deposits, which can provide an important source of groundwater for commercial, industrial, and public water supplies. Aquifer transmissivity quantifies the ability of an aquifer to transmit water horizontally. A transmissivity of 2,000 to 4,000 feet squared per day is considered moderate transmissivity. This aquifer is also classified by NHDES as a GA2 Groundwater Classification Area. Pursuant to the New Hampshire Groundwater Protection Act (RSA 485-C), a GA2 Groundwater Classification area is a potentially valuable stratified drift aquifer, with no active management, that has been identified as a potential future drinking water source. GA2 areas have no land use restrictions and no active management until the local community initiates reclassification to the GAA or GA1 class. The US EPA's Sole Source Aquifers Interactive Map was reviewed, and the proposed action is not located within a Sole Source Aquifer.

The proposed action is not located within any WHPAs or Water Supply Intake Areas. There are two WHPAs located south of the Airport property associated with Monadnock Regional High School and Honey Bee Hollow Child Care Center. These WHPAs are associated with public drinking water wells that serve these facilities. There are additional public water supply wells south of the Airport including the Swanzey Town Hall, Hillside Pizza Restaurant, and Swanzey Neighbors Mobil Station. There are private drinking water wells scattered around the southwester, southern and southeastern sides of the Airport.

5. Environmental Consequences

This chapter of the EA describes the foreseeable environmental, social, and economic consequences of the Proposed Action. Information pertaining to the environmental consequences was obtained though the alternatives analysis, evaluation of preliminary design plans, on-site investigations, review of published information, agency correspondence, and discussions with NHDOT, Airport personnel, and public officials. The purpose of this evaluation is to identify, describe, and assess the potential direct and indirect environmental impacts associated with the Proposed Action, under NEPA and in accordance with FAA Order 1050.1F and FAA Order 5050.4B.

The Proposed Action involves the installation of approximately 12,632 LF of fence along the western side of the airfield, and approximately 4,579 LF of fence along the eastern side of the airfield, for a total of approximately 17,211 LF of 8-foot-high chain link fence topped with three-strand barbed wire. The proposed fence segments would tie into the existing perimeter fence at the Airport, forming a complete enclosure around the Airport and aircraft movement areas, thereby excluding and deterring wildlife, primarily white-tailed deer, and improving safety conditions at the Airport. The No-Build Alternative results in no action and does not meet nor address the needs of the Airport. The Proposed Action is compared to the No-Build Alternative throughout this chapter in accordance with FAA Order 1050.1F, Section 6-2.1. f.

As discussed in **Chapter 3**, the Airport Road Alternative was evaluated only at a conceptual level due to strong public opposition expressed during the 2017 MPU process, concerns raised by the Swanzey Conservation Commission, environmental impacts, and logistical challenges. These challenges included increased habitat fragmentation, impacts to high-quality wildlife habitat, wetland impacts, visual impacts along Airport Road, conflicts with existing utility lines, increased project costs associated with a longer fence, and the inability to minimize and exclude wildlife cover and refugia within the fenced area. Therefore, for the purposes of the analysis in this Chapter, only the ROFA Alternative and No-Build Alternative are being fully evaluated against the Purpose and Need Statement included in **Chapter 2**. The environmental consequences of the Airport Road Alternative are addressed qualitatively and in general terms in the relevant sections of this Chapter.

Based on data collected during the environmental planning process and a comparison of the Proposed Action with the No Action Alternative, the analysis indicates that the Proposed Action would result in minimal environmental impacts. All identified impacts fall below the Significance Thresholds established in FAA Order 1050.1F, due to the nature and location of the project. Appropriate best management practices (BMPs), avoidance and minimization, and mitigation measures would be implemented to further reduce potential impacts below the Significance Thresholds where applicable. The following sections discuss the anticipated environmental effects and provide quantitative analysis where possible. Where quantification is not feasible, qualitative assessments are presented.

The following environmental impact categories are not present within the project area and/or are not anticipated to be affected, and therefore, are not considered relevant to the Proposed Action. Therefore, these resources are not evaluated further in this Chapter.

- Climate
- Coastal Resources
- Land Use
- Natural Resources and Energy Supply
- Noise and Compatible Land Use
- Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

5.1. AIR QUALITY

According to FAA Order 1050.1F, a proposed action would have significant impacts on air quality when the action would cause pollutant concentrations to exceed one or more of the NAAQS, as established by the EPA under the CAA, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.

The Airport and proposed project are located entirely in Cheshire County, which is currently in attainment for all criteria air pollutants. Therefore, the General Conformity Rule does not apply to the Proposed Action.

The Proposed Action involves the installation of a wildlife perimeter fence and would not result in any operational changes at the Airport. Therefore, there would not be an increase in aircraft emissions associated with the Proposed Action. However, temporary construction related emissions are anticipated from construction vehicles, equipment, and machinery used to install the proposed wildlife perimeter fence. Anticipated machinery and equipment that would be used during construction includes pickup trucks, skid steer loaders, mini excavators, augers, chainsaws, chippers, concrete mixers, and similar equipment. These temporary emissions would be short-term duration (limited to construction activities), and minor in magnitude. Construction emissions are expected to be well below the de minimis thresholds established under the General Conformity Rule.

5.1.1. Mitigation – Air Quality

No specific mitigation is required as the Proposed Action would not result in an exceedance of the NAAQS.

During construction activities, the following standard construction BMPs would be implemented to minimize air quality impacts:

- Limiting construction vehicle engine idling by turning off engines after three minutes of inactivity.
- Promote the use of equipment that meets Tier IV emission standards.
- Maintaining construction vehicles in good working condition.

- Requiring construction contractors to use properly maintained and operated construction equipment.

5.1.2. Findings and Conclusion – Air Quality

The No-Build Alternative would have no effect on air quality and existing air quality and emissions would not change. However, the No-Build Alternative does not address the Purpose and Need of the project.

The Proposed Action would not result in any operational changes at the Airport. Temporary air quality impacts for the six criteria air pollutants NAAQS during construction would be short-term and temporary in duration, and of local and minimum impact. Emission reduction strategies would be employed to minimize these air quality impacts as appropriate. Therefore, no significant, adverse, nor long term impacts to air quality are anticipated that could lead to a violation of the NAAQS and therefore, the Proposed Action will have no significant effect on air quality.

5.2. BIOLOGICAL RESOURCES

The following sections describe the foreseeable impacts from the Proposed Action on biological resources including fish, wildlife, plants, and their habitats as well as both federally listed threatened and endangered species and state listed rare, threatened, and endangered species and exemplary natural communities.

According to FAA Order 1050.1F, a proposed action would have significant impacts on biological resources (including fish, wildlife, and plants) when the USFWS or National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species or would result in the destruction or adverse modification of federally designated critical habitat. Adverse effects may include long term or permanent loss of unlisted plant and wildlife species; impacts to special status species or their habitats; a substantial loss, reduction degradation, disturbance or fragmentation of native species' habitats or populations; or adverse impacts on species' reproductive success rates, natural mortality rates, non-natural mortality, or ability to sustain the minimum population levels required for maintenance. The FAA has not established a significance threshold for non-listed species.

5.2.1. Ecological Communities and Wildlife Habitat

The majority of the proposed fence alignment is located within existing cleared, upland grassland areas on Airport property. The grassland areas are maintained and mowed on a regular basis. Approximately 12,569 LF of the total 17,211 LF of proposed fence, or approximately 73 percent of the proposed fence is located within upland areas. The remaining approximately 4,642 LF, or approximately 27 percent of the proposed fence, is located within palustrine emergent, scrub-shrub, and a small section of forested wetlands.

Tree Clearing

The Proposed Action is anticipated to require approximately 0.40 acres of tree clearing for the construction of the proposed fence. The majority of the required tree clearing is also located within upland areas and is generally located along the edges of existing forested areas. The proposed tree clearing is required to maintain a 10-foot clear zone on both sides of the fence for access, maintenance, and inspection. However, in order to minimize disturbance in existing wetland resource areas, this 10-foot clear zone will not be established through wetlands with the exceptions of two locations where clearing is required due to the height and density of the existing vegetation. These two locations include approximately 0.09 acres of forested wetland (Wetland A) located west of the intersection of RW 2-20 and RW 14-32, and 0.08 acres of saplings in an early successional scrub-shrub wetland (Wetland A) north of the existing solar facility on the west side of the Airport. The total proposed tree clearing in Wetland A is approximately 0.17 acres.

The majority of the wetlands located along the fence alignment consist of emergent wetlands dominated by herbaceous vegetation and/or scrub-shrub wetlands dominated by short, low-growing shrubs (i.e., spiraea, dogwoods, and willows). Therefore, extensive vegetation removal (clearing and grubbing) is not proposed in these areas. Based on conversations with the Airport, sections of the proposed fence located in wetland areas would be inspected, maintained, and repaired during frozen ground conditions when these areas would be more easily accessible and ground disturbance and impacts to wetlands would be minimized. Vegetation in wetlands located along the proposed fence alignment would also be managed during frozen ground conditions as needed to keep the fence itself clear and free of vegetation.

Wetland B is a palustrine scrub-shrub wetland. However, the existing vegetation in this wetland is currently managed by the Airport due to height restrictions and proximity to the existing runway. The portion of Wetland B along the proposed fence alignment is periodically mowed using mechanical equipment. Therefore, substantial vegetation removal within Wetland B associated with the Proposed Action is not anticipated to be required.

The largest area of tree clearing is located on the west side of the Airport, north of the existing solar facility. At this location, approximately 0.23 acres of early successional forest, including the 0.08 acres within Wetland A described above, would be required to be cleared. This area has been previously cleared and managed by the Airport as part of a prior obstruction removal project. However, the vegetation has regenerated and the saplings in this area are in the 20- to 30-foot height range. A 10-foot swath on both sides of the proposed fence alignment would need to be cleared in order to install and maintain the proposed fence.

Habitat Fragmentation & Barriers to Wildlife Movements

As a wildlife exclusion and deterrent measure, the Proposed Action would inherently affect wildlife habitat and movement in the surrounding area. However, the existing aviation land use is not compatible with wildlife presence, as animals such as birds and white-tailed deer can pose serious safety risks to aircraft operations. There is a well-documented need for the proposed safety

improvements. Consequently, wildlife use of the airfield is actively discouraged to maintain safe aviation conditions and to protect human life and property.

However, impacts from the Proposed Action on wildlife habitat and habitat fragmentation have been minimized to the maximum extent practicable. These impacts have been minimized through the various analyses completed during the preliminary design phase designed to bring the proposed fence alignment as close to the existing runway and taxiway infrastructure as allowable per FAA safety design standards. The resulting enclosure formed by the Proposed Action and existing perimeter fence at the Airport would result in a complete enclosure of approximately 324 acres of the airfield. The majority of the 324 acres include upland grassland areas, existing runway, taxiway, and apron pavements, existing aviation buildings and structures, a small pond south of RW 2, and includes the edges of existing wetland areas around the perimeter of the airfield primarily in the northwestern and western portions of the airfield. As discussed in Chapter 4, the majority of Airport property has been identified by the 2020 NH WAP as Highest Ranked Habitat in the State.

Comparatively, the Airport Road Alternative that was only evaluated conceptually would have resulted in enclosing an additional 136 acres, or approximately 460 acres total, an approximately 42 percent increase in the amount of wildlife habit enclosed inside the fence as compared to the Proposed Action. The habitat enclosed by the Airport Road Alternative would include the areas described above as well as the expansive wetland complex (Wetland A and Wetland D) located around the western and northwestern perimeter of the airfield. These wetlands provide high quality wildlife habitat and the majority of this area has been classified by the 2020 NH WAP as Highest Ranked Habitat in the State. A quantitative comparison of the habitat fragmentation of Ranked Habitats between the Proposed Action and the Airport Road Alternative is provided in **Table 5-1** below.

Table 5-1: NH WAP Ranked Habitats Fragmentation

Habitat Tier	Total Area of Ranked Habitat Enclosed Inside Fence (ac)	
	Proposed Action (ROFA Alternative)	Airport Road Alternative
Highest Ranked Habitat in NH	203.5	308.3
Highest Ranked Habitat in the Biological Region	0.6	12.3
Supporting Landscapes	0.2	4.5
TOTAL	**204.3**	**325.1**

Approximately 204.3 acres of the 324 acres enclosed by the Proposed Action is mapped as Highest Ranked Wildlife Habitat, with approximately 203.5 of those acres identified as Highest Ranked

Habitat in the State. The Airport Road Alternative would have resulted in substantially greater habitat fragmentation, by enclosing approximately 325.1 acres of Highest Ranked Wildlife Habitat including 308.3 acres of Highest Ranked Habitat in the State.

In addition, one of the recommendations from the Wildlife Hazard Site Visit Report (Appendix A) was, "The perimeter fence should exclude as many wetland, forested, and tall grass habitats as possible. This will decrease the amount of habitat stranded inside the perimeter fence and the attractiveness of the airfield to the majority of wildlife. Keeping the fence closer to the AOA should also decrease the amount of fence needed and make vegetation management easier for staff. This will also make monitoring the airfield for wildlife easier for EEN staff." Minimizing wildlife habitat inside the fence was one of the objectives of the preliminary design process. Decreasing the amount of suitable habitat inside the fence reduces the attractiveness of the area enclosed inside the fence. Furthermore, minimizing the wildlife cover and refugia inside the fence makes it easier for the Airport to identify, locate, and remove potential hazardous wildlife in the event they inadvertently get inside the fence.

Comments were received during the design process from both the Swanzey Conservation Commission and NHFG regarding minimizing impacts to habitat fragmentation, including the possibility of raising the fence a few inches off the ground and/or providing openings in the fence for smaller organisms such as turtles. This feedback was considered, but ultimately the purpose of the proposed fence is to exclude wildlife from the aircraft movement areas and incorporating openings in the fence would not achieve the Purpose and Need of the project. A large turtle on the runway could still provide a potential safety hazard. Furthermore, providing even small openings in the fence could potentially allow larger wildlife to squeeze through. According to the FAA Part 139 CertAlert No. 16-03, deer have been observed squeezing through a 7.5-inch gap at the bottom of a fence and coyotes can fit through 6 inch x 4 inch gaps under a fence.

5.2.2. Federally Threatened and Endangered Species

Dwarf Wedgemussel

The Proposed Action is not anticipated to result in any direct impacts to rivers, streams or other surface waters in the vicinity of the project area. Ground disturbance from the proposed project is anticipated to be minimal and would primarily be associated with the installation of the proposed fence posts. Minor grading may be required in localized, upland areas, but the exact locations and size of these areas would be identified during final design. However, BMPs for soil erosion and sediment control would be implemented during construction to minimize potential adverse impacts on water quality.

The dwarf wedgemussel has been previously documented in the Connecticut River and Ashuelot River. According to the NH WAP Species Profile, the Ashuelot River Population, also considered among the largest populations, extends from the Surry Mountain Dam to Swanzey and is

estimated at 10,000 individuals.[12] The Ashuelot River is located over 1,300 feet from the Proposed Action, and therefore is not anticipated to be impacted.

The Northwest Endangered Species Determination Key was completed in IPaC, and a may affect, not likely to adversely affect determination was made for dwarf wedgemussel. A Consistency Letter was generated for the project and is included in **Appendix B**.

Tricolored Bat

The Proposed Action is anticipated to require approximately 0.4 acres of tree clearing for the installation of the proposed fence.

The Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key was completed in IPaC, and a may affect, not likely to adversely affect determination was reached for tricolored bat. A Consistency Letter was generated for the project and is included in **Appendix B**.

5.2.3. Essential Fish Habitat

The Proposed Action would not result in impacts located below the ordinary highwater mark of any rivers, streams or surface waters. Furthermore, water quality would be protected during construction by implementing appropriate BMPs for soil erosion and sediment control. Therefore, the Proposed Action is not anticipated to have adverse impacts on EFH, and an EFH Assessment was not prepared.

5.2.4. Migratory Birds

A variety of migratory birds have the potential to be found in the vicinity of the Proposed Action depending on the time of year. The majority of habitat in the project area includes upland grasslands, emergent and scrub shrub wetlands, and some minor impacts to the edges of existing forested areas. The Proposed Action is anticipated to require approximately 0.4 acres of tree clearing/vegetation removal for the construction of the proposed fence.

In order to avoid and minimize impacts to grassland birds, vegetation removal has been minimized to the maximum extent possible. If possible, tree clearing activities would be completed outside the nesting and breeding season. NHFG did not provide specific input, time of year restrictions, or recommendations for minimizing impacts to birds at this time. However, formal consultation with NHFG pursuant to Fis 1004 would be completed during the final design phase to determine final recommendations and conditions including potential time of year restrictions on certain activities such as tree clearing, work in grasslands, and/or wetlands.

[12] New Hampshire Fish and Game Department. (n.d.). Dwarf Wedgemussel [PDF]. Retrieved April 22, 2025, from https://www.wildlife.nh.gov/sites/g/files/ehbemt746/files/inline-documents/sonh/mussel-dwarfwedgemussel.pdf

5.2.5. State Listed Rare, Threatened, and Endangered Species and Exemplary Natural Communities

Silver Maple-False Nettle-Sensitive Fern Floodplain Forest

The Silver Maple-False Nettle-Sensitive Fern Floodplain Forest identified by NHB is not located within the proposed project area. This forested wetland community is more closely associated with the lower lying areas of the floodplain associated with the South Branch Ashuelot River and the Ashuelot River. The project area was reviewed with staff from NHB and NHFG on October 10, 2024, and it was confirmed that this natural community was not present. The proposed fence project is not anticipated to result in indirect impacts such as changes in hydrology of this community. Therefore, the Proposed Action would not result in impacts to this Exemplary Natural Community.

Eastern Meadowlark

The New Hampshire state threatened eastern meadowlark has been previously documented on Airport property and has the potential to use the expansive grassland habitat on the airfield for breeding, nesting, and foraging. In New Hampshire, eastern meadowlarks can start nesting as early as late April.[13]

The footprint of the Proposed Action is not anticipated to result in a substantial loss of grassland habitat at the Airport. Also, the proposed fence would not pose a physical barrier for eastern meadowlarks or other birds. However, temporary disturbances could occur during construction activities. Formal consultation with NHFG pursuant to Fis 1004 would be completed prior to construction during the final design phase. Additional avoidance and minimization measures such as time of year restrictions on construction and/or pre-construction surveys would be determined through this additional coordination with NHFG.

Grasshopper Sparrow

The New Hampshire state threatened grasshopper sparrow has been previously documented on Airport property and has the potential to use the expansive grassland habitat on the airfield for breeding, nesting, and foraging. In New Hampshire, the grassland bird breeding and nesting season generally extends from May to August.

The footprint of the Proposed Action is not anticipated to result in a substantial loss of grassland habitat at the Airport. Also, the proposed fence would not pose a physical barrier for grasshopper sparrow or other birds. However, temporary disturbances could occur during construction activities. Formal consultation with NHFG pursuant to Fis 1004 would be completed prior to construction during the final design phase. Additional avoidance and minimization measures such

[13] National Audubon Society. (n.d.). Eastern Meadowlark. Retrieved April 16, 2025, from https://stateofthebirds.nhaudubon.org/bird_database/eastern-meadowlark/

as time of year restrictions on construction and/or pre-construction surveys would be determined through this additional coordination with NHFG.

Horned Lark

The New Hampshire state special concern horned lark has been previously documented on Airport property and has the potential to use the expansive grassland habitat on the airfield for breeding, nesting, and foraging. In New Hampshire, the grassland bird breeding and nesting season generally extends from May to August.

Marsh Wren

The marsh wren is not currently a state listed species but is being tracked by NHB. This species has been previously documented on Airport property and has the potential to use the expansive wetland complexes surrounding the existing airfield, particularly in Wetland D, northwest of the RW 14 end, for breeding, nesting, and foraging.

The footprint of the Proposed Action is not anticipated to result in a substantial loss of palustrine emergent wetland habitat at the Airport. Also, the proposed fence would not pose a physical barrier for marsh wren or other birds. Impacts to palustrine emergent wetlands/marsh habitats have been minimized to the maximum extent practicable, by locating the fence along the ROFA. Impacts to Wetland D are minimal, and the proposed fence alignment is located along the outer edges of the existing wetland area. However, temporary disturbances have the potential to occur during construction activities. Consultation with NHFG pursuant to Fis 1004 is only a requirement for state listed threatened and endangered species, and not special concern or unlisted species. Therefore, formal consultation with NHFG for marsh wren is not required. However, additional recommendations from NHFG for all potential fish and wildlife species as a result of the Fis 1004 consultation process would be considered.

Sora

The New Hampshire state special concern sora has been previously documented on Airport property and has the potential to use the expansive wetland complexes surrounding the existing airfield, particularly in Wetland D, northwest of the RW 14 end, for breeding, nesting, and foraging.

The footprint of the Proposed Action is not anticipated to result in a substantial loss of palustrine emergent wetland habitat at the Airport. Also, the proposed fence would not pose a physical barrier for sora or other birds. Impacts to palustrine emergent wetlands/marsh habitats have been minimized to the maximum extent practicable, by locating the fence along the ROFA. Impacts to Wetland D are minimal, and the proposed fence alignment is located along the outer edges of the existing wetland area. However, temporary disturbances have the potential to occur during construction activities. Consultation with NHFG pursuant to Fis 1004 is only a requirement for state listed threatened and endangered species, and not special concern species. Therefore, formal consultation with NHFG for sora is not required. However, additional recommendations from NHFG for all potential fish and wildlife species as a result of the Fis 1004 consultation process would be considered.

Vesper Sparrow

The New Hampshire state special concern vesper sparrow has been previously documented on Airport property, and has the potential to use the expansive grassland habitat and adjacent scrub-shrub habitat and forest edges on the airfield for breeding, nesting, and foraging.

The footprint of the Proposed Action is not anticipated to result in a substantial loss of grassland scrub-shrub, or forested habitat at the Airport. Approximately 0.40 acres of tree clearing is required along the entire 17,211-foot length of the proposed fence. Also, the proposed fence would not pose a physical barrier for vesper sparrow or other birds. The proposed fence would likely serve as a potential elevated perch, where males may perch and seeing from. However, temporary disturbances could occur during construction activities. Consultation with NHFG pursuant to Fis 1004 is only a requirement for state listed threatened and endangered species, and not special concern species. Therefore, formal consultation with NHFG for vesper sparrow is not required. However, additional recommendations from NHFG for all potential fish and wildlife species as a result of the Fis 1004 consultation process would be considered.

Northern Leopard Frog

The New Hampshire state special concern leopard frog has been previously documented in the vicinity of the Airport and has the potential to utilize the existing wetland habitats and surrounding upland areas for various lifecycle stages.

The proposed fence would not act as a physical barrier to northern leopard frogs, as they are small enough to pass through the openings in the chain link fence. Therefore, the proposed fence is not anticipated to impact the movement of this species or fragment their habitat in the project area. Potential impacts during construction may be possible. Consultation with NHFG pursuant to Fis 1004 is only a requirement for state listed threatened and endangered species, and not special concern species. Therefore, formal consultation with NHFG for northern leopard frog is not required. However, additional recommendations from NHFG for all potential fish and wildlife species as a result of the Fis 1004 consultation process would be considered.

Wood Turtle

The New Hampshire state special concern wood turtle has been previously documented in the vicinity of the Airport, and has the potential to utilize the existing wetland habitats and surrounding upland areas during certain times of year. The Ashuelot River and South Branch Ashuelot River likely provide higher quality overwintering habitat for wood turtle. No surface waters or streams would be impacted by the Proposed Action. Therefore, no winter turtle hibernacula would be impacted. Foraging and dispersing turtles have the potential to occur in the project area, and could potentially be impacted during construction. The proposed fence could also act as a physical barrier to wood turtle movements. The openings or mesh size in a standard chain link fence are approximately two inches measured diagonally across. Smaller juvenile turtles may be able to fit through the chain link fence, but adult wood turtles would not. However, impacts on habitat fragmentation were minimized to the maximum extent practicable by bringing

the fence as close to the existing runway and taxiway infrastructure as possible. Suitable habitat exists in the surrounding areas outside the fence.

Consultation with NHFG pursuant to Fis 1004 is only a requirement for state listed threatened and endangered species, and not special concern species. Therefore, formal consultation with NHFG for wood turtle is not required. However, additional recommendations from NHFG for all potential fish and wildlife species as a result of the Fis 1004 consultation process would be considered.

5.2.6. Mitigation – Biological Resources

Additional coordination with NHFG would occur in the next phase of the project, prior to the start of construction through the formal Fis 1004 consultation process. The Fis 1004 consultation is only required for state listed threatened and endangered species, however, additional input on special concern and other unlisted fish and wildlife species would be considered. At this time NHFG has not provided specific input or recommendations on time of year restrictions on work, pre-construction surveys, exclusionary measures, or other BMPs to reduce or eliminate impacts to grassland bird, other bird species, amphibians, reptiles, or other wildlife. However, these details would be finalized prior to the start of construction and incorporated into the Proposed Action to further minimize and avoid impacts to biological resources.

No mitigation measures are anticipated to be required for the federally listed dwarf wedgemussel. Soil erosion and sediment control BMPs would ensure that downstream impacts on water quality would be minimized.

Potential impacts to proposed endangered tricolored bat would be further minimized by adhering to a time of year restriction on tree clearing, requiring tree removal activities to be conducted during the inactive season from November 1 to April 14.

5.2.7. Findings and Conclusion – Biological Resources

The No-Build Alternative would have no effect on biological resources including federally threated and endangered species, state listed rare species, migratory birds, or existing vegetation and habitats. However, the No-Build Alternative does not address the Purpose and Need for the project, and deer and other wildlife will continue to have unrestricted access to the aircraft movement areas.

The Airport Road Alternative would have substantially greater impacts on wildlife movement, fragmentation, and use of the habitat along the western and northwestern portions of the airfield. This alternative would have enclosed an additional 136 acres of high quality wildlife habitat inside the proposed fence, resulting in substantially greater fragmentation of the surrounding habitats, and greater potential for entrapment of individuals inside the fence resulting in population isolation. This alternative would have also resulted in a large amount of wildlife habitat and cover inside the fence, making it more difficult to find and eradicate potential hazardous wildlife in the event they become entrapped inside the fence.

Tree Clearing

The 0.40 acres of tree clearing is discontinuous and distributed along the 17,211-foot length of proposed fence. The majority of the proposed tree clearing is located along the edges of existing forested areas, or within disturbed areas that have been previously cleared as part of prior obstruction removal projects at the Airport. Potential impacts on tricolored bats would be further minimized by restricting tree clearing to the inactive season from November 1 to April 14. This time of year restriction would also minimize impacts to nesting birds protected under the MBTA. The proposed tree clearing would result in minor modifications and impacts to the existing habitat in the vicinity of the proposed project but is not anticipated to contribute to a trend towards federal listing or a loss of viability of any wildlife or vegetation species.

Habitat Fragmentation & Barriers to Wildlife Movements

The habitat fragmentation and impacts to wildlife habitat have been minimized and avoided to the maximum extent practicable by siting the fence alignment as close to the existing runway and taxiway infrastructure as possible and minimizing impacts to sensitive environmental resource areas and habitats. The majority of the 324 acres of habitat inside the fence consists of upland grassland habitats and existing aviation infrastructure. The total area of undeveloped, natural habitats inside the fence has been minimized. The proposed fence would not act as a barrier to birds and could potentially provide suitable perching locations along the edges of the grassland areas. Northern leopard frog movements on the landscape would not be impacted by the proposed fence due to their small size. Wood turtles could potentially be excluded by the proposed fence, but higher quality habitats are located west of the Airport closer to their likely overwintering habitat in the Ashuelot and South Branch Ashuelot Rivers. Therefore, the Proposed Action is not anticipated to contribute to a trend towards federal listing or a loss of viability of any wildlife or vegetation species.

Federally Listed Species

Based on the results of the USFWS Determination Keys completed as part of the Section 7 consultation process, the Proposed Action resulted in a determination of may affect, not likely to adversely affect for both the federally endangered dwarf wedgemussel and proposed endangered TCB. No surface waters including rivers or streams would be directly impacted by the proposed project. Surface water quality in the vicinity of the project would be further protected through the implementation of appropriate soil erosions and sediment control BMPs during construction. Tree clearing associated with the Proposed Action would be minimal and would be completed during the inactive season for bats. Therefore, the Proposed Action is not anticipated to jeopardize the continued existence of a federally listed threatened or endangered species.

Migratory Birds

The Proposed Action has the potential to impact and disturb migratory birds during construction. The removal of approximately 0.40 acres of trees would be conducted during the winter months in order to minimize impacts on breeding and nesting birds. The footprint of the Proposed Action

is limited to the proposed fence alignment and minimal ground disturbance is anticipated. Therefore, the Proposed Action is not anticipated to result in a substantial loss of suitable grassland bird or other migratory bird habitats. Additional coordination would be conducted with NHFG through the Fis 1004 formal consultation process, and additional BMPs related to migratory bird avoidance and minimization measures would be implemented if possible. Therefore, the Proposed Action may impact but will not likely contribute to a trend towards federal listing or loss of viability to migratory birds including the state listed bird species identified by NHB.

State Listed Rare, Threatened, and Endangered Species and Exemplary Natural Communities

The Proposed Action would not result in impacts to the Silver Maple-False Nettle-Sensitive Fern Floodplain Forest Exemplary Natural Community.

Additional coordination with NHFG would be completed during final design through the formal Fis 1004 consultation process. This process specifically applies to state listed threatened and endangered species, including the eastern meadowlark and grasshopper sparrow. However, input from NHFG on the special concern species and potential unlisted fish and wildlife in the vicinity of the proposed project would also be considered during the consultation process. Appropriate recommendations and BMPs to further avoid and minimize impacts to state listed wildlife would be incorporated into the project and implemented during the construction phase.

5.3. SECTION 4(F)

According to FAA Order 1050.1F, a proposed action would have significant impacts on Department of Transportation Act, Section 4(f) resources when the action involves more than a minimal physical use of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource. Resources that are protected by Section 4(f) are publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance; and publicly or privately owned land from an historic site of national, state, or local significance. Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished.

There are no publicly owned parks, recreational areas, or wildlife and waterfowl refuges located in the vicinity of the Proposed Action.

The Dillant-Hopkins Airport was previously determined not eligible for the NRHP (2024RE00418) and no additional inventory was determined necessary based on the project impacts. One Archaeological Sensitive Area was identified within the Area of Potential Effect (APE) during the Phase IA/IB archaeological investigation. Through consultation with NHDHR and Monadnock Archaeological Consulting, a "point mitigation" strategy was developed, based on the relatively minor footprint and ground disturbance associated with the proposed fence project. The point mitigation strategy focused on the specific areas of proposed ground disturbance associated with the installation of the proposed fence posts. Monadnock Archaeological Consulting Completed the point mitigation in July-August 2024. A revised Phase IA/IB Report that included the results of

the point mitigation was provided to NHDHR in December 2024, and DHR concurred that no further archaeological study was needed.

However, after the point mitigation was completed, preliminary design continued to progress and it was later determined that the fence posts located within the Archaeologically Sensitive Area would need to be shifted approximately 10 feet to the north, away from the existing tree line and top of a steep bank that leads down to a small unnamed stream. Therefore, the original fence post locations that had been previously cleared during the July-August 2024 point mitigation are no longer applicable. Due to the project schedule and existing funding, the additional point mitigation for the new fence post locations will be completed during final design and permitting (Phase II) once the exact locations of the proposed fence posts are finalized. Point mitigation will be completed for all proposed areas of ground disturbance within the Archaeologically Sensitive Area prior to the start of construction including any ground disturbance in this area. Following completion of the additional point mitigation, a supplemental report will be submitted to NHDHR summarizing the results and findings of the additional archaeological investigations.

Based on the archaeological assessment and investigations to date, along with the additional point mitigation that will be completed once the fence post locations are finalized during Phase II of the proposed project, impacts to Archaeologically Sensitive Areas have been avoided and minimized to the maximum extent practicable. The project commits to completing all necessary phases of archaeology and will continue consultation with NHDHR if there are any unanticipated discoveries. The Section 106 Effect Memo (**Appendix J**) was signed by DHR on May 9, 2025, and the NH SHPO concurred with the determination that No Historic or Archaeological Properties would be affected.

Therefore, the Proposed Action is not anticipated to result in a direct use, temporary use, and/or constructive use of any Section 4(f) properties.

5.3.1. Mitigation – Section 4(f)

A point mitigation strategy for the archaeologically sensitive area was implemented to avoid an Adverse Effect on historic resources potentially eligible for listing on the NRHP. The preliminary fence post locations in the archaeologically sensitive area were excavated by an archaeologist and artifacts were recovered during the preliminary design phase. However, as preliminary design progressed, the proposed fence alignment shifted approximately 10 feet to the north. The shift was required to allow Airport maintenance staff adequate space to mow around the proposed fence. The fence post locations would be finalized during the final design phase. Additional point mitigation would be conducted prior to the start of construction to clear the final limits of disturbance of potential archaeological sensitive resources. The results and findings of the additional point mitigation would be provided to NHDOT and DHR and additional coordination would be completed to ensure that the impacts from the Proposed Action have not resulted in an Adverse Effect on the archaeologically sensitive area.

5.3.2. Findings and Conclusion – Section 4(f)

Under the No-Build Alternative, Section 4(f) resources would remain as they presently exist and would result in "no use" of any Section 4(f) properties. However, the No-Build Alternative does not satisfy the Purpose and Need of the project.

The Proposed Action would also result in no use of any Section 4(f) resources. The continued point mitigation strategy described above would ensure that the potentially NRHP eligible site would not be adversely affected by the Proposed Action. Therefore, the Proposed Action would not result in significant impacts to any Section 4(f) properties.

5.4. FARMLANDS

According to FAA Order 1050.1F, a proposed action would have significant impacts on farmlands when the action would result in the total combined score on Form AD-1006, "Farmland Conversion Impact Rating," ranges between 200 and 260 points.

The FPPA does not apply to land already committed to urban development such as the existing Airport property. Therefore, the Proposed Action is not subject to the requirements of the FPPA, and completion of the Farmland Conversion Impact Rating Form and coordination with the NRCS was not required.

5.4.1. Mitigation – Farmlands

The Proposed Action is located entirely on Airport property, on lands committed to aviation land use. Therefore, no farmland mitigation is required.

5.4.2. Findings and Conclusion – Farmlands

The No-Build Alternative would have no effect on "Important Farmland" resources under the FPPA, because it does not include any development. However, the No-Build Alternative does not satisfy the Purpose and Need of the project.

The Proposed Action is not subject to the FPPA because it is located on existing Airport property on lands committed to aviation use. Therefore, it is not anticipated to result in a significant effect on important farmland.

5.5. HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

The FAA has not established a significance threshold for hazardous materials, solid waste, and pollution prevention. However, potential factors to consider include a Proposed Actions potential to violate applicable Federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management; involve a contaminated site; produce an appreciably different quantity or type of hazardous waste; generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal and/or would exceed local capacity; or adversely affect human health and the environment.

The Proposed Action is not anticipated to produce or generate an appreciably different quantity or type of hazardous or solid waste. The Proposed Action involves the installation of approximately 17,211 LF of chain link fence and is not anticipated to generate excess soil requiring offsite disposal, or any groundwater handling. Fence posts are anticipated to be set a minimum of 36-inches deep, and excavation is limited to an approximately 12-inch diameter hole for each post. Therefore, the proposed project is not anticipated result in the generation of large quantities of excess soil material. Since the soil removal will occur in small, spaced increments rather than a continuous trench along the entire alignment, it is assumed that soil material can be backfilled and/or spread thinly onsite. If excess soil material is generated, it would be kept on Airport property. Further, the need for dewatering is not anticipated.

Equipment such as pickup trucks, tracked vehicles (i.e., skid steer loader, mini excavator, etc.), augers, chainsaws, chippers, and concrete mixers are anticipated to be used during construction of the proposed fence. Proper use, storage, inspection, and maintenance of equipment will minimize potential releases of petroleum, hydraulic fluid, or other hazardous materials, while onsite. Spill or waste materials will be disposed of at an appropriately permitted facility.

Based on the distances from the project site and the status of the remediation sites located within 1,000 feet of the project site, the Proposed Action is not anticipated to result in impacts to or encounter any soil or groundwater contamination from the four existing Remediations Sites in the NHDES OneStop Database.

Similarly, based on the distance from the Keene Old City Landfill, the Proposed Action is not anticipated to encounter soil or groundwater contamination from this facility.

5.5.1. Mitigation – Hazardous Materials, Solid Waste, and Pollution Prevention

While no specific mitigation is required, the following BMPs may be implemented to prevent, minimize, and control the potential release of petroleum materials during the construction phase:

- Designate a contained area for equipment storage, short-term maintenance, and refueling. Ensure it is located at least 100 feet from wetlands and waterbodies.
- Inspect vehicles and equipment for leaks and repair immediately.
- Use of approved spill response kit, as necessary.
- Clean up leaks, drips and other spills immediately to avoid soil or groundwater contamination.
- Conduct major vehicle maintenance and washing off site.
- Ensure that all spent fluids including motor oil, radiator coolant, or other fluids and used vehicle batteries are collected, stored, and recycled as hazardous waste off site.
- Ensure that all construction debris are taken to appropriate landfills (as necessary) and all sediment disposed of in approved upland areas or off-site.

5.5.2. Findings and Conclusions – Hazardous Materials, Solid Waste, and Pollution Prevention

The No-Build Alternative would have no effect on hazardous materials, solid waste, or pollution prevention activities because it is a non-development alternative. Any hazardous materials, solid

waste, or pollution prevention activities would remain as they presently exist. However, the No-Build Alternative does not satisfy the Purpose and Need of the project.

The Proposed Action is expected to have no significant effect on hazardous materials, solid waste, or pollution prevention activities.

5.6. HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

The FAA has not established a significance threshold for Historical, Architectural, Archeological, and Cultural Resources. Factors to consider include whether the action would result in a finding of Adverse Effect through the Section 106 process. However, an adverse effect finding does not automatically trigger preparation of an EIS (i.e., a significant impact).

The Dillant-Hopkins Airport was previously determined not eligible for the NRHP (2024RE00418) and no additional inventory was determined necessary based on the project impacts. One Archaeological Sensitive Area was identified within the Area of Potential Effect (APE) during the Phase IA/IB archaeological investigation.

5.6.1. Mitigation – Historical, Architectural, Archaeological, and Cultural Resources

Through consultation with NHDHR and Monadnock Archaeological Consulting, a "point mitigation" strategy was developed, based on the relatively minor footprint and ground disturbance associated with the proposed fence project. The point mitigation strategy focused on the specific areas of proposed ground disturbance associated with the installation of the proposed fence posts. Monadnock Archaeological Consulting Completed the point mitigation in July-August 2024. A revised Phase IA/IB Report that included the results of the point mitigation was provided to NHDHR in December 2024, and DHR concurred that no further archaeological study was needed.

However, after the point mitigation was completed, preliminary design continued to progress and it was later determined that the fence posts located within the Archaeologically Sensitive Area would need to be shifted approximately 10 feet to the north, away from the existing tree line and top of a steep bank that leads down to a small unnamed stream. Therefore, the original fence post locations that had been previously cleared during the July-August 2024 point mitigation are no longer applicable. Due to the project schedule and existing funding, the additional point mitigation for the new fence post locations will be completed during final design and permitting (Phase II) once the exact locations of the proposed fence posts are finalized. Point mitigation will be completed for all proposed areas of ground disturbance within the Archaeologically Sensitive Area prior to the start of construction including any ground disturbance in this area. Following completion of the additional point mitigation, a supplemental report will be submitted to NHDHR summarizing the results and findings of the additional archaeological investigations.

5.6.2. Findings and Conclusions – Historical, Architectural, Archaeological, and Cultural Resources

The No-Build Alternative would have no effect on historical, architectural, archaeological, and/or cultural resources. However, the No-Build Alternative does not address the Purpose and Need of the overall project.

Based on the archaeological assessment and investigations to date, along with the additional point mitigation that will be completed once the fence post locations are finalized during Phase II of the proposed project, impacts to Archaeologically Sensitive Areas have been avoided and minimized to the maximum extent practicable. The project commits to completing all necessary phases of archaeology and will continue consultation with NHDHR if there are any unanticipated discoveries. The Section 106 Effect Memo (**Appendix J**) was signed by DHR on May 9, 2025, and the NH SHPO concurred with the NHDOT determination that the Proposed Action would result in a finding of No Historic or Archaeological Properties Affected, with the condition/assumption that additional point mitigation would be completed for the final fence post locations in the next phase of the project and prior to the start of construction.

There are no federally recognized tribes located in New Hampshire. Therefore, no additional THPO coordination was completed. The Proposed Action is not anticipated to impact tribal lands.

5.7. VISUAL EFFECTS

The FAA has not established a significance threshold for Visual Resources / Visual Character, and there are no special purpose laws specific to light emissions or visual effects. The Proposed Action does not include the installation of new lighting and is not anticipated to result in any changes in aircraft operations at EEN.

Based on input from the Airport, City of Keene, and Swanzey Conservation Commission, one of the primary concerns from the public regarding the proposed perimeter fence project at EEN is the visual impacts. The visual impacts were one of the main reasons for the strong opposition to the Airport Road Alternative. A fence alignment along Airport Road would partially block the existing unobstructed view into the wetlands and detract from the overall scenic nature and quality of the Airport Road corridor. Airport Road is a well-documented birding hotspot and popular destination for birders, photographers, and walkers. The Airport Road Alternative would have resulted in substantially greater visual impacts.

The Proposed Action would minimize visual impacts by locating the proposed fence alignment further from Airport Road, as close to the existing runways and taxiway infrastructure as possible. At its closest point, north of the RW 14 end, the proposed fence alignment is located approximately 400 to 500 feet from Airport Road. By locating the proposed fence further from the roadway, visual impacts of the fence as observed by people recreating along Airport Road have been minimized to the maximum extent practicable. The majority of the southwestern and eastern portions of the proposed fence alignment are not easily visible from easily accessible and popular vantage points. Portions of the existing northern, eastern, and southern perimeter of the

airfield are currently fenced. Overall, the proposed 8-foot-high chain link fence is consistent with the existing fence and aviation land use in the surrounding area.

The Proposed Action is also anticipated to require 0.4 acres of tree clearing. The areas of proposed tree clearing are located along the edges of existing forested areas and generally are not visible from easily accessible vantage points (i.e., the Airport Road viewing locations). The proposed clearing is not anticipated to change the look or character of the Airport or surrounding area.

5.7.1. Mitigation – Visual Effects

No mitigation for visual impacts is proposed.

5.7.2. Findings and Conclusions – Visual Effects

The No-Build Alternative would not install any additional fencing and would not require any additional tree clearing. The No-Build Alternative would have no effect on light emissions, visual resources or visual character. However, the No-Build Alternative does not satisfy the Purpose and Need of the project.

The Proposed Action does not include the installation of new lighting facilities or a change in aircraft operations. The Proposed Action would require approximately 0.40 acres of tree clearing. However, this clearing is spread out across the entire 17,211-foot length of proposed fence and is located along the edges of existing forested areas. Visual impacts of the fence from Airport Road, the most popular and accessible vantage point along Airport property, have been minimized by locating the proposed fence alignment as close to the existing runway and taxiway infrastructure as possible. Therefore, the Proposed Action is not anticipated to have an adverse effect on visual resources and visual character within the project area and the general vicinity.

5.8. WATER RESOURCES

5.8.1. Wetlands

According to FAA Order 1050.1F, a proposed action would have a significant impact on wetlands if the action would:

1. Adversely affect a wetland's function to protect the quality or quantity of municipal water supplies, including surface waters and sole source and other aquifers;
2. Substantially alter the hydrology needed to sustain the affected wetland system's values and functions or those of a wetland to which it is connected;
3. Substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare (the term welfare includes cultural, recreational, and scientific resources or property important to the public);
4. Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands;

5. Promote development of secondary activities or services that would cause the circumstances listed above to occur; or
6. Be inconsistent with applicable state wetland strategies

The Proposed Action is anticipated to result in permanent wetland "fill" or impacts associated with the installation of the proposed fence posts. The proposed fence posts would be spaced 10 feet apart, and it was assumed that each post would require a 12-inch diameter hole. Fence post holes would be excavated using an auger (or similar equipment) and posts would be installed, and the holes would be backfilled with concrete to create the footing. Assuming a 12-inch diameter hole size, each fence post footing would have a total area of approximately 0.8 square feet. There are approximately 4,642 LF of proposed fence located within existing wetland resource areas. Wetland impacts were quantified based on these assumptions, and the Proposed Action is anticipated to result in approximately 374 square feet of permanent impacts to wetland resources areas. The wetland impacts associated with the Proposed Action are summarized in **Table 5-2**.

Table 5-2: Wetland Impacts

Wetland ID	Classification	Permanent Wetland Impacts (SF)	Temporary Wetland Impacts (SF)
A	PSS1E	152	28,923
A	PSS1E (**PRA**)	40	7,102
A	PFO1E	11	3,159
A	PUBHh (**PRA**)	11	2,223
B	PSS1E	72	12,668
D	PEM1E	5	1,046
D	PEM1E (**PRA**)	27	3,677
D	PEM1Ed	4	755
D	PEM1Ed (**PRA**)	2	413
G	PEM1Ed	1	
G	PEM1E	2	
K	PEM1E	44	3,300
K	PEM1Ed	4	435
L	PF01E	1	28,923
TOTAL		**374**	**63,701**

Other than the proposed fence posts and concrete footings there are no other permanent wetland fills or impacts anticipated from the Proposed Action. Due to the nature of the Proposed Action, the permanent wetland impacts are relatively minor. However, due to the presence of 100-year floodplain associated with, and contiguous to the Ashuelot River (a Tier 3 watercourse, pursuant to Env-Wt 900) located within the project area, the portions of the wetlands that are located within the FEMA mapped 100-year floodplain are classified as PRAs. The Proposed Action is anticipated to result in approximately 80 square feet of permanent impacts to PRAs. Permanent impacts to a PRA automatically trigger required mitigation for *all* wetland impacts regardless of

whether the mitigation threshold for the total area of impacts is exceeded. Wetland mitigation is discussed further in Section 5.8.6. below.

Temporary wetland impacts for construction access would be required to construct the proposed fence. The exact means and methods during construction would be determined by the selected contractor, but it is assumed that wooden timber "swamp mats" or "construction mats" would be used to access wetland areas with equipment and machinery required to construct the proposed fence through wetland areas. The use of timber matting would minimize the effects of the temporary impacts in the wetland areas by reducing ground disturbance. For the purpose of calculating temporary impacts, it was assumed that a 15-foot-wide temporary access would be required to be installed within wetland areas during construction. Temporary wetland impacts also included two areas of required tree clearing / vegetation removal in Wetland A on the west side of the Airport. Typically, it is common practice to maintain a 10-foot clear zone along a perimeter fence for inspection and maintenance purposes. However, based on conversations with the Airport and NHDOT, vegetation clearing in wetlands has been minimized to the maximum extent practicable in order to avoid additional disturbance and impacts on the wetland resources. Vegetation removal in wetlands is only proposed where required for the installation of the proposed fence itself. A 10-foot clear zone along the sections of the proposed fence alignment in wetland areas is not proposed. Temporary wetland impacts associated with the Proposed Action totaled approximately 63,701 square feet.

5.8.2. Surface Waters

According to FAA Order 1050.1F, a proposed action would have a significant impact on surface waters if the action would:

1. Exceed water quality standards established by Federal, state, local, and tribal regulatory agencies; or
2. Contaminate public drinking water supply such that public health may be adversely affected.

The Proposed Action would not directly impact any rivers, streams, or other surface waters. There are no impacts below the top of bank and/or OHWM of the unnamed perennial stream in the project area. Indirect impacts on water quality would be minimized through the implementation of appropriate soil erosion and sediment controls during construction.

The Proposed Action is anticipated to result in minimal impacts within the Protected Shoreland of Wilson Pond, associated with the installation of approximately 168 LF of fence within the Protected Shoreland. There are no impacts proposed within the Waterfront Buffer, or areas within 0 to 50 feet of the Reference Line or OHWM of Wilson Pond. Impacts located within the Natural Woodland Buffer, located between 50 to 150 feet of the Reference Line, are associated with the installation of approximately 58 LF of fence and the removal of approximately 44 feet of existing fence. Impacts located within the Protected Shoreland Buffer, located between 150 to 250 feet from the Reference Line, are associated with the installation of approximately 110 LF of fence. No tree clearing or vegetation removal is required within the Protected Shoreland. The existing area

consists of maintained grassland areas that are mowed on a regular basis. The anticipated disturbance within the Protected Shoreland from the Proposed Action is limited to approximately five fence posts to be installed within the Natural Woodland Buffer, resulting in approximately 4 square feet of impacts, and 11 fence posts are expected to be installed within the Protected Shoreland Resulting in approximately 9 square feet of impacts. The proposed concrete footings for each post would result in a negligible increase in impervious surface within the Protected Shoreland.

The Ashuelot River is a NH Designated River, and portions of the Proposed Action that are collocated within the FEMA-mapped 100-year floodplain (limits of the lateral extent of the Designated River Corridor) are located within the Designated River Corridor. The proposed fence alignment is located over 1,300 feet or approximately 0.25 miles from the Ashuelot River. Based on the distance from the Ashuelot River and the nature of the project, the Proposed Action is not anticipated to impact the Ashuelot River. The proposed fence project involves minimal ground disturbance and impacts within wetland resource areas have been minimized. Soil erosion and sediment control BMPs would be implemented during construction to minimize impacts on water quality. The LAC was contacted regarding the proposed project, and the Proposed Action was presented and discussed at the May 20, 2025, Ashuelot River LAC Meeting. Overall, the LAC was in concurrence with proposed project, and expressed satisfaction that the proposed fence alignment along Airport Road was not being considered further. The LAC did not have concerns with the ROFA Alternative moving forward as proposed. Coordination with the LAC would continue during final design and LAC coordination is required for state permit applications.

The Proposed Action is located downstream from Wilson Pond and, therefore, is not anticipated to contribute to the dissolved oxygen saturation impairment of this surface water. The Proposed Action is located up gradient from the South Branch Ashuelot River and Ashuelot River. However, the installation of the proposed fence is not anticipated to contribute to the dissolved oxygen saturation or pH impairments of these surface waters.

5.8.3. Wild and Scenic Rivers

The FAA has not established a significance threshold for Wild and Scenic Rivers. However, there are no such rivers located in the vicinity of the Proposed Action. Therefore, the Proposed Action is not anticipated to result in any impacts to Wild and Scenic Rivers.

5.8.4. Floodplains

The significance threshold for floodplains outlined in FAA Order 1050.1F, is met when an action would cause notable adverse impacts on natural and beneficial floodplain values. Natural and beneficial floodplain values are defined in Paragraph 4.k of DOT Order 5650.2, Floodplain Management and Protection, as including but not limited to, natural moderation of floods, water quality maintenance, groundwater recharge, fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, and forestry.

The proposed chain link fence consists of an open, permeable structure that is not anticipated to impede the flow of floodwaters, result in a loss of flood storage volume, or act as a barrier to debris flow. The proposed fence is located over 1,300 feet from the Ashuelot River, on the opposite (east) side of Airport Road, along the outer edge of the mapped 100-year floodplain. A series of cross culverts under Airport Road provide a hydraulic connection between the floodplain areas on either side of the roadway. Based on the distance from the Ashuelot River, existing barriers (Airport Road), and dense, persistent vegetation, the flood flow velocities in the project area are assumed to be minimal.

The New Hampshire Floodplain Program Manager was contacted regarding the proposed project but a response has not been received at this time.

5.8.5. Groundwater

The significance threshold for ground water resources is defined by FAA Order 1050.1F as an action that would:

1. Exceed groundwater quality standards established by Federal, state, local, and tribal regulatory agencies; or
2. Contaminate an aquifer used for public water supply such that public health may be adversely affected

The proposed project is not anticipated to result in impacts to groundwater resources in the vicinity of the proposed project. Ground disturbance and excavation from the Proposed Action is limited to the installation of the proposed fence posts. The proposed fence posts would be installed at a minimum depth of approximately 36 inches and spaced approximately 10 feet apart. Minor regrading may be required in upland areas along the proposed fence alignment but is not anticipated to exceed one acre of ground disturbance. The Proposed Action is limited to installation of 17,211 LF of chain link fence and does not involve the construction of any other structures or impervious surfaces. The Proposed Action does not involve any groundwater withdrawals, discharges, or construction activities associated with new or existing wells. No work will occur within any WHPAs.

5.8.6. Mitigation – Water Resources

Wetlands & Surface Waters

The wetlands and surface waters resource categories have been combined for the purpose of the mitigation discussion, as mitigation for these resources are considered under the same process. However, no surface water (channel or bank) impacts are anticipated and, therefore, mitigation for surface waters is not required.

Both state and federal mitigation for wetland and stream impacts is typically required when impacts exceed specific size thresholds. The USACE requires compensatory mitigation for all wetland losses (permanent impacts) greater than 5,000 square feet in non-tidal wetlands, any tidal wetlands, and stream impacts greater than 200 LF. The USACE revised their mitigation thresholds

in 2022, and the federal requirements are no longer consistent with the current state requirements. The NHDES mitigation thresholds require compensatory mitigation for permanent impacts that exceed 10,000 square feet for non-tidal wetlands, 200 LF of combined channel and bank impacts, or any permanent impacts to a PRA.

The Proposed Action is anticipated to result in approximately 374 square feet of permanent impacts associated with the installation of the proposed fence posts and concrete footings. No stream channel or bank impacts are anticipated. The proposed permanent wetland impacts are well below the compensatory mitigation thresholds established by the USACE and NHDES. However, due to the approximately 80 square feet of PRA impacts associated with the portions of the wetlands within the FEMA mapped 100-year floodplain (floodplain wetland contiguous to a Tier 3 or higher watercourse) mitigation would be required for all wetland impacts associated with the Proposed Action.

In New Hampshire, the Aquatic Resource Mitigation (ARM) Fund is the mechanism for in-lieu fee (ILF) compensatory mitigation and is managed by NHDES. The ARM Fund Calculator spreadsheet was used to determine the preliminary mitigation amount. Based on the 374 square feet of proposed permanent wetland impacts, the Proposed Action is anticipated to require a $2,082.00 ILF payment to the NHDES ARM Fund to compensate for the wetland impacts.

Wild and Scenic Rivers

There are no Wild and Scenic Rivers in the vicinity of the Airport, and the Proposed Action would not impact any such resources. Therefore, no mitigation for Wild and Scenic Rivers is required.

Floodplains

The Proposed Action would not result in substantial fills or modifications within the FEMA 100-year floodplain that would result in an increase in the BFE. The proposed fence consists of an open, permeable chain link material that would not restrict flood flows. Therefore, no floodplain mitigation is proposed.

Groundwater

The Proposed Action is not anticipated to impact groundwater resources. Therefore, no groundwater mitigation is proposed.

5.8.7. Findings and Conclusion – Water Resources

The No-Build Alternative would have no effect on water resources including wetlands, surface waters, floodplains, Wild and Scenic Rivers, floodplains, or groundwater. However, the No-Build Alternative does not address the Purpose and Need of the project.

Wetlands

Permanent wetland impacts from the Proposed Action are limited to approximately 374 square feet of permanent impacts associated with the fence post footings. The 374 square feet also includes 80 square feet of permanent impacts to PRA wetlands. Wetland impacts have been minimized and avoided to the maximum extent possible by siting the proposed fence alignment as close to the existing runway and taxiway infrastructure as possible, routing the fence around wetland areas, and attempting to orient wetland crossings perpendicular to the wetlands to minimize the length of fence in wetland areas. Due to the location and size of existing wetlands, proximity to existing runway and taxiway infrastructure, and FAA safety design standards, surfaces, and clearances, it was not feasible to completely avoid wetland impacts. Therefore, compensatory mitigation is anticipated to be required for the permanent impacts (due to PRA impacts) and an approximately $2,082.00.

Impacts to wetland functions and values including wildlife habitat, visual quality/aesthetics, recreation, were minimized by selecting the ROFA Alternative over the Airport Road Alternative.

Temporary impacts during construction are expected to total approximately 63,701 square feet and are primarily associated with construction access and minimal tree clearing. Timber mats would be utilized during construction to minimize ground disturbance and wetland impacts. Additionally, vegetation clearing and removal in wetlands was minimized to approximately 0.17 acres.

Based on the minimal impacts from the project and the avoidance and minimization measures, the Proposed Action would not result in adverse effects on the functions and values of the wetlands in the project area. These resources would be able to continue to provide the same level of function and values following completion of the project. The Proposed Action is not anticipated to alter the hydrology of the area or affect the wetlands abilities to retain floodwaters. Impacts to wildlife habitat were reduced by minimizing the area enclosed inside the proposed fence. Additional coordination with NHFG will occur in the final design phase to ensure that fish, wildlife, and state listed species are further protected through various BMPs. Soil erosion and sediment controls and other construction BMPs would further prevent and minimize potential impacts to water quality during construction.

Therefore, the Proposed Action is in accordance with EO 11990 and will result in no net loss to wetlands and will have no significant effect on wetland resources.

Surface Waters

The Proposed Action would not directly impact any surface water resources. Surface water quality would be further protected during construction the implementation of appropriate soil erosion and sediment control BMPs. Impacts within the Protected Shoreland of Wilson Pond would be minimal and are not anticipated to impact water quality. Therefore, the Proposed Action would have no significant effect on surface waters resources.

Wild and Scenic Rivers

The Proposed Action would have no effect on Wild and Scenic Rivers.

Floodplains

The portions of the proposed fence alignment along the northwestern and western side of the airfield are located within the FEMA mapped 100-year floodplain of the Ashuelot and South Branch Ashuelot River. However, due to the nature of the proposed project, the proposed fence would not constitute substantial fill in the floodplain that would result in an increase in the BFE. The proposed chain link fence would be highly permeable, allowing floodwaters to easily pass through the open wire mesh. Floodplain impacts have been minimized and avoided to the maximum extent practicable through the wetlands avoidance and minimization process. Therefore, the Proposed Action is not anticipated to have a significant effect on floodplain resources.

Groundwater

The minimal ground disturbance and tree clearing associated with the installation of the proposed fence is not anticipated to impact groundwater resources in the vicinity of the project. Therefore, the Proposed Action is not anticipated to have a significant effect on groundwater resources.

5.9. CONSTRUCTION IMPACTS

Temporary construction impacts associated with the Proposed Action are anticipated to be localized and short-term in nature.

Ground disturbance would be limited to the installation of the proposed fence posts and concrete footings as well as minor grading (as required) in upland areas. Fence posts would be installed at approximately 10-foot intervals along the proposed fence alignment. Minor regrading may be required in some areas to install the proposed fence at existing ground level. However, exact locations would be determined during final design. No additional grading or ground disturbance other than for the installation of the proposed fence posts would be proposed in wetland areas. The anticipated area of ground disturbance from the overall project is well below one-acre. Appropriate soil erosion and sedimentation control BMPs (e.g., silt fence, mulch, stabilized construction entrances) will be implemented to prevent off-site sedimentation, particularly in areas adjacent to wetlands, watercourses, or other sensitive environmental resources.

The Proposed Action is anticipated to require approximately 0.4 acres of tree clearing. Tree clearing would be completed during the inactive season for bats, from November 1 to April 14, to further minimize potential impacts on bats and birds.

Construction activities would generate temporary increases in noise and potential dust emissions from vehicle and equipment operations. However, these impacts would be minor and limited to standard working hours. Construction traffic would primarily consist of pickup trucks, small construction vehicles, and delivery trucks transporting fencing materials. Access would be

coordinated to avoid disruption to airport operations or public roads. No long-term changes to traffic patterns are anticipated.

Temporary impacts to wetland resource areas required for wetland crossings and construction access would be minimized through the use of timber construction mats. The temporary mats would reduce ground disturbance from construction vehicles and machinery in the wetland areas.

Construction debris (e.g., removed vegetation, packaging, or excess materials) will be collected and disposed of or recycled in accordance with local and state regulations.

5.9.1. Mitigation – Construction Impacts

Precautions shall be employed to minimize noise, dust, and vibrations during the construction period, primarily for the abutting receptors located adjacent to the project area. Additionally, all appropriate erosion and stormwater management measures shall be installed prior to the commencement of work. Such measures shall be inspected and maintained throughout construction.

5.9.2. Findings and Conclusion – Construction Impacts

The No-Build Alternative would not result in any construction-related impacts, as no physical construction would be associated. However, the No-Build Alternative fails to address the Purpose and Need of the project.

Under the Proposed Action, approximately 17,211 LF of new fencing would be installed. Construction activities associated with the proposed fence installation would be temporary and short-term in duration. Due to the nature of the proposed project, ground disturbance is anticipated to be minimal. Best management practices would be implemented to avoid or minimize erosion, sedimentation, and other short-term construction impacts.

Therefore, the Proposed Action is not anticipated to result in significant impacts from construction activities.

5.10. ENVIRONMENTAL CONSEQUENCES AND COMMITMENTS SUMMARY

A summary of the impact categories that were evaluated, impacts from the Proposed Action, findings, and environmental commitments are provided in **Table 5-3** below:

Table 5-3: Environmental Consequences and Commitments Summary

Impact Category	Subcategory	Impact Summary	Finding	Phase	Environmental Commitments
Air Quality	*N/A*	Minimal temporary emissions from construction vehicles and equipment; no operational changes; emissions are well below de minimis level.	No Significant Impact	Construction	1) Standard construction BMPs shall be implemented to reduce air quality impacts, including but not limited to: - Limit construction vehicle idling to 3 minutes. - Promote use of Tier IV equipment. - Maintain vehicles and equipment in good condition.
Biological Resources	*Ecological Communities & Wildlife Habitat*	Minimal, primarily temporary impacts to existing upland grassland habitats, palustrine emergent marsh, palustrine scrub-shrub, and palustrine forested wetland habitats; approximately 0.4 acres of tree clearing (approximately 0.17 acres in PFO wetlands); fragmentation associated with the proposed fence. No impact on exemplary natural communities.	No Significant Impact	N/A	None – Refer to Environmental Commitments #2, 3,4, and 5
	Federally Listed Species	The Proposed Action would result in a "may affect, not likely to adversely affect" determination for dwarf wedgemussel (endangered) and tricolored bat (proposed endangered); no direct surface water impacts; minimal (0.4 acres) of tree clearing required.	No Significant Impact	Final Design / Construction	2) Time of year restriction on tree clearing shall limit tree clearing to the inactive season for bats from November 1 – April 14. 3) All appropriate erosion and stormwater management measures shall be installed prior to the commencement of work. Such measures shall be inspected and maintained throughout construction.
	State Listed Species	No impacts to Silver Maple-False Nettle-Sensitive Fern Floodplain Forest exemplary natural community; temporary construction related disturbances could affect state listed grassland birds and other wildlife species; habitat fragmentation has been minimized to the maximum extent practicable.	No Significant Impact	Final Design / Construction	4) Formal consultation with NHFG pursuant to Fis 1004 shall be completed during Final Design, prior to construction. 5) BMPs to minimize impacts on grassland birds, reptiles, amphibians, and other wildlife shall be identified through additional NHFG coordination and implemented during construction. 6) Turtle species of concern are known to occur in the vicinity of the project. During the turtle nesting season from May 15th through July 1st, the Contractor shall review any areas with exposed soils that will experience truck traffic or equipment staging for turtle nesting activity. If turtles are found laying eggs in an area that will be disturbed, the Contractor shall cease work immediately to avoid disturbing the turtle, and contact NHFG (Melissa Winters 603-479-1129 or Josh Megysey 978-578-0802). 7) The NHFG Turtle Flyer shall be shared with all operators, employees and contractors working on the project. All observations of wood turtles

Impact Category	Subcategory	Impact Summary	Finding	Phase	Environmental Commitments
					shall be immediately reported to NHFG (Melissa Winters 603-479-1129 or Josh Megysey 978-578-0802).
	EFH	No surface water impacts are proposed; consultation with NOAA/NMFS and/or EFH Assessment is not required for projects within the Connecticut River Watershed	No Impact	N/A	None – Refer to Environmental Commitment #3.
	Migratory Birds	Minimal impacts to existing grassland habitats; wetland habitats; and tree clearing (0.4 acres). Potential for temporary impacts/disturbance during construction.	No Significant Impact	Final Design	8) Efforts to minimize vegetation removal shall continue during Final Design. Refer to Environmental Commitments #2, 4, and 5.
Section 4(f)	-	No direct use, temporary use, or constructive use of any Section 4(f) resources.	No Significant Impact	N/A	None.
Farmlands	-	The Proposed Action is located entirely on Airport property on lands committed to aviation use; therefore, the FPPA does not apply.	No Significant Impact	N/A	None.
Hazardous Materials	-	Minimal potential for petroleum and/or hazardous material release during construction; not anticipated to impact or encounter any known hazardous materials in soil, groundwater, or contaminated sites.	No Significant Impact	Construction	9) Standard construction BMPs shall be implemented to manage materials and minimize risk of hazardous substance release (e.g., spill kits, designated fueling areas, offsite disposal of fluids, debris to approved facilities).
Historical, Architectural, Archaeological, and Cultural Resources	-	One Archaeologically Sensitive Area was identified in the project area; Point mitigation was completed for preliminary fence post locations, but final post locations require additional point mitigation. The airport was determined not eligible for the NRHP, and no architectural inventory was required. No effect on tribal lands.	No Significant Impact / No historic or archaeological properties affected	Final Design	10) Additional point mitigation shall be completed during Phase 2 (Final Design) for the final fence post locations within the Archeologically Sensitive Area. Additional coordination with NH DHR shall be completed regarding the findings. All required archaeological surveys shall be completed prior to the start of construction or any ground disturbing activities.
Visual Effects	-	Minimal visual impacts are proposed; the Proposed Action is located approximately 400-500 feet from Airport Road at its closest point; the 0.4 acres of tree clearing occurs along the entire length of the project and tree clearing areas are not easily visible from publicly accessible locations.	No Significant Impact	N/A	None.
Water Resources	*Wetlands*	Approximately 374 SF of permanent wetland impacts (including 80 SF of PRAs); approximately 63,701 SF of temporary wetland impacts	No Significant Impact	Final Design	11) Efforts shall continue to avoid or minimize direct impacts to wetlands and waterways. As impacts are refined in final design, a proposed mitigation package shall be developed through coordination with regulatory agencies. Compensatory mitigation (approximately $2,082) for wetland impacts shall be provided via an in-lie fee payment to the NHDES ARM Fund.

Impact Category	Subcategory	Impact Summary	Finding	Phase	Environmental Commitments
					12) All appropriate permits from NHDES and USACE shall be obtained prior to the commencement of any work within jurisdictional wetlands.
	Surface Waters	No direct impacts to any surface waters including stream channels (below OHWM) of banks of surface waters; minimal impacts within the Protected Shoreland of Wilson Pond	No Significant Impact	Final Design	13) All appropriate permits from NHDES shall be obtained prior to the commencement of any work within the protected Shoreland of Wilson Pond. 14) This project is located within the Designated River Corridor of the Ashuelot River, a NH Designated River. For any work proposed within the Designated River Corridor not shown on the plans including the contractor's method of construction, access, and staging areas, the Contractor shall coordinate with the Local Advisory Committee (Barbara Skuly, Chair: Bskuly@ne.rr.com). Refer to Environmental Commitment #3.
	Wild & Scenic Rivers	No Wild & Scenic Rivers located in the vicinity of the Proposed Action; No impacts.	No Significant Impact	N/A	None.
	Floodplains	Minimal floodplain impacts; the proposed fence is an open, permeable structure; no additional fill in the floodplain; no increase in the BFE anticipated.	No Significant Impact	Final Design	15) Continued coordination with the NH Floodplain Program Manager shall be carried out as needed.
	Groundwater	Minimal ground disturbance; not anticipated to involve groundwater withdrawals, discharges, work within WHPA; no additional impervious surfaces.	No Significant Impact	N/A	None.
Construction Impacts	-	Minimal temporary, short-term, localized impacts from construction activities;	No Significant Impact	Construction	16) Timber mats shall be used to access portions of the fence located in wetland areas. 17) Precautions shall be employed to minimize noise, dust, and vibrations during the construction period, primarily for the abutting receptors located adjacent to the project area. Refer to Environmental Commitments #1 and 3.

6. Record of Agency Coordination and Public Involvement

6.1. AGENCY COORDINATION

Agency Coordination occurred over the course of one year from May 2024 through May 2025. **Table 6-1** documents the various agency coordination over that period.

Table 6-1: Agency Coordination from May 2024 through May 2025

Name/Agency	Date(s) of Coordination
Town of Swanzey Conservation Commission	June 3, 2024
NHDOT Natural Resource Agency Coordination Meeting: NHDOT NHDES NHFG USACE	July 17, 2024
NHDOT Natural Resource Agency Coordination Meeting: NHDOT NHDES NHFG USACE	September 18, 2024
Interagency Field Review Meeting: City of Keene NHDOT NHDES NHFG NHB	October 10, 2024
Town of Swanzey Conservation Commission	November 4, 2024
Ashuelot River Local Advisory Committee	May 20, 2025

The meeting minutes from the NHDOT Natural Resource Agency Coordination Meetings and the Town of Swanzey Conservation Commission Meetings are included in **Appendix L** and **Appendix M**, respectively. The meeting minutes from the October 2024 Interagency Field Review are

included in **Appendix N**. The meeting minutes from the Ashuelot River LAC Meeting were not available at the time of publication of this EA.

6.2. PUBLIC INVOLVEMENT AND EA REIVEW

Public involvement is an important component of the NEPA process. The Town of Swanzey Conservation Commission meetings are open to and were attended by members of the general public.

The Draft EA will be made available for public review and comment for a period of 30 days. Notice of availability of the Draft EA will be advertised in the Keene Sentinel. The Draft EA will be made available on the City of Keene website (https://keenenh.gov/airport/) and hard copies will be available at the following locations:

1. Keene Dillant-Hopkins Airport Manager's Office
   80 Airport Road
   Keene, NH 03431

2. Swanzey Town Clerk's Office
   620 Old Homestead Highway
   Swanzey, NH 03446

3. Keene City Clerk's Office
   City Hall, 1st Floor
   3 Washington Street
   Keene, NH 03431

Comments regarding the Draft EA will be accepted for a 30-day period as follows:

Postmarked by July 11, 2025, if mailed to Stephen Hoffmann at McFarland-Johnson, Inc., 53 Regional Drive, Concord, NH 03301; or

Emailed by 5:00 p.m. EST on July 11, 2025, to EEN.FENCE.EA@mjinc.com (a confirmation reply will be sent).

Agency and public comments received during the 30-day comment period will be considered in the development of the Final Environmental Assessment.

7. List of Preparers

This EA document was prepared by McFarland-Johnson, Inc. in collaboration with the City of Keene and NHDOT BOA. The following staff members were involved in the preparation of this document:

Name	Title	Organization	Role
Stephen Hoffmann	Senior Environmental Analyst	McFarland-Johnson, Inc.	Project Manager, Introduction, Purpose and Need, Alternative Analysis, Affected Environment, Environmental Consequences, ArcGIS Figures, EA document preparation
Christine Perron	Regional Environmental Manager	McFarland-Johnson, Inc.	Technical Reviewer
Jordan Tate	Environmental Analyst	McFarland-Johnson, Inc.	Technical Reviewer
John Gorham	Senior Aviation Engineer	McFarland-Johnson, Inc.	Aviation engineering, Alternative Analysis
Steve Bourque	Senior Aviation Planner	McFarland-Johnson, Inc.	Aviation planning, Alternative Analysis
Ferdinand Schoedinger	Aviation Engineer	McFarland-Johnson, Inc.	Aviation engineering
Robert Toomey	CADD Technician	McFarland-Johnson, Inc.	Obstruction evaluation and airspace analysis
David Hickling	Airport Director	City of Keene	General consultation, airport information, reviewer
Ben Albert	Airport Operations and Maintenance Manger	City of Keene	General consultation, airport information
Carol Niewola	Senior Aviation Planner	NHDOT Bureau of Aeronautics	General consultation, reviewer
Richard Dyment	Aviation Planner	NHDOT Bureau of Aeronautics	General consultation, reviewer

APPENDIX A:
WILDLIFE HAZARD SITE VISIT REPORT

LOOMACRES
Wildlife Management

July 10th, 2024

David Hickling
Airport Director
80 Airport Road,
Keene, NH 03431

Dear Mr., Hickling,

At your request, Loomacres Wildlife Management conducted a site visit to assess wildlife hazards on and around Keene Dillant-Hopkins Airport during the week of June 11th, 2024. This report will summarize the site visit, analyze data from surveys, and make recommendations as to future actions. It is important to note that the site visit is limited in scope and may not reflect all the wildlife hazards that exist on and near the airport. This site visit report is not intended to meet the requirements for a complete Wildlife Hazard Assessment set forth in CFR 139.337.

Site Description

Figure 1. Aerial photo of EEN.

The Keene Dillant-Hopkins Airport (hereafter EEN (Figure 1)) is located 2 miles south of Keene, New Hampshire. EEN is publicly owned by the City of Keene. EEN has 888 acres at 488 feet above mean sea level. It has two runways with asphalt surfaces: 2/20 (6,201 x 100 ft.) and 14/32 (4,001 x 75 ft.). For the 12-month period ending in August 1st, 2018, the average aircraft operations were 77 per day, 71% transient general aviation, 21% local general aviation, 4% air

taxi, and 4% military. At this time, there were 48 aircraft based on the airfield, 41 single engine airplanes, 2 multi engine airplanes, 3 jet airplanes, and 2 helicopters.

Strike History

Below, Table 1, shows the current recorded wildlife strikes in the FAA Wildlife Strike Database for EEN. There has been twelve (12) wildlife strikes at EEN according to the strike database. Information regarding strike data submission and protocol for data collection can be found in the FAA Advisory Circular 150/5200-32B. Airport staff should submit data for any future wildlife strikes that may occur on or near the airfield to the database. Any unidentified wildlife remains from a wildlife strike should be sent to the Smithsonian for further identification.

Table 1. Species struck at EEN 1991-2024

Date	Species Struck	Scientific Name
September 19th, 2022	Canada Goose	*Branta canadensis*
September 8th, 2022	Canada Goose	*Branta canadensis*
September 13th, 2019	White-tailed Deer	*Odocoileus virginianus*
September 2nd, 2019	Canada Goose	*Branta canadensis*
January 13th, 2019	Unknown Bird – Medium	
May 11th, 2016	White-tailed Deer	*Odocoileus virginianus*
September 1st, 2014	Unknown Bird	
May 22nd, 2010	Unknown Bird – Medium	
July 10th, 2009	White-tailed Deer	*Odocoileus virginianus*
July 24th, 2007	Unknown Bird – Small	
June 18th, 2004	American Robin	*Turdus migratorius*
October 25th, 1991	Coyote	*Canis latrans*

Threatened & Endangered Species

A list of federally threatened and endangered mammal and bird species that may potentially occur at EEN can be found in Table 2. The term “endangered” means a species is in danger of extinction throughout all or a significant portion of its range. “Threatened” means a species is likely to become endangered within the foreseeable future.

The surveys conducted during our site visit were not meant to look specifically for these species, meaning they could be on or around the airport even if they were not noted during surveys.

Threatened and endangered migratory birds may travel great distances from their usual habitat and could show up on airport property unexpectedly. The airport must familiarize themselves with these species to avoid unlawfully disturbing them during depredation and land management activities. Listed species cannot be harassed or depredated (killed) unless

U.S. Fish and Wildlife Service and/or state permits are obtained before doing so. In addition, any habitat changes recommended for this WHSV must meet all federal and state criteria for the protection of threatened and endangered species. Any permits required must be obtained prior to habitat changes being made.

Table 2. List of threatened and endangered species that could occur near EEN – USFWS ECOS-IPAC

Species	Scientific name	State listing	Federal listing
Birds			
Northern harrier	*Circus cyaneus*	Endangered	Not Listed
Piping plover	*Charadrius melodus*	Endangered	Threatened
Common nighthawk	*Chordeiles minor*	Endangered	Not Listed
Upland sandpiper	*Bartramia longicauda*	Endangered	Not Listed
Roseate tern	*Sterna dougallii*	Endangered	Endangered
Least tern	*Sterna antillarum*	Endangered	Not Listed
Golden eagle	*Aquila chrysaetos*	Endangered	Not Listed
Pied-billed grebe	*Podilymbus podiceps*	Threatened	Not Listed
Common loon	*Gavia immer*	Threatened	Not Listed
Peregrine falcon	*Falco peregrinus*	Threatened	Not Listed
Common tern	*Sterna hirundo*	Threatened	Not Listed
Red knot	*Calidris canutus*	Threatened	Threatened
Cliff swallow	*Petrochelidon pyrrhonota*	Threatened	Not Listed
Purple martin	*Progne subis*	Threatened	Not Listed
Cerulean warbler	*Dendroica cerulea*	Threatened	Not Listed
Eastern meadowlark	*Sturnella magna*	Threatened	Not Listed
Grasshopper sparrow	*Ammodramus savannarum*	Threatened	Not Listed
Mammals			
Little brown bat	*Myotis lucifugus*	Endangered	Not Listed
Northern long-eared bat	*Myotis septentrionalis*	Endangered	Endangered
Tri-colored bat	*Perimyotis subflavus*	Endangered	Proposed Endangered
Eastern small-footed bat	*Myotis leibii*	Endangered	Not Listed
New England cottontail	*Sylvilagus transitionalis*	Endangered	Not Listed
Canada lynx	*Lynx canadensis*	Endangered	Threatened
Eastern wolf	*Canis lupus*	Endangered	Endangered

Permits

EEN currently has a United States Fish and Wildlife Service (USFWS) Migratory Bird Depredation at Airport Permit. EEN follows the renewal application process annually, to

continue use of this permit. This permit allows for the immediate removal of hazardous migratory bird species from airport property. Permits issued from the USFWS for migratory birds are valid for a one-year period and must be renewed annually, along with an annual take log.

The airport maintains a state depredation permit issued by the New Hampshire Fish and Game Department. This state permit allows EEN to take deer and turkey on airfield property. The airport submits an annual take log to the state. The Airport contacts a local trapper to remove nuisance beaver from the bodies of water on airfield property when needed.

Current Wildlife Management Strategy

EEN staff routinely check the airfield for wildlife hazards through perimeter fence checks, taxiway, and runway inspections. Airport staff utilize non-lethal harassment methods (i.e. pyrotechnics, vehicle chase, siren, etc.) to disperse wildlife on the airfield. EEN staff reinforce non-lethal harassment methods with lethal takes when needed, using a 12-gauge shotgun. EEN gives permission to deer hunters to archery hunt on airfield property in the forested parts on the western side of the airfield, outside of the Aircraft Operations Area (AOA). Airport staff maintain communication with hangar tenants on the airfield in case of wildlife nesting inside buildings.

Although EEN is not required to have a Wildlife Hazard Management Plan (WHMP), due to being a General Aviation airport, they had a WHMP created in 2009 and re-vamped in 2017 to help alleviate and mitigate wildlife problems on the airfield.

Fencing

EEN currently does not have a perimeter fence around the entire airfield. There are 2 sets of perimeter fence on the airfield that are not connected, with the majority of the airfield having no fence at all. Currently, there is fencing along the north side of the airfield that leads to the eastern part, until the culvert that leads into the airfield from Wilson Pond. This section of fencing is 8ft tall and has three strands of barbed wire on 45° outriggers, except for the small section of fencing located west of the operations building. The other section of fencing starts near the southern part of Taxiway Alpha on the east side. This fence goes along the southeastern part of the airfield, leads to the southern part, and ends in the southwestern section. This section of the perimeter fence is 8ft tall but does not have three strands of barbed wire outriggers. The entire west side of the airfield does not have a perimeter fence.

There is a section of fence on the western part of the airfield that is used to surround solar panels. This section of fencing is 6ft tall and has no outriggers. There is also a section of fence that splits the Keene Wastewater Treatment facility and the airfield. This section of fence is 8ft tall and has three strands of barbed wire on 45° outriggers. The wastewater treatment facility fence and the solar fence do not connect to each other or any other fences. A section of wastewater treatment facility fence is being pushed by woodchips and creates a ramp for wildlife to use to enter the airfield (Figure 2).

Figure 2. Woodchips pushing against the Wastewater Treatment Facility Fence.

Several gates on the perimeter fence had gaps underneath them or along the rollers where the gates opened up. The largest gap by a gate was observed at gate A-46 where the fence was roughly 12in above the pavement the whole length of the gate (Figure 3). Gate M-52 has a 6in gap where the two gates meet.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

Figure 3. Gate A-46, near Wilson Pond.

Vegetation Management

Surrounding the movement areas within the AOA are maintained grass fields, kept at an average height of 6-12 inches. At the time of the site visit, the grass safety areas surrounding the runways and taxiways was maintained at an average of 6-8 inches. This falls within the FAA recommendations that airports maintain grass heights between 6-12 inches to deter hazardous wildlife on the property. Grass height outside the safety area of the runways and taxiways were higher. Grass height at the onsite survey locations were at an average of 17 inches, with the tallest being at survey site 5. Survey site 5 is on the southern end of the airfield where a farmer mows the grass for hay. Grass height manipulation can provide passive management to deter wildlife from using the airfield.

EEN has several drainage ditches throughout the airfield. Airport staff mow these ditches as often as possible and at least once a year. These drainage ditches lead to wetland areas on the west and east side of the airfield.

The airfield lets a farmer mow the southern part of the airfield, outside the safety area. They usually mow this area twice a year for hay.

During the site visit, Loomacres staff identified the vegetation present on the airfield. Overall, the maintained portions of the property were uniform in composition. Dominant vegetation observed on airport property included:

Poa spp., bluegrass

Trifolium repens, clover

Solidago spp., goldenrod
Asclepias syriaca, common milkweed
Festuca arundinacea, tall fescue
Lotus corniculatus, bird's foot trefoil
Achillea millefolium, yarrow
Typha latifolia, broadleaf cattail
Lolium perenne, rye grass
Ranunculus acris, buttercup

During the time of the site visit, some shrubs and trees were growing through the existing perimeter fence from the outside of the airfield. This vegetation consisted of staghorn sumac (*Rhus typhina*), Virginia creeper (*Parthenocissus quinquefolia*), and Japanese knotweed (*Reynoutria japonica*) (Figure 4). The FAA recommends that airfields maintain a 10ft buffer on both sides of perimeter fences to allow for ease of cutting/keeping vegetation and maintaining the fence line.

Figure 4. Japanese knotweed growing through the eastern perimeter fence.

Certain areas of the EEN perimeter fence do not have a 10ft buffer. In the past, the airfield planted trees near the perimeter fence on the southeastern side of the airfield, near residential homes and near the wastewater treatment facility on the western side of the airfield. The purpose of planting these trees was to obscure the visual line of sight from the residential homes to the wastewater treatment facility. These trees were planted within 10ft of the fence line and make maintaining the perimeter fence more difficult (Figure 5).

Figure 5. Spruce trees along the wastewater treatment facility fence.

Airport staff should be aware that the manipulation of grass heights on airport property can deter some wildlife species but create attractive habitats for others. For example, taller grass heights can be discouraging for waterfowl and blackbird species; but create cover and habitat for small mammals, which in turn can increase the presence of raptors on the airfield.

In the future, following any construction projects on the airfield, staff should plant non-wildlife attracting grasses. These grasses should produce a small seed head, be slow growing, and reach a maximum height less than 14 inches. Ideally, a variety of endophytic fescues, such as chewings fescue, sheep fescue or creeping red fescue, could be planted on the property. Endophytic fescues are a slow growing species that are not highly sought out by wildlife.

Wildlife Surveys

Onsite:

During the site visit, Loomacres staff conducted a total of six onsite avian surveys at EEN. Surveys were conducted at four varying times of day (dawn, mid-morning, afternoon, and dusk), at seven different locations on the airfield (Figure 6). Species were grouped based on taxonomical & behavioral characteristics. This approach allows species that are not related to be grouped based on traits most important to wildlife hazard management. Species that exhibit similar traits may respond similarly to control methods.

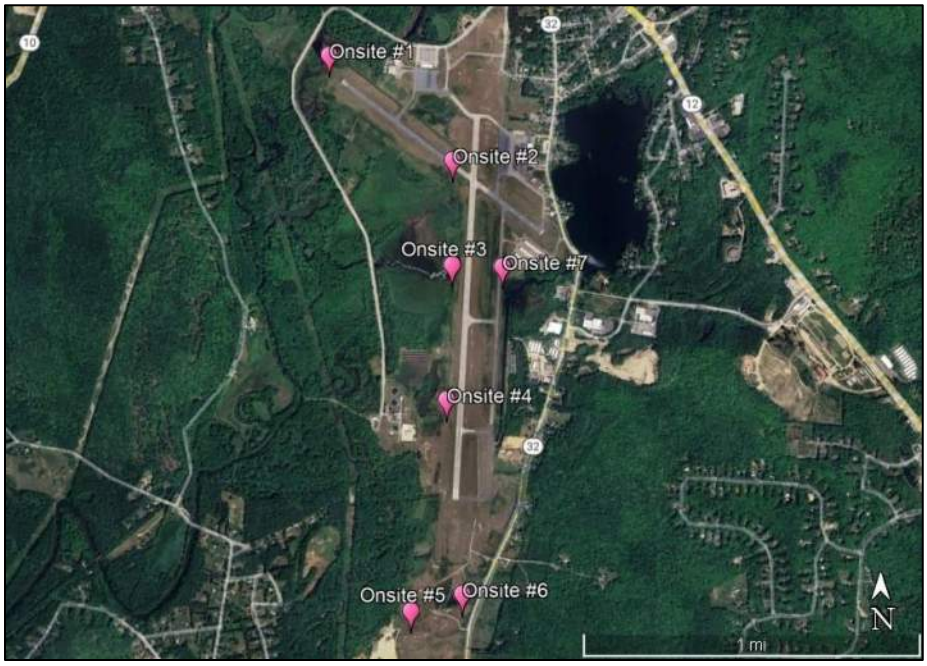


Figure 6. Onsite survey points at EEN.

Onsite Survey Points:

Onsite 1: This location overlooks the wetland on the approach of Runway 14-32, as well as the forested areas to the north and south of the 14 end. The wetland divides the airfield with Airport Rd. that leads to the Keene Wastewater Treatment facility. Deer were observed coming out of the trees in this area, while beavers were observed in the open water.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

LOOMACRES
Wildlife Management

Onsite 2: This location is near the intersection between Runways 14-32 and 2-20, on the south side, overlooking the wetland on the west side of the airfield. This location also oversees the large grass fields and trees to the south of Runway 14-32. Small perching birds were heard in the wetlands during surveys. Deer were observed bedding in the tall grass during dusk hours.

Onsite 3: Located west of Runway 2-20, overlooking the wetland that is between the AOA and Airport Rd. This location also oversees the maintained grass field that runs west along Runway 2-20. Wood ducks and Canada geese were observed using this body of water.

Onsite 4: To the west of Runway 2-20, near the solar panels and wastewater treatment facility. This location overlooks a dip in the ground that contains wetland and woody shrubs and trees. This area borders up against the solar panel fence line but does not border the wastewater treatment facility fence line. Deer were observed coming from the back side of this woody area during dusk surveys.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

Onsite 5: This survey point is located on the southern end of the airfield near the western border. This location overlooks the non-maintained grass field that the airfield allows a local farmer to mow twice a year. Grass vegetation in this area was higher, due to the time of the year. Wild turkeys were often observed in this tall grass and coming from the western tree line.

Onsite 6: This survey location is south of the Runway 2-20 approach, on top of a hill. It oversees a body of water that has shrubs surrounding it. Common merganser and muskrats were observed in the open body of water, while deer were observed in the tall shrubby vegetation during night-time surveys.

Onsite 7: This survey point is located on Taxiway Alpha near the T-hangars. This location overlooks the wetland to the east of the airfield. Water flows into this wetland from Wilson Pond through a culvert under Route 30. Tall woody vegetation is between the wetland and the T-hangars to the north of the wetland. Red-winged blackbirds were commonly observed on the wetland vegetation, while Canada geese were observed in the open water.

Onsite results:

A total of 57 species and 1,222 individuals were observed during the onsite surveys at EEN. Small perching was the most observed guild during onsite surveys (66% of total observations) and accounted for 47% of total individuals (191 observations, 577 individuals) (Figures 7 & 8). Small perching species which were seen during the onsite surveys are listed in Table 3.

Table 3. Species in the small perching guild which were observed during the onsite surveys at EEN.

Species	Scientific Name	# of Individuals
Alder flycatcher	*Empidonax alnorum*	8
American goldfinch	*Spinus tristis*	21
Black-and-white warbler	*Mniotilta varia*	1
Bobolink	*Dolichonyx orzivorus*	66
Brown thrasher	*Toxostoma rufum*	1
Carolina wren	*Thryothorus ludovicianus*	2
Cedar waxwing	*Bombycilla cedrorum*	15
Chestnut-sided warbler	*Setophaga pensylvanica*	1
Common yellowthroat	*Geothlypis trichas*	49
Dark-eyed junco	*Junco hyemalis*	1
Eastern kingbird	*Tyrannus tyrannus*	7
Field sparrow	*Spizella pusilla*	9
Great-crested flycatcher	*Myiarchus crinitus*	4
Gray catbird	*Dumetella carolinensis*	5
Grasshopper sparrow	*Ammodramus savannarum*	11
Hermit thrush	*Catharus guttatus*	2
House finch	*Haemorhous mexicanus*	5
Least flycatcher	*Empidonax minmus*	4
Marsh wren	*Cistothorus palustris*	24
Northern cardinal	*Cardinalis cardinalis*	2
Northern mockingbird	*Mimus polyglottos*	1
Ovenbird	*Seiurus aurocapilla*	2
Pine warbler	*Setophaga pinus*	1
Prairie warbler	*Setophaga discolor*	3
Rose-breasted grosbeak	*Pheucticus ludovicianus*	1
Red-eyed vireo	*Vireo olivaceus*	40
Song sparrow	*Melospiza melodia*	80

Savannah sparrow	*Passerculus sandwhichensis*	49
Swamp sparrow	*Melospiza georgiana*	52
Tufted titmouse	*Baeolophus bicolor*	1
Veery	*Catharus fuscescens*	4
Vesper sparrow	*Pooecetes gramineus*	1
Warbling vireo	*Vireo gilvus*	3
Willow flycatcher	*Empidonax traillii*	42
Wood thrush	*Hylocichla mustelina*	1
White-throated sparrow	*Zonotrichia albicollis*	1
Yellow warbler	*Setophaga petechia*	55
Yellow-rumped warbler	*Setophaga coronate*	2

Small perching birds' presence is not uncommon on an airfield but can pose a risk to aircraft due to their tendencies to fly back and forth from food sources to nesting areas. Cutting back woody vegetation and trees on the outside of the perimeter fence will reduce the number of small perching birds observed around the airfield. Savannah sparrows are ranked the 44th most hazardous species to aviation by the FAA (FAA AC 150/5200-38 current edition).

Blackbirds were the second most abundant guild observed during onsite surveys (19% of total observations, 43% of total individuals). The blackbird guild consisted of common grackle (*Quiscalus quiscalus*, 35 individuals), eastern meadowlark (*Sturnella magna*, 23 individuals), European starling (*Sturnus vulgaris*, 146 individuals), and red-winged blackbirds (*Agelaius phoeniceus*, 326 individuals). Blackbirds were observed mainly in the wetland areas, perching on vegetation. European starlings were seen looking for grass seeds along the edges of the fields.

Waterfowl and corvids were tied for the third most abundant guild observed during the onsite surveys (5% of observations each, 2% of total individuals each). The waterfowl guild consisted of Canada geese (*Branta canadensis*, 9 individuals), common mergansers (*Mergus merganser*, 4 individuals), and wood ducks (*Aix sponsa*, 15 individuals). Canada geese can pose a significant hazard to aircraft due to their large body sizes, flock tendencies, and ability to fly at higher elevations. Canada geese are ranked the 4th most hazardous wildlife species to aircraft and are the 1st most hazardous avian species (FAA AC 150/5200-38 current edition). Wildlife strikes with geese may not be as often as other species, but due to their large sizes and flocking habits, the strikes are more likely to be damaging. Corvids consisted of American crows (*Corvus brachyrhynchos*, 16 individuals), blue jay (*Cyanocitta cristata*, 2 individuals), and common raven (*Corvus corax*, 3 individuals). Corvids were observed perching in trees along the perimeter of the airfield.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

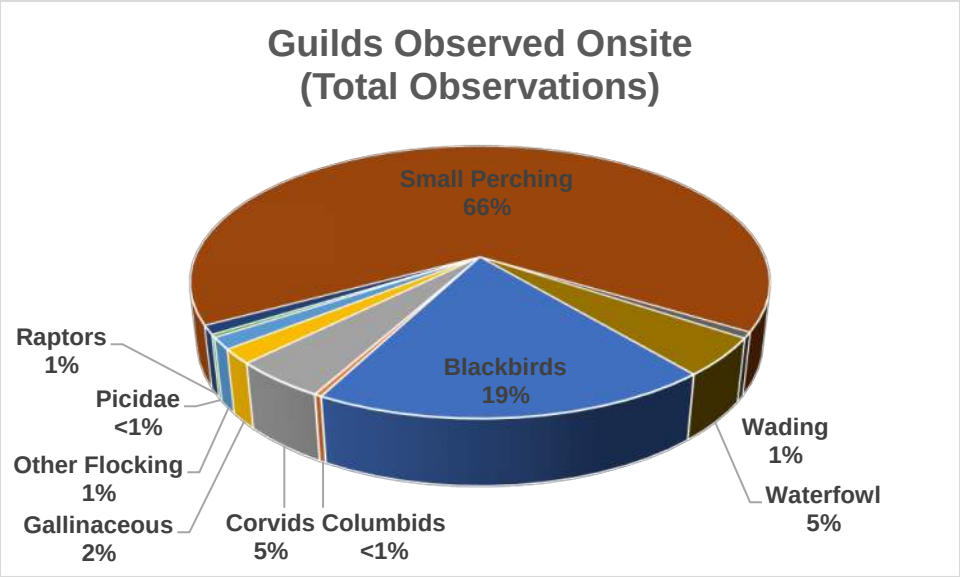


Figure 7. Percentage of guilds observed onsite based on total observations.

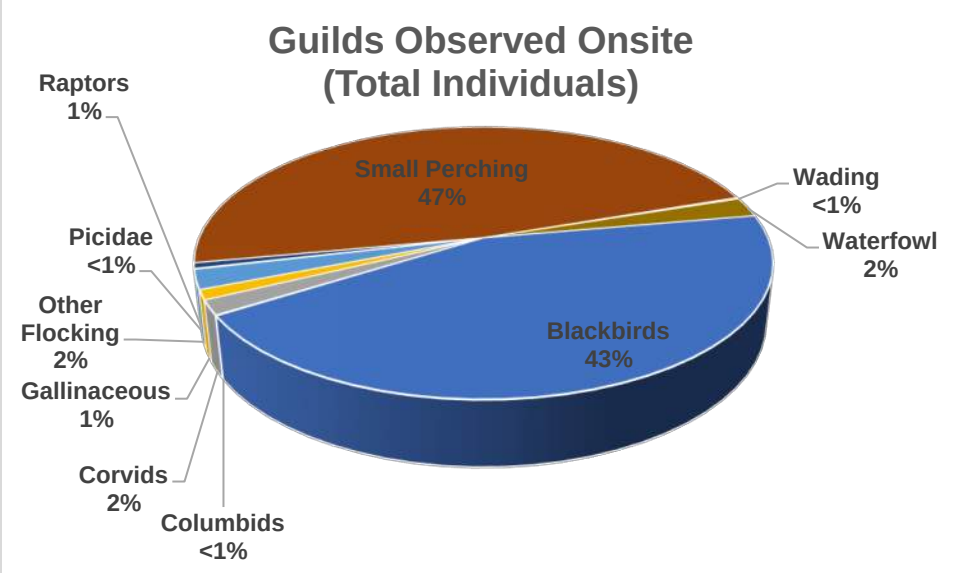


Figure 8. Percentage of guilds observed onsite based on total individuals.

During the onsite surveys, geese were documented in the wetland near Taxiway Alpha. Feces of Canada geese were left on Taxiway Alpha (Figure 9). Waterfowl species such as Canada geese and ducks have the potential to occur on and around the airfield due to abundant agricultural fields/pastures, open water, and wetland habitats surrounding the property. Geese observed during the onsite surveys were in flocks of roughly 2-6 individuals. Geese undergo seasonal migrations during the fall, winter, and spring. EEN staff should maintain their zero-tolerance policy, in that any geese observed are immediately harassed from the area.

Figure 9. Canada geese feces on Taxiway Alpha.

Bird counts varied around the airfield. The greatest number of total individuals were observed near onsite survey point #3 (Figure 10). The increased counts were primarily due to the wetland and tall vegetation that blackbirds and small perching birds are attracted to for nesting and food.

Survey points #2 had the second highest count of individual birds during the site visit. Survey points #2 and #3 are near in proximity and overlook the same wetland area from different angles.

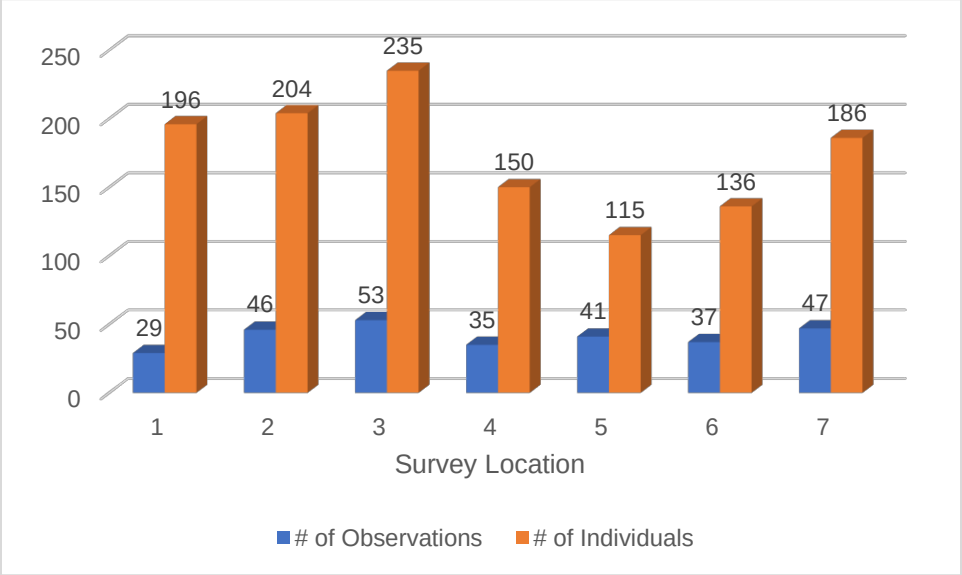


Figure 10. Total number of observations and individuals near each onsite survey point at EEN.

The total number of birds recorded was the greatest during dawn surveys (Figure 11). Birds are typically most active during dawn and dusk hours, when they are actively searching for food or travelling to and from nesting locations. Generally, bird counts decrease during the heat of the day. **Note: Dawn and Dusk onsite surveys were completed twice each, while Mid-morning and Afternoon onsite surveys were completed only once**

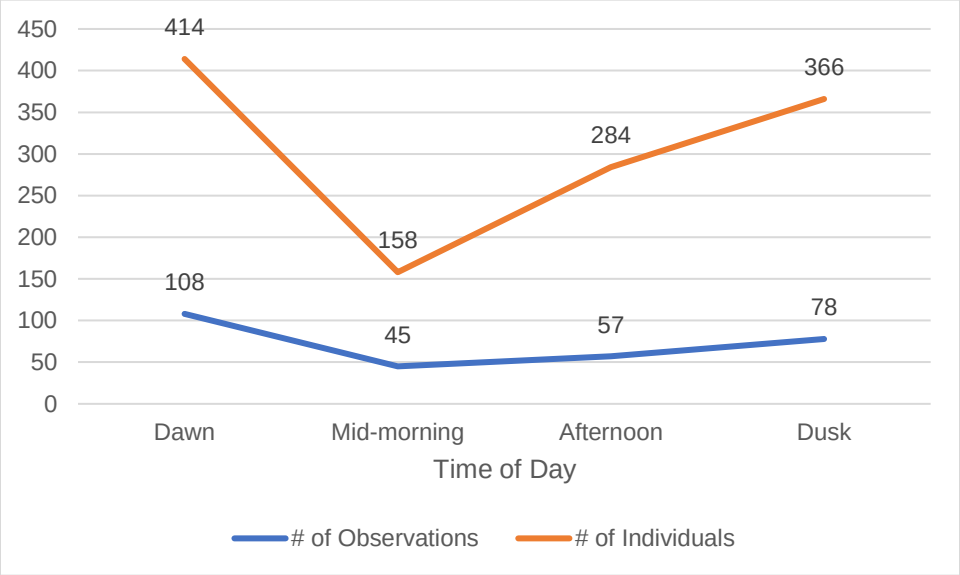


Figure 11. Total number of observations and individuals by time of day.

Offsite:

Loomacres staff conducted additional surveys at offsite locations up to five miles surrounding the airport. Offsite survey points were selected based upon their attractiveness to hazardous wildlife species (Figure 12). Attracting habitats are discussed with greater details within FAA AC 150/5200-33 current edition. Two visits were made to the offsite locations, one in the morning and one in the afternoon. Habitats were assessed, and an avian point count survey was performed to document the wildlife observed. Many of the surrounding areas near EEN consisted of wetland and forested habitat.

Figure 12. Offsite survey points around EEN.

Offsite Survey Points:

Offsite survey point #1. This point is located at 42°53'53.89"N, 72°15'49.13"W, 0.02 miles east of the airport. The survey point overlooks Wilson Pond, which leads into the airfield through a culvert under Route 32. Canada geese were observed on the pond during the surveys.

LOOMACRES
Wildlife Management

Offsite survey point #2. This point is located at 42°55'6.05"N, 72°17'1.82"W, 0.90 miles northwest of the airfield. The survey point overlooks the Keene State College's Owl Athletic Complex, sport fields, and concession stands.

Offsite survey point #3. This point is located at 42°56'47.07"N, 72°14'10.45"W, 3.30 miles northeast of the airfield. This survey point is located on the Otter Brook Dam and overlooks Otter Brook Lake.

Offsite survey point #4. This point is located at 42°51'7.80"N, 72°18'12.33"W, 2.90 miles southwest of the airfield. This survey point is located at the north beach of Swanzey Lake and overlooks the lake. Geese were observed swimming on the lake.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

LOOMACRES
Wildlife Management

Offsite survey point #5. This point is located at 42°53'11.92"N, 72°17'12.18"W, 0.78 miles west of the airfield. This survey point is next to the Sawyers Crossing Covered Bridge, overlooking the Ashuelot River.

Offsite survey point #6. This point is located at 42°55'43.27"N, 72°19'4.65"W, 2.59 miles northwest of the airfield. This survey location is at the Keene Country Club and overlooks their maintained grass fields.

Offsite survey point #7. This point is located at 42°52'59.12"N, 72°10'55.37"W, 4.44 miles east of the airfield. This survey location is at the Meetinghouse Pond Wildlife Sanctuary, overlooking Meetinghouse Pond.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

Offsite Results

A total of 13 species and 152 individuals were observed during the offsite surveys. Small perching was the most abundant and observed guild during the offsite surveys (53% of total observations, 30% of total individuals). There were seven (7) species in the small perching guild totaling 16 observations and 46 individuals (Figure 13 & 14).

Waterfowl represented 17% of total observations and 28% of total individuals, consisting of Canada geese (4 observations, 36 individuals) and wood duck (1 observation, 6 individuals).

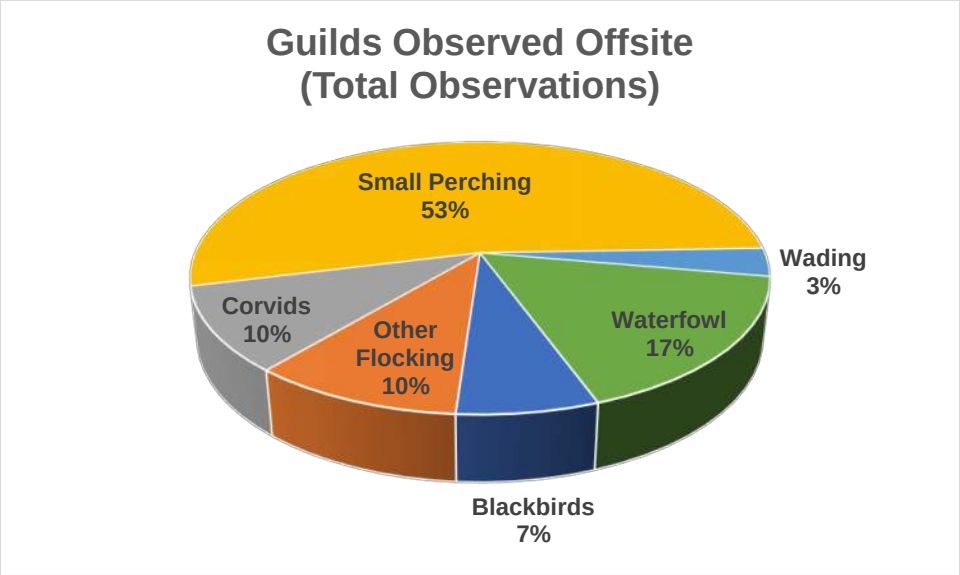


Figure 13. Percentage of guilds observed offsite based on total observations.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

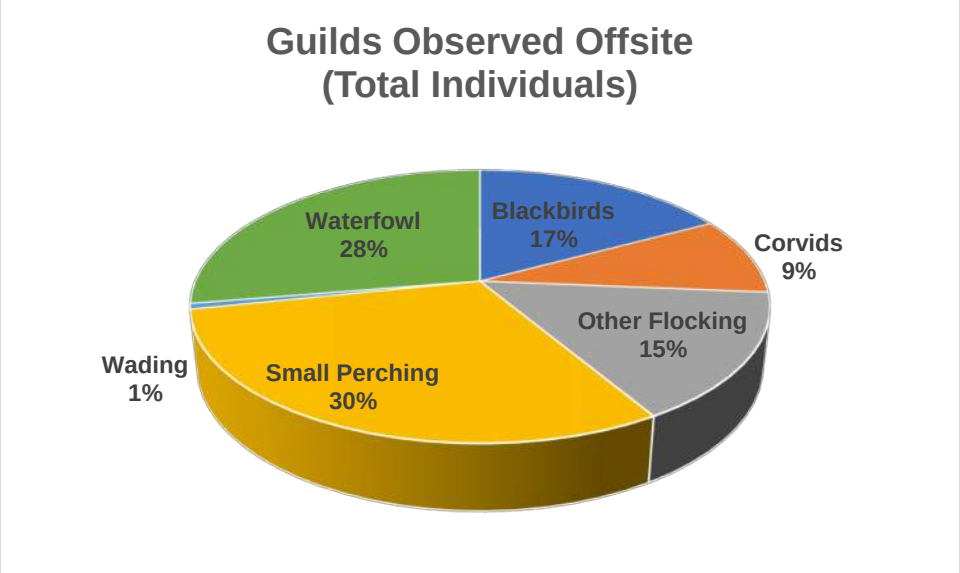


Figure 14. Percentage of guilds observed offsite based on total individuals.

Spotlight Surveys

Loomacres staff conducted two spotlight surveys to monitor the presence and activity of nocturnal species on airport property. A total of 24 individuals were observed during these surveys. Species inside the perimeter fence included white-tailed deer (*Odocoileus virginianus*, 18 individuals), striped skunk (*Mephitis mephitis*, 5 individuals), and woodcock (*Scolopax minor*, 1 individual). Deer were observed coming out of the forested areas around the airfield to graze in the maintained grass fields. Some were observed bedded down on the southern and eastern parts of the airfields in the tall grass, where mowing had not occurred yet this year. With no perimeter fence, the deer were able to easily gain access to the airfield and had space to hide in the forested areas between the airfield and Airport Road.

White-tailed deer are considered the most hazardous wildlife species to aviation (FAA AC 150/5200-32 current edition). Strikes involving white-tailed deer often result in damage to the aircraft, especially with small general aviation aircraft.

Incidental Observations

Incidental observations are when wildlife are observed and recorded outside of the regular survey times and locations, providing additional data. Loomacres staff recorded 40 incidental observations of 81 individuals during the site visit. Mammals were the most common guild recorded for incidental observations (58% of total observations, 35% of total individuals) (Figure 15 &16). Mammals recorded during incidental observations included white-tailed deer (16 observations, 20 individuals), American beaver (*Castor canadensis*, 1 observation, 2

individuals), muskrat (*Ondatra zibethicus*, 1 observation, 1 individual), eastern cottontail (*Sylvilagus floridanus*, 1 observation, 1 individual), striped skunk (3 observations, 3 individuals), and woodchuck (*Marmota monax*, 1 observation, 1 individual).

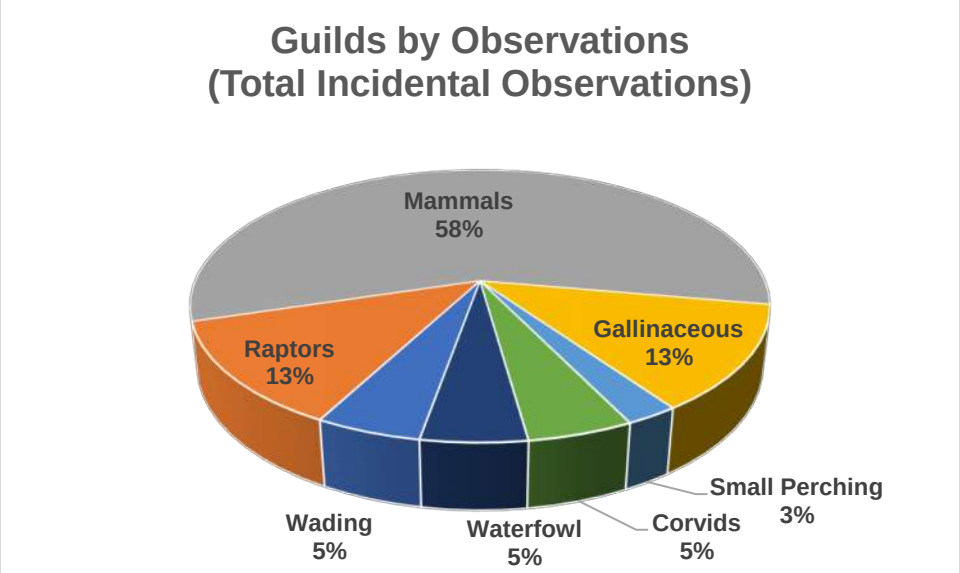


Figure 15. Percentage of guilds recorded during total incidental observations based on observations.

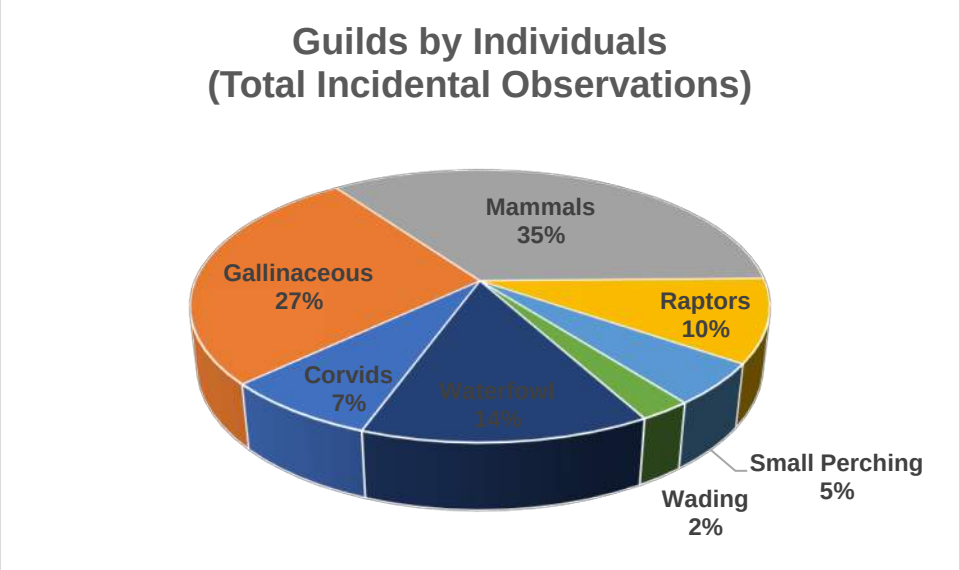


Figure 16. Percentage of guilds recorded during total incidental observations based on individuals.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

Other species of high numbers recorded during incidental observations included; Canada geese (1 observation, 10 individuals), red-tailed hawks (*Buteo jamaicensis*, 4 observations, 6 individuals), and American crows (*Corvus brachrynchos*, 2 observations, 6 individuals).

Small Mammal Surveys

Small mammal populations fluctuate significantly depending on the time of year, quality of habitat, and predator populations. Small mammals require thick vegetation to provide protection from predators. Maintaining shorter grass heights can decrease the number of small mammals that inhabit the airfield. Airfield staff should monitor the presence of small mammals. A noticeable increase in avian predators and carnivores can be an indication that small mammal populations are increasing.

The impact of vegetation management on small mammal observations has been studied extensively in contexts other than airports. Wilkins and Schmidly (1979) found that small mammal abundance and diversity were positively related to plant diversity and groundcover; the least disturbed vegetative communities supported the most diverse plant and small mammal communities. Small mammals are not a direct threat to aviation. However, they attract avian predators and large carnivorous mammals. Grimm and Yahner (1988) also found that disturbance of roadside habitats reduced the abundance of most species of small mammals, primarily due to decreased vegetation height and density. This effect can be achieved through mowing (Wilkins and Schmidly 1979, Comely et al. 1983, Grimm and Yahner 1988, Barras et al 2000), grazing (Cornely et al. 1983), or herbicide application (Clark et al. 1996). In general, these studies support the findings that frequent mowing of vegetation will help minimize small mammal abundance on airports (Barras et al. 2000).

A standardized small mammal survey was conducted on EEN property during the site visit. Two transects were placed on the airfield (Figure 17). Each transect 40 snap traps baited with peanut butter and oats. Traps were set for two consecutive nights and checked daily for captures. No small mammals were captured during the surveys. If EEN staff notice an increase in raptors, coyote, or fox on the airfield, small mammal populations may be high. Whenever small mammal populations become a significant attractant, EEN staff should seek to reduce populations through either habitat management or pesticide application.

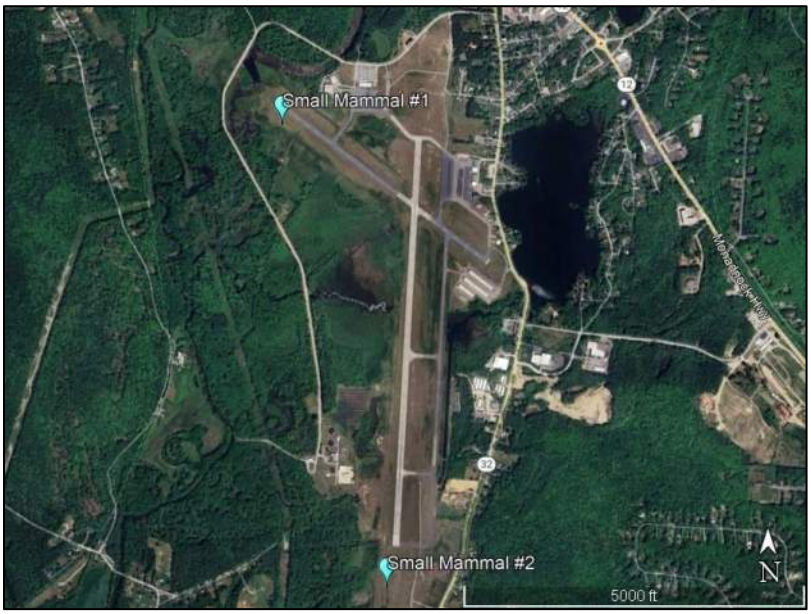


Figure 17. Map of small mammal survey locations on EEN.

Insect Surveys

Insects are another potential food source that can attract hazardous wildlife onto airport property. Insectivorous bird species such as swallows and starlings in high densities can pose a significant hazard to aircraft. Loomacres staff conducted insect collections during the site visit at two locations on the airfield (Figure 18). The insects' captured were counted and separated into the following groups: Anisoptera (dragonflies), Coleoptera (beetles), Formicidae (ants), Hemiptera (leaf hoppers, gnats, aphids, and true bugs), Gryllidae (crickets), Diptera (flies and mosquitoes), Orthoptera (grasshoppers), and Lepidoptera (butterflies and moths).

During the insect surveys, 137 individuals were collected, with the most abundant being in the family Diptera (53 individuals) (Figure 19). Other families captured during the surveys consisted of Anisoptera (7 individuals), Coleoptera (1 individual), Formicidae (7 individuals), Gryllidae (6 individuals), Hemiptera (49 individuals), Lepidoptera (8 individuals), and Orthoptera (6 individuals).

Insects in the orders Hemiptera, Diptera, and Orthoptera are in general fed upon by several bird species. Insect numbers and species composition can be affected by a variety of factors including temperature, humidity, time of year and other weather factors. Years with higher precipitation amounts are likely to be followed with larger numbers of insects. Areas with larger amounts of water (ponds, wetlands, brooks, etc.) are more likely to have larger numbers of insects with wider variety.

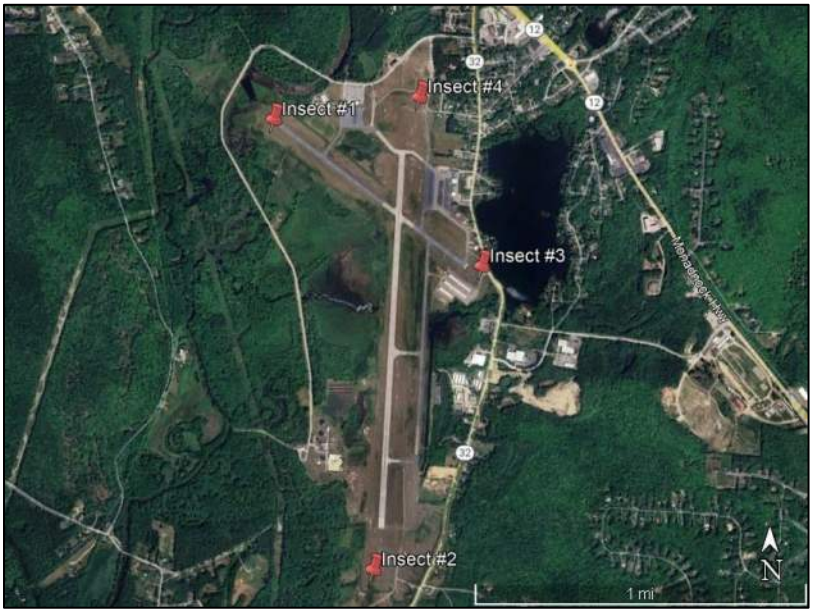


Figure 18. Map of insect survey locations on EEN.

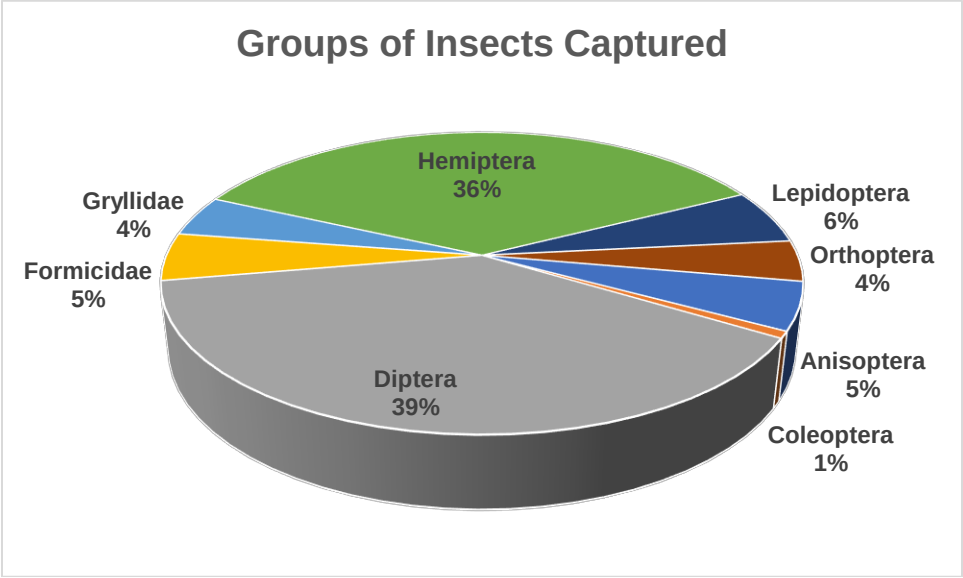


Figure 19. Percentage of insect groups captured during surveys.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

Onsite Attractants

Hangars and Stagnant Aircraft

Hangars at EEN can provide shelter and roosting/nesting habitat for European starlings, sparrows, and doves. EEN staff should maintain communication with hangar tenants to ensure birds are not nesting in the buildings. If any birds are found to be nesting in buildings, the Airport should work with tenants to remove the nests as soon as possible to reduce wildlife hazards. Hangar doors should be closed, when possible, to reduce the potential for wildlife to enter them. Nests of exotic species, such as European starlings (*Sturnus vulgaris*), rock pigeons (*Columbia livia*), and house sparrows (*Passer domesticus*) are not protected by the Migratory Bird Treaty Act and can be removed at any time when active (eggs or young present). A federal USFWS depredation permit is required to remove any active migratory bird nests. Old nests (no eggs or young present) should be removed as soon as possible. To prevent nesting within hangars, exclusion devices should be installed to limit access. Door seals and entry ways should be monitored and repaired to limit access for birds.

Water

Open water sources on the airfield should be discouraged. Drainage ditches on the airfield should continue to be maintained to prevent the buildup of vegetation, which can provide cover and cause water to collect. During the site visit, vegetation along the drainage ditches was relatively well maintained for how large an area they cover. Airport staff should continue to monitor these drainage ditches weekly and after heavy precipitation.
EEN has numerous wetlands around the airfield with wetland vegetation, and shrubs/woody vegetation growing adjacent. EEN staff mow vegetation along wetland and ditch areas in the fall using a ditch mower and wrap any missed areas up in the spring. Airport staff should regularly monitor all bodies of water on the airfield to prevent waterfowl from loafing and nesting in them.

The wetland on the approach end of Runway 14 had beavers moving in the open water. This wetland connects to a culvert that leads underneath Airport Road. The Airport hires a local trapper to trap the beavers if they dam up the culvert.

The wetland to the west of Runway 2-20 had wood duck and Canada geese swimming in it. This is the largest of the wetlands on the airfield and acts as a natural border for the western part of the airfield. Large trees grow on the outskirts of the wetland, allowing deer and other animals habitat.

The pond at the southern end of the airfield is surrounded by tall shrubs. Muskrat and common merganser were observed swimming in this pond.

The wetland to the east of Taxiway Alpha is fed by a stream that comes from Wilson Pond. This wetland has a stream leading south along Taxiway Alpha and crossing underneath Taxiway

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

Alpha and Runway 2-20 to the wastewater treatment facility. The stream along Taxiway Alpha has two (2) Beaver Deceivers that were placed in 2022 during the Taxiway Alpha extension project (Figure 20). EEN staff clean debris from the Beaver Deceivers when necessary.

Figure 20. Beaver Deceiver in culvert east of Taxiway Alpha.

Brush and Trees

Trees and brush can provide wildlife with a variety of habitats for perching, nesting, and potential food sources. EEN has several areas of shrubs inside the airfield and large mature trees outside of the mowing areas. Trees and shrubs adjacent to the wetland areas are cut and kept from encroaching inward of the airfield.

The dip on the western side of the airfield, near the solar panels and wastewater treatment facility has a variety of trees and brush. This area can fill with water in years of high precipitation, which makes it difficult to mow.

The western side of the airfield is primarily bordered by tall mature trees. This side of the airfield has a vast amount of habitat for deer and wild turkeys (*Meleagris gallopavo*) to shelter in. These areas also provide beavers with the resources needed to build dams and lodges to plug culverts.

Near the windsock there is a large area with shrubs and woody vegetation growing. This area is very difficult for EEN staff to mow and is only maintained when the ground is dry and allows for equipment to have stable ground.

Offsite Attractants

Open Water

Open water sources are highly sought by various hazardous wildlife species. Wilson Pond is located within 100 yards from the airfield. Staff have talked with public property managers and placed "No Feeding Wildlife" signs in the past. The public have historically vandalized and/or removed the signs. If there is a noticeable change in waterfowl and gull numbers, EEN staff should reach out to the property owners along the pond to discuss further options for wildlife mitigation and maintain a line of communication. Bodies of water surrounding an airfield can lead to waterfowl flying through an airfield's flight pattern.

Agricultural

Agricultural practices are a major part of the local landscape within five miles of the airfield. As mentioned above, agricultural fields and livestock pastures hold potential to attract wildlife. The airfield is surrounded by numerous agricultural properties (i.e. hay fields, corn fields, vineyards, etc.). EEN staff should be aware of wildlife activity at these locations, especially ones that align with the approach and departure ends of runways. Should wildlife be observed utilizing these fields, the airport manager should contact the property owners to discuss access to the property to disperse wildlife.

Hazardous Wildlife on and around EEN:

Waterfowl

Canada Goose

Waterfowl are medium to large-sized birds that are often attracted to open water and wetlands. Many species of waterfowl, such as mallards and snow geese, can also be attracted to agricultural fields and maintained grass fields, where they forage on vegetation and waste grains. Canada geese are large-bodied birds, weighing between 6-15 pounds and have a wingspan up to 67 inches. They are ranked the 4th most hazardous species due to their ability to fly at high altitudes, dense body size, and flocking behaviors (FAA AC 150/5200-38 current edition). Geese should be considered a high priority species on and around EEN. Increases in geese are likely to occur during the fall, winter and spring due to migratory flocks making their way through the area. To discourage waterfowl from the airfield, EEN staff should monitor the wetlands on the airfield on a regular basis to ensure no geese are loafing there. EEN should consider a zero-tolerance policy towards waterfowl on the airfield. A USFWS Depredation at Airports permit is required for any lethal control of waterfowl and other migratory bird species.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

LOOMACRES
Wildlife Management

Blackbirds

European Starling

Blackbirds are small-bodied birds that often flock together for foraging and roosting. Several species of blackbirds were observed on and around EEN including European starlings, eastern meadowlarks, common grackles and red-winged blackbirds. European starlings are an exotic species, introduced to North American in the late 1800s. They since have spread throughout the continent and now number up to 200 million. Starlings weigh between 2.0-3.0 ounces and have a wingspan up to 16 inches. They become increasingly more dangerous to aircraft as their flock sizes increase. They are ranked the 25th most hazardous species to aviation by the FAA (FAA AC 150/5200-38 current edition). Starlings are a common species on airports and will often nest within hangars and buildings. They are a cavity nesting species, taking quarry in any void, hole or insulation that can support a nest. To discourage starlings and other blackbird species on the airfield, removal, or exclusion of perching, roosting and nesting locations should be conducted. Hangars should be maintained with doors closed as often as possible. Door seals, windows and other entrances should be maintained to not allow access. Taller grass heights can discourage large flocks of blackbirds. Blackbirds primarily eat insects, grains, berries, and other invertebrates. If insect populations are found to be elevated, pesticide treatment of fields can help reduce numbers. Starlings are not a protected species, therefore can be taken anytime of the year. Additional blackbird species can be removed under the Federal Blackbird Depredation Order 50 CFR 21.43 without obtaining a federal depredation permit; however, a blackbird depredation log must be submitted to the regional USFWS office where the birds were taken by January 31st of the following year.

Raptors

Turkey Vulture

Raptors are a predatory bird group including hawks, eagles, falcons, owls and vultures. Species within this guild pose a significant hazard to aircraft due to their large body size, flight characteristics and occasional flocking behavior. Raptors observed on the airfield during the site visit included red-tailed hawks and turkey vultures (*Cathartes aura*). Red-tailed hawks were observed perching on mature trees and telephone poles overlooking the and airfield. Turkey vultures were observed riding thermal winds to the north, south, and west of the airfield. Turkey vultures are large-bodied birds, weighing 4.4 pounds and have wingspans around 70.1 inches. They are ranked the 3rd most hazardous species to aviation (FAA AC 150/5200-32 current edition). Vultures and other raptor populations can be managed through reducing small mammal populations. A USFWS Depredation at Airports permit is required for any lethal control of raptors.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

Gallinaceous

Wild Turkey

Gallinaceous birds are small to large-bodied game birds (grouse, turkey, woodcock, etc.). Gallinaceous birds like a variety of habitats but are more common in areas where there is a mature forest adjacent to open fields. Wild turkeys were observed on the EEN property during the site visit on the south end of the airfield. Turkeys were observed in the hay field portion and near the tree line near the wastewater treatment facility. Wild turkey are the largest North American gamebird. They can weigh 10-24 pounds and have a wingspan of up to 5 feet. Turkeys will nest and forage in forested areas and open fields with tall grass. Wild turkeys and other game birds are not ranked by the FAA on the list of top 50 most hazardous species to aircraft (FAA AC 150/5200-32 edition). This is due to their uncommon presence on airfields. The list is determined by using the historical data from the FAA Wildlife Strike Database. However, when turkeys are struck by aircraft, the strikes typically result in damage due to their large-body size and weight. EEN should consider a zero-tolerance policy towards wild turkeys on the airfield. A state nuisance depredation permit is required to remove wild turkeys from an airfield outside their regular hunting season.

Small Perching

Savannah Sparrow

Small perching birds are small songbirds that typically fly through airfields to find food sources and nesting locations. The small perching guild consisted of 37 species during the onsite surveys at EEN, with the most common being savannah sparrow, song sparrow, and bobolink. Savannah sparrows are small-bodied songbirds that weigh 1.0 ounce and have a wingspan of 8.7 inches. Due to their commonality at airfields, they are ranked the 43rd most hazardous species to aviation (FAA AC 150/5200-32 current edition). Reducing insect populations from the airfield by keeping shorter grass heights can discourage these species from being attracted to the airfield. Removing the trees and shrubs to the west, outside of the airfield, would decrease the availability of nesting locations near the airfield. A USFWS Depredation at Airports permit is required for any lethal control of songbirds.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

White-tailed Deer

White-tailed Deer

White-tailed deer are the most hazardous species to aviation (FAA AC 150/5200-32 current edition). They are a common species throughout New Hampshire and are attracted to a variety of habitat types but prefer large open fields adjacent to forested and wetland areas. Numerous deer were observed on the EEN airfield. Deer were observed entering and exiting the airfield through the wooded and wetland areas, as well as eating and bedding in the open fields. Staff should continue to regularly patrol the airfield to deter deer from entering, especially during times of the breeding season and when does are producing offspring. EEN staff should continue to maintain a zero-tolerance policy regarding white-tailed deer on the airfield.

Canids

Coyote

Coyotes and red fox are two common canid species that occur on airports in New Hampshire. They are both medium-bodied mammals that are commonly attracted to airport environments. No coyotes or foxes were observed on the airfield during the site visit. Coyotes are ranked the 12th and red fox the 23rd most hazardous species to aviation (FAA AC 150/5200-32 current edition). They are attracted to a variety of habitats, but are mainly searching for small mammals when on the airfield. Coyotes and foxes often loaf on runways and taxiways because of the warmth the pavement produces. EEN staff should continue to monitor the airfield for the presence of canids.

Recommendations

Loomacres recommends that EEN build a perimeter fence around the airfield to deter wildlife. The current portions of the perimeter fence do not connect and leave a large area where wildlife can enter the airfield. EEN should consider the following when preparing for a perimeter fence project:

- The perimeter fence should exclude as many wetland, forested, and tall grass habitats as possible. This will decrease the amount of habitat stranded inside the perimeter fence and the attractiveness of the airfield to the majority of wildlife. Keeping the fence closer to the AOA, should also decrease the amount of fence needed and make vegetation management easier for staff. This will also make monitoring the airfield for wildlife easier for EEN staff.

- A perimeter fence should follow the FAA recommendations when possible; a 10ft. perimeter fence with 3-strand barbed wire outriggers. In cases where this is not possible, they state that an 8ft. fence with 3-strand barbed wire outriggers would suffice. Deer have been observed jumping 6ft. fences on a regular basis and occasionally 8ft. fences. The use of lower fence heights may be preferred in areas where the perimeter fence needs to be closer to the AOA to exclude large amounts of habitat/cover. Lower fence heights are more effective when placed on hill sides, where the landside part of the fence is lower, requiring wildlife to jump higher than the total fence height.

- A 4-5ft. wildlife skirt buried at 45° attached to the bottom of the fence, angled outwards would deter burrowing mammals (coyotes, fox, woodchuck) from creating dig outs and gaps underneath the fence. This wildlife skirt would also help prevent the fence from rising in the future from frost heaves. A wildlife skirt also helps prevent soil erosion.

- If a 45° wildlife skirt is not possible, then installing horizontal fencing below the perimeter fence, underground several inches, would also help prevent erosion and dig outs.

- A new perimeter fence should follow the FAA recommendations of allowing for a 10ft. buffer on the outside of the fence line. This allows airport staff access and ease of monitoring the fence line and fixing any gaps, dig-outs, or mow vegetation along the fence.

- The following points for a perimeter fence are directed at specific locations on the airfield:

    - To the west of Runway 14-32.
        - The perimeter fence should be placed on the airfield side of the wetland, preferably near the hill that dips into the wetland. This fence should connect to the current fence near the Operations building, which would exclude the forested habitat that is to the north of this runway. Excluding this wetland will decrease the amount of habitat wildlife are able to shelter in. Excluding the wetland will also decrease the chances of beavers causing an issue with damming inside the perimeter fence.
        - This fence should have a skirt, if possible, to deter turtles and other burrowing animals from entering the airfield. The point of a perimeter fence is to deter as much wildlife as possible.
        - The hill will allow for a shorter fence to be built on the approach so that it doesn't interfere with FAA compliance for runway approach safety areas. If a 6ft. fence is the tallest that can be built in this area due to FAA compliance, then placing it at the top of the hill will make it more difficult for deer to jump over it from the outside.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

- To the south of Runway 14-32.
  - The perimeter fence should exclude the trees located to the south of Runway 14-32. Deer were observed moving in and out of this forested area during the site visit and some are believed to be bedded in there nightly.
  - If possible, the fence could exclude the tall grass areas on the south side of the drainage ditch, which would allow EEN staff to mow the area less frequently.

- The corner of wetland where the runways intersect.
  - If building the fence on dry land and to a natural corner is not possible due compromising the visual line of sight needed to stay in compliance with FAA regulations, Loomacres recommends building the fence at a northwest-southeast angle, minimizing the amount of wetland left on the airside of the fence. A northwest-southeast angled fence will decrease the obstruction of pilot vision from both runways.
  - Ideally, the fence would be built leaving no wetland inside the airfield.
  - In 2020, a moose found its way onto the airfield through this wetland and was discovered by the runway intersection. Excluding the wetland in this area, would allow for moose and other wetland wildlife to utilize the wetland outside of interfering with aircraft operations.

- West of Runway 2-20.
  - A perimeter fence here should exclude the entire wetland that is located on the western side of the airfield. This is the largest wetland on the airfield and provides a large amount of shelter for wildlife.
  - A perimeter fence here should be built as close to the wetland as possible, still allowing for the FAA recommended 10ft buffer on the outside of the fence line.
  - A fence built near the solar panel and wastewater treatment facility could be connected if needed. However, Loomacres recommends that a perimeter fence be built closer to the movement area. This would exclude the dip near this area that has woody and wetland vegetation growing in it. The solar panel fence is only 6ft. tall and would not prevent deer from entering. If a perimeter fence is built to connect to the solar panel fence, then that fence should be re-done to 8ft. or higher.
  - A perimeter fence from the intersection of the runways should lead south, down the west side of the Runway 2-20 safety area to the hilltop by the Runway 2 end. The perimeter fence should be built atop the hill. This would allow for a shorter fence to be built if necessary. If built at the top, it would also exclude the stream that flows underneath Runway 2-20 and Taxiway Alpha.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

- Southern part of airfield.
  - The southern portion of the airfield currently has a perimeter fence, but it leaves a large quantity of area and a pond on airfield side. A new perimeter fence should be built at the top of the hill where the short FAA lights are, excluding the pond and a vast amount of fields from the airfield side.
  - The fence could connect to the current perimeter fence on the east side of the airfield.
  - The southern fields are where deer and turkey were observed during the site visit, eating and sheltering in the tall grass. Removing this attractant from within an airfield fence would be beneficial.
  - Excluding the large fields would decrease the hassle of mowing for EEN staff and allow the local farmer easier access to the fields for haying, while not putting them at risk of aircraft operations.
  - Not connecting to the current fence on the southern side of the airfield would decrease the amount of fencing needed for the project.

- East of Taxiway Alpha.
  - The current fence ends by the south end of Taxiway Alpha. A new fence could continue at this location and follow the hill north until the wetland by the T-hangars. If the hill is not owned by the airport or unable to be built upon, then a taller fence (10ft. or higher) should be built as far up the hill as possible, to deter the possibility of deer jumping in.
  - The tree line along this area should be topped or cut back. The trees are roughly the same height as the obstruction light poles.
  - A new fence heading north from the current fence should be placed on the Taxiway side of the stream that flows north-south along Alpha. If that is not feasible due to FAA taxiway safety areas, then the fence should be placed east of the stream.
  - Any fence built along this area should allow for the FAA recommended 10ft. buffer for ease of keeping the trees cut back.

- Wetland east of Taxiway Alpha
  - Ideally, the fence would be built to exclude this entire wetland. This is not feasible due to the taxiway safety area.
  - A floating fence may be a solution for this wetland. This would allow for the floating perimeter fence to connect to the north and south ends of the wetland and would move with water levels.
  - Under certain circumstances, the FAA regards wetlands as natural security barriers. This allows the airport the option to leave this area without a perimeter fence. Loomacres suggest that if this option is used, then a perimeter fence should lead into the wetland a short distance from both the

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

north and south ends, to prevent mammals from easily walking around the fence. The distance into the wetland should be estimated and determined on the depth of the water in this wetland during a dry year.

- Where the perimeter fence starts again north of the wetland, it should cut lead up the bank to the T-hangars. The vegetation along this area bank should be cut back, allowing full visual of the perimeter fence.
- Once the fence is by the T-hangars, it should lead along the tree line to the current perimeter fence that borders Route 32.

- If any wooded or wetland areas are going to within the new perimeter fence, the airfield should conduct deer drives prior and during the fence project to push these areas and harass deer outside of the fence line. Deer trapped inside an airfield perimeter fence are dangerous to aircraft operations and become exceedingly more difficult to remove the longer they're trapped inside.

- If any funding remains from the AIP grant after a fence completion project, Loomacres recommends that it be used to reinforce existing gates on the current perimeter fence. Multiple gates on the current fence have gaps larger than 6in. Small deer, coyotes, and foxes can slip into the airfield in gaps as small as 6in wide.

- Gates that are over pavement or have gaps under them should have "speed bumps" installed, to decrease the gap distance, and deter wildlife from crawling under the gates.

- Loomacres recommends that the airfield look into placing a Beaver Deceiver in the culvert that leads across Airport Road. A beaver deceiver would decrease the attractiveness of this area and cause them to move elsewhere.

- Loomacres recommends that the Airport invest in two (2) more firearms to go along with their shotgun for lethal take purposes. Occasional use of firearms on an airfield helps reinforce non-lethal harassment methods. For any rifle, a quick-expanding ammunition (ex. hollow points) is recommended to decrease the likelihood of ricochet or a round travelling past the target. A small caliber rifle (ex. .17hmr) for dispatching small game and large avian wildlife from a distance. A small caliber round will travel less distance and is overall safer. A larger caliber rifle (ex. .223 or .22-250) is recommended for taking larger animals (deer, coyotes, bear, moose) that may be found on an airfield. Larger caliber rounds should only be used in areas with safe backdrops and only when necessary.

- Loomacres recommends that EEN staff that may use firearms on the airfield take an annual firearm safety course. This will allow staff to practice safe protocol when handling firearms.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

LOOMACRES
Wildlife Management

Thank you for the opportunity to learn more about your airport. I hope that you find the information contained in the letter informative and helpful. Please feel free to contact me with any questions regarding this report or wildlife at your airport.

Sincerely,

Cody Baciuska
Airport Wildlife Biologist
Loomacres Wildlife Management
Cody@loomacres.com

LOOMACRES
Wildlife Management

References:

Barras, S. C., M. S. Carrara, R. A. Dolbeer, R. B. Chipman, and G. E. Bernhardt. 2000. Bird and small mammal use of mowed and unmowed vegetation at John F. Kennedy International Airport, 1998 - 1999. Proceeding of the Vertebrate Pest Conference

Barras C. Scott, Seamans W. Thomas, (2002) Habitat Management Approaches for Reducing Wildlife Use of Airports. Proc. 20th Vertebrate. Pest Conference

Clark, Donald R. Jr., Cynthia A. Moulton, James E. Hines, and David J. Hoffman. 1996. Small mammal populations in Maryland meadows during four years of herbicide (Brominal) applications. Environmental Toxicology and Chemistry 15:1544-1550.

Cornely, J., C. M. Britton and F. A. Sneva.(1983). Manipulation of flood meadow vegetation and observations on small mammal populations. Prairie Naturalist 15: 16-22.

Grimm, J. W., and R. H. Yahner. 1988. Small mammal responses to roadside habitat management in South Central Minnesota. Journal of the Minnesota Academy of Science 53:16-21.

Wilkins, K. T., and D. J. Schmidly. (1979). The effects of mowing of highway rights-of-way on small mammals. Proceedings of the second symposium environmental concerns in rights-of-way management, Ann Arbor, MI.

Loomacres Wildlife Management • 242 Hallenbeck RD • Cobleskill, NY
Ph: 800-243-1462 • Fax: 518-618-3129 • www.AirportWildlife.com
E-mail: info@loomacres.com

APPENDIX B:

USFWS OFFICIAL SPECIES LIST & CONCURRENCE LETTERS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: 04/22/2025 14:37:39 UTC
Project Code: 2024-0066722
Project Name: Keene Airport Wildlife Perimeter Fence

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Updated 4/12/2023 - Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the "**New England Field Office Endangered Species Project Review and Consultation**" website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat - (**Updated 4/12/2023**) The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule went into effect on March 31, 2023. You may utilize the **Northern Long-eared Bat Rangewide Determination Key** available in IPaC. More information about this Determination Key and the Interim Consultation Framework are available on the northern long-eared bat species page:

https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis

For projects that previously utilized the 4(d) Determination Key, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project was not completed by March 31, 2023, and may result in incidental take of NLEB, please reach out to our office at newengland@fws.gov to see if reinitiation is necessary.

Additional Info About Section 7 of the Act
Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/service/section-7-consultations

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to

consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

https://www.fws.gov/program/migratory-bird-permit

https://www.fws.gov/library/collections/bald-and-golden-eagle-management

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

PROJECT SUMMARY

Project Code: 2024-0066722
Project Name: Keene Airport Wildlife Perimeter Fence
Project Type: Airport - New Construction
Project Description: The proposed project involves the installation of a wildlife perimeter fence at the Keene Dillant-Hopkins Airport in Swanzey, New Hampshire. The perimeter fence will consist of approximately 17,200 linear feet of 8-foot-high chain link fence topped with three-strand barbed wire. The proposed fence will tie into existing sections of permitter fence forming a complete enclosure around the active airfield encompassing approximately 324 acres of the airport. Construction is anticipated to begin in spring/summer 2026. The proposed project is anticipated to require approximately 0.4 acres of tree clearing. Tree clearing is primarily limited to the edges of existing forested areas as well as previously cleared areas.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.894918700000005,-72.27190836539597,14z

Counties: Cheshire County, New Hampshire

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

CLAMS

NAME	STATUS
Dwarf Wedgemussel *Alasmidonta heterodon* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/784	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Stephen Hoffmann
Address: 426 Industrial Ave, Suite 164
City: Williston
State: VT
Zip: 05495
Email shoffmann@mjinc.com
Phone: 8028629381

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army Corps of Engineers

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: 04/18/2025 14:32:38 UTC
Project code: 2024-0066722
Project Name: Keene Airport Wildlife Perimeter Fence

Federal Nexus: yes
Federal Action Agency (if applicable): Army Corps of Engineers

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for 'Keene Airport Wildlife Perimeter Fence'

Dear Stephen Hoffmann:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on April 18, 2025, for “Keene Airport Wildlife Perimeter Fence” (here forward, Project). This project has been assigned Project Code 2024-0066722 and all future correspondence should clearly reference this number.

The Service developed the IPaC system and associated species’ determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. Failure to accurately represent or implement the Project as detailed in IPaC or the Northeast Determination Key (DKey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative effect(s)), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17). Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no further consultation with, or concurrence from, the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical

habitat, formal consultation is required (except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect (NLAA)" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13]).

The IPaC results indicated the following species is (are) potentially present in your project area and, based on your responses to the Service's Northeast DKey, you determined the proposed Project will have the following effect determinations:

Species	Listing Status	Determination
Dwarf Wedgemussel (*Alasmidonta heterodon*)	Endangered	NLAA

Conclusion
The Service concurs to the above-mentioned determination(s) of may affect, not likely to adversely affect. This concurrence confirms receipt of your agencies coordination required under Section 7(a)(2) of the ESA.

In addition to the species listed above, the following species and/or critical habitats may also occur in your project area and are not covered by this conclusion:

- Monarch Butterfly *Danaus plexippus* Proposed Threatened
- Tricolored Bat *Perimyotis subflavus* Proposed Endangered

To complete consultation for species that have reached a "May Affect" determination and/or species may occur in your project area and are not covered by this conclusion, please visit the "New England Field Office Endangered Species Project Review and Consultation" website for step-by-step instructions on how to consider effects on these listed species and/or critical habitats, avoid and minimize potential adverse effects, and prepare and submit a project review package if necessary: https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review

If no changes occur with the Project or there are no updates on listed species, no further consultation/coordination for this project is required for the species identified above. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional consultation with the Service should take place before project implements any changes which are final or commits additional resources.

Please Note: If the Action may impact bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d) by the prospective permittee may be required. Please contact the Migratory Birds

Permit Office, (413) 253-8643, or PermitsR5MB@fws.gov, with any questions regarding potential impacts to Eagles.

If you have any questions regarding this letter or need further assistance, please contact the New England Ecological Services Field Office and reference the Project Code associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Keene Airport Wildlife Perimeter Fence

2. Description

The following description was provided for the project 'Keene Airport Wildlife Perimeter Fence':

> The proposed project involves the installation of a wildlife perimeter fence at the Keene Dillant-Hopkins Airport in Swanzey, New Hampshire. The perimeter fence will consist of approximately 17,200 linear feet of 8-foot-high chain link fence topped with three-strand barbed wire. The proposed fence will tie into existing sections of permitter fence forming a complete enclosure around the active airfield encompassing approximately 324 acres of the airport. Construction is anticipated to begin in spring/summer 2026.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.894918700000005,-72.27190836539597,14z

QUALIFICATION INTERVIEW

1. As a representative of this project, do you agree that all items submitted represent the complete scope of the project details and you will answer questions truthfully?

   Yes

2. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed species?

   Note: This question could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered, or proposed species.

   No

3. Is the action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Yes

4. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) the lead agency for this project?

   No

5. Are you including in this analysis all impacts to federally listed species that may result from the entirety of the project (not just the activities under federal jurisdiction)?

   Note: If there are project activities that will impact listed species that are considered to be outside of the jurisdiction of the federal action agency submitting this key, contact your local Ecological Services Field Office to determine whether it is appropriate to use this key. If your Ecological Services Field Office agrees that impacts to listed species that are outside the federal action agency's jurisdiction will be addressed through a separate process, you can answer yes to this question and continue through the key.

   Yes

6. Are you the lead federal action agency or designated non-federal representative requesting concurrence on behalf of the lead Federal Action Agency?

   Yes

7. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)?

   No

8. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

   No

9. Is the lead federal action agency the Natural Resources Conservation Service?

   No

10. Will the proposed project involve the use of herbicide where listed species are present?

    No

11. Are there any caves or anthropogenic features suitable for hibernating or roosting bats within the area expected to be impacted by the project?

    No

12. Does any component of the project associated with this action include activities or structures that may pose a collision risk to **birds** (e.g., plane-based surveys, land-based or offshore wind turbines, communication towers, high voltage transmission lines, any type of towers with or without guy wires)?

    Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

    No

13. Does any component of the project associated with this action include activities or structures that may pose a collision risk to **bats** (e.g., plane-based surveys, land-based or offshore wind turbines)?

    Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

    No

14. Will the proposed project result in permanent changes to water quantity in a stream or temporary changes that would be sufficient to result in impacts to listed species?

    For example, will the proposed project include any activities that would alter stream flow, such as water withdrawal, hydropower energy production, impoundments, intake structures, diversion structures, and/or turbines? Projects that include temporary and limited water reductions that will not displace listed species or appreciably change water availability for listed species (e.g. listed species will experience no changes to feeding, breeding or sheltering) can answer "No". Note: This question refers only to the amount of water present in a stream, other water quality factors, including sedimentation and turbidity, will be addressed in following questions.

    No

15. Will the proposed project affect wetlands where listed species are present?

    This includes, for example, project activities within wetlands, project activities within 300 feet of wetlands that may have impacts on wetlands, water withdrawals and/or discharge of contaminants (even with a NPDES).

    Yes

16. Will the proposed project activities (including upland project activities) occur within 0.125 miles of the water's edge of a stream or tributary of a stream where listed species may be present?

    Yes

17. Will the proposed project directly affect a streambed (below ordinary high water mark (OHWM)) of the stream or tributary where listed species may be present?

    No

18. Will the proposed project bore underneath (directional bore or horizontal directional drill) a stream where listed species may be present?

    No

19. Will the proposed project involve a new point source discharge into a stream or change an existing point source discharge (e.g., outfalls; leachate ponds) where listed species may be present?

    No

20. Will the proposed project involve the removal of excess sediment or debris, dredging or in-stream gravel mining where listed species may be present?

    No

21. Will the proposed project involve the creation of a new water-borne contaminant source where listed species may be present?

    Note New water-borne contaminant sources occur through improper storage, usage, or creation of chemicals. For example: leachate ponds and pits containing chemicals that are not NSF/ANSI 60 compliant have contaminated waterways. Sedimentation will be addressed in a separate question.

    No

22. Will the proposed project involve perennial stream loss, in a stream of tributary of a stream where listed species may be present, that would require an individual permit under 404 of the Clean Water Act?

    No

23. Will the proposed project involve blasting where listed species may be present?

    No

24. Will the proposed project include activities that could negatively affect fish movement temporarily or permanently (including fish stocking, harvesting, or creation of barriers to fish passage).

    No

25. Will the proposed project involve earth moving that could cause erosion and sedimentation, and/or contamination along a stream or tributary of a stream where listed species may be present?

    Note: Answer "Yes" to this question if erosion and sediment control measures will be used to protect the stream.

    No

26. Will the proposed project impact streams or tributaries of streams where listed species may be present through activities such as, but not limited to, valley fills, large-scale vegetation removal, and/or change in site topography?

    No

27. Will the proposed project involve vegetation removal within 200 feet of a perennial stream bank where aquatic listed species may be present?

    No

28. Will erosion and sedimentation control Best Management Practices (BMPs) associated with applicable state and/or Federal permits, be applied to the project? If BMPs have been provided by and/or coordinated with and approved by the appropriate Ecological Services Field Office, answer "Yes" to this question.

    Yes

29. Is the project being funded, lead, or managed in whole or in part by U.S Fish and Wildlife Restoration and Recovery Program (e.g., Partners, Coastal, Fisheries, Wildlife and Sport Fish Restoration, Refuges)?

    No

30. [Semantic] Does the project intersect the Virginia big-eared bat critical habitat?

    Automatically answered
    No

31. [Semantic] Does the project intersect the Indiana bat critical habitat?

    Automatically answered
    No

32. Are federally listed freshwater mussels known to be present in the action area? If unsure, contact the appropriate Ecological Services Field Office for additional information or answer "NO" and continue through the key.

    No

33. Did a qualified surveyor conduct a freshwater mussel survey within the action area with the appropriate level of search effort according to local survey guidance?

    Note: Answer this question "Yes" if the project is located in WV and the action area is located outside the stream reaches where mussel surveys are required following the West Virginia Mussel Survey Protocol [West Virginia Mussel Survey Protocol].

    No

34. [Hidden Semantic] Does the project area intersect the AOI of Dwarf Wedgemussel?

    Automatically answered
    Yes

35. [Semantic] Does the project intersect the candy darter critical habitat?

    Automatically answered
    No

36. [Semantic] Does the project intersect the diamond darter critical habitat?

    Automatically answered
    No

37. [Semantic] Does the project intersect the Big Sandy crayfish critical habitat?

    Automatically answered

    No

38. [Hidden Semantic] Does the project intersect the Guyandotte River crayfish critical habitat?

    Automatically answered

    No

39. Do you have any other documents that you want to include with this submission?

    No

PROJECT QUESTIONNAIRE

1. Approximately how many acres of trees would the proposed project remove?

   0.4

2. Approximately how many total acres of disturbance are within the disturbance/ construction limits of the proposed project?

   7.9

3. Briefly describe the habitat within the construction/disturbance limits of the project site.

   The majority of the proposed fence alignment is located within existing cleared, upland grassland areas on the airfield. Habitat generally consists of maintained grassland areas that are mowed on a regular basis. Portions of the proposed fence alignment are also located within palustrine emergent and scrub-shrub wetlands. Vegetation in these areas generally consists of low-growing herbaceous plants including sedges and cattails, and small shrubs including spiraea, dogwood, and willow. Tree clearing is limited to the edges of existing forested areas and one section of early successional forest that was previously cleared.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Stephen Hoffmann
Address: 426 Industrial Ave, Suite 164
City: Williston
State: VT
Zip: 05495
Email shoffmann@mjinc.com
Phone: 8028629381

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army Corps of Engineers

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: 04/18/2025 14:37:40 UTC
Project code: 2024-0066722
Project Name: Keene Airport Wildlife Perimeter Fence

Federal Nexus: yes
Federal Action Agency (if applicable): Army Corps of Engineers

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for 'Keene Airport Wildlife Perimeter Fence'

Dear Stephen Hoffmann:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on April 18, 2025, for 'Keene Airport Wildlife Perimeter Fence' (here forward, Project). This project has been assigned Project Code 2024-0066722 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (DKey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid. Note that conservation measures for northern long-eared bat and tricolored bat may differ. If both bat species are present in the action area and the key suggests more conservative measures for one of the species for your Project, the Project may need to apply the most conservative measures in order to avoid adverse effects. If unsure which conservation measures should be applied, please contact the appropriate Ecological Services Field Office.***

Determination for the Northern Long-Eared Bat and Tricolored Bat

Based on your IPaC submission and a standing analysis completed by the Service, you determined the proposed Project will have the following effect determinations:

Species	Listing Status	Determination
Tricolored Bat (*Perimyotis subflavus*)	Proposed Endangered	NLAA

Federal agencies must consult with U.S. Fish and Wildlife Service under section 7(a)(2) of the Endangered Species Act (ESA) when an action *may affect* a listed species. Tricolored bat is proposed for listing as endangered under the ESA, but not yet listed. For actions that may affect a proposed species, agencies cannot consult, but they can *confer* under the authority of section 7(a)(4) of the ESA. Such conferences can follow the procedures for a consultation and be adopted as such if and when the proposed species is listed. Should the tricolored bat be listed, agencies must review projects that are not yet complete, or projects with ongoing effects within the tricolored bat range that previously received a NE or NLAA determination from the key to confirm that the determination is still accurate.

Unless the Service advises you within 15 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that consultation on the Action is complete for northern long-eared bat and/or tricolored bat and no further action is necessary unless either of the following occurs:

- new information reveals effects of the action that may affect the northern long-eared bat or tricolored bat in a manner or to an extent not previously considered; or,
- the identified action is subsequently modified in a manner that causes an effect to the northern long-eared bat or tricolored bat that was not considered when completing the determination key.

15-Day Review Period

As indicated above, the Service will notify you within 15 calendar days if we determine that this proposed Action does not meet the criteria for a “may affect, not likely to adversely affect” (NLAA) determination for the northern long-eared bat and/or tricolored bat. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the identified Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that we did not anticipate when developing the key. In such cases, the identified Ecological Services Field Office may request additional information to verify the effects determination reached through the Northern Long-eared Bat and Tricolored Bat DKey.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Dwarf Wedgemussel *Alasmidonta heterodon* Endangered

- Monarch Butterfly *Danaus plexippus* Proposed Threatened

You may coordinate with our Office to determine whether the Action may affect the species and/or critical habitat listed above. Note that reinitiation of consultation would be necessary if a new species is listed or critical habitat designated that may be affected by the identified action before it is complete.

If you have any questions regarding this letter or need further assistance, please contact the New England Ecological Services Field Office and reference Project Code 2024-0066722 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Keene Airport Wildlife Perimeter Fence

2. Description

The following description was provided for the project 'Keene Airport Wildlife Perimeter Fence':

> The proposed project involves the installation of a wildlife perimeter fence at the Keene Dillant-Hopkins Airport in Swanzey, New Hampshire. The perimeter fence will consist of approximately 17,200 linear feet of 8-foot-high chain link fence topped with three-strand barbed wire. The proposed fence will tie into existing sections of permitter fence forming a complete enclosure around the active airfield encompassing approximately 324 acres of the airport. Construction is anticipated to begin in spring/summer 2026.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.894918700000005,-72.27190836539597,14z

DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for a least one species covered by this determination key.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

   Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Yes

6. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

   No

7. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

   Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

   Yes

8. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

   No

9. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

   No

10. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

11. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

    No

12. Does the action area contain (1) talus or (2) anthropogenic or naturally formed rock shelters or crevices in rocky outcrops, rock faces or cliffs?

    No

13. Will the action cause effects to a bridge?

    Note: Covered bridges should be considered as bridges in this question.

    No

14. Will the action result in effects to a culvert or tunnel at any time of year?

    No

15. Are trees present within 1000 feet of the action area?

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

16. Does the action include the intentional exclusion of bats from a building or structure?

    Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

    No

17. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

18. Will the action cause construction of one or more new roads open to the public?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

19. Will the action include or cause any construction or other activity that is reasonably certain to increase average night-time traffic permanently or temporarily on one or more existing roads? **Note:** For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

20. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

21. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

    Note: For information regarding NSF/ANSI 60 please visit https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects

    No

22. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

23. Will the action include drilling or blasting?

    No

24. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

    No

25. Will the proposed action involve the use of herbicides or other pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?

    No

26. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

    Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

27. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

28. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    Yes

29. Will the proposed action occur exclusively in an already established and currently maintained utility right-of-way?

    No

30. Does the action include emergency cutting or trimming of hazard trees in order to remove an imminent threat to human safety or property? See hazard tree note at the bottom of the key for text that will be added to response letters

    Note: A "hazard tree" is a tree that is an immediate threat to lives, public health and safety, or improved property.

    No

31. Does the project intersect with the 0- 9.9% forest density category?

    Automatically answered
    No

32. Does the project intersect with the 10.0- 19.9% forest density category map?

    Automatically answered
    No

33. Does the project intersect with the 20.0- 29.9% forest density category map?

    Automatically answered
    No

34. Does the project intersect with the 30.0- 100% forest density category map?

    Automatically answered
    Yes

35. Will the action cause trees to be cut, knocked down, or otherwise brought down across an area greater than 100 acres in total extent?

    No

36. Will the proposed action result in the use of prescribed fire?

    Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

    No

37. Does the action area intersect the tricolored bat species list area?

    Automatically answered
    Yes

38. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

39. Has a presence/probable absence bat survey targeting the tricolored bat and following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines been conducted within the project area?

    No

40. Is suitable summer habitat for the tricolored bat present within 1000 feet of project activities?
    (If unsure, answer ""Yes."")

    Note: If there are trees within the action area that may provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (Tillandsia usneoides), clusters of dead pine needles of large live pines) answer ""Yes."" For a complete definition of suitable summer habitat for the tricolored bat, please see Appendix A in the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines.

    Yes

41. Do any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (*Tillandsia usneoides*), clusters of dead pine needles of large live pine trees)?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

42. Do you have any documents that you want to include with this submission?

    No

PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

.4

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Stephen Hoffmann
Address: 426 Industrial Ave, Suite 164
City: Williston
State: VT
Zip: 05495
Email shoffmann@mjinc.com
Phone: 8028629381

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army Corps of Engineers

APPENDIX C:

NOAA/NMFS & NHDOT EFH CORRESPONDENCE

Martin, Rebecca

From: Kaitlyn Shaw - NOAA Federal <kaitlyn.shaw@noaa.gov>
Sent: Thursday, February 2, 2023 10:45 AM
To: Martin, Rebecca
Subject: Re: Connecticut River EFH Coordination
Attachments: VT and NH EFH Letter to Corps_06282017.pdf

Hi Rebecca,
Thank you for this inquiry. I am attaching a correspondence letter between us and USACE regarding this topic. The CT river and tributaries, while still designated as Atlantic salmon EFH, do not require consultation as long as measures to avoid and minimize permanent impacts to diadromous habitat are incorporated into the project. See the attached letter for specific language. Please feel free to share this with any colleagues.
Best,

Kaitlyn Shaw
Marine Habitat Resource Specialist
Habitat and Ecosystem Services Division
NOAA/ National Marine Fisheries Service
Gloucester, MA
Office: 978-282-8457
Pronouns: she/her
kaitlyn.shaw@noaa.gov
www.nmfs.noaa.gov

On Thu, Feb 2, 2023 at 10:17 AM Martin, Rebecca <Rebecca.A.Martin@dot.nh.gov> wrote:

> Hi Kaitlyn,
>
> I hope that you are staying warm during this cold weather snap!
>
> I am writing to check in about the suspension of review for Atlantic Salmon EFH in the Connecticut River and tributaries. I took a look at the new (September 2022) NH ACOE PGP (NHGPs.pdf (army.mil)) and Appendix C New Hampshire General Permits
>
> EFH Rivers for Atlantic Salmon on pdf page 62 (pg 64) and it does not include the Connecticut River. Does that mean review of EFH impacts in the Connecticut and tributaries is still suspended? Attached was my latest correspondence with Mike Johnson on the topic.
>
> Thank you,

Rebecca

Rebecca Martin

Plant and Wildlife Program Manager

NH DOT Bureau of Environment

7 Hazen Drive

Concord, NH 03302

(603)271-6781

Rebecca.A.Martin@dot.nh.gov

APPENDIX D:
NHB DATACHECK RESULTS LETTER

NHB DataCheck Results Letter
NH Natural Heritage Bureau
Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

To: Claire Hilsinger
125 Nagog Park
Acton, MA 01720
chilsinger@mjinc.com

From: NHB Review
NH Natural Heritage Bureau
Main Contact: Maddie Severance - nhbreview@dncr.nh.gov

cc: NHFG Review

Date: 04/22/2025 (valid until 04/22/2026)
Re: DataCheck Review by NH Natural Heritage Bureau and NH Fish & Game
Permits: NHDES - Alteration of Terrain Permit, NHDES - Shoreland Standard Permit, NHDES - Standard Dredge & Fill - Major, USACE - General Permit, USCEQ - Federal: NEPA Review, USEPA - Stormwater Pollution Prevention

NHB ID: NHB25-1106

Town: Keene
Location: 80 Airport Rd.

Project Description: This is the first phase of a wildlife perimeter fence project at Keene Dillant-Hopkins Airport in Keene and Swanzey, New Hampshire. The perimeter fence will consist of approximately 17,100 linear feet, encompassing approximately 241 acres of the airport.
The purpose of this request is to update NHB24-0962.

Next Steps for Applicant:

NHB's database has been searched for records of rare species and exemplary natural communities. Please carefully read the comments below and the consultation requirements on the following page.

NHB Comments: Under NHB24-0962 coordination and a field visit confirmed that the exemplary silver maple - false nettle - sensitive fern floodplain forest does not appear to be present within the proposed impact areas. As alternatives are explored NHB recommends the alternative with impacts the greatest distance from the exemplary wetland. If proposed plans change from what was previously reviewed, please contact NHB.

NHFG Comments: Please refer to NHFG consultation requirements below.

NHB Consultation

If this NHB DataCheck letter includes records of rare plants and/or natural communities/systems, please contact NHB and provide any requested supplementary materials by emailing nhbreview@dncr.nh.gov.

If this NHB DataCheck letter DOES NOT include any records of rare plants and/or natural communities/systems, no further consultation with NHB is required.

NH Fish and Game Department Consultation

If this NHB DataCheck letter DOES NOT include ANY wildlife species records, then, based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

If this NHB DataCheck letter includes a record for a threatened (T) or endangered (E) wildlife species, consultation with the New Hampshire Fish and Game Department under Fis 1004 may be required. To review the Fis 1000 rules (effective February 3, 2022), please go to https://www.wildlife.nh.gov/wildlife-and-habitat/nongame-and-endangered-species/environmental-review. All requests for consultation and submittals should be sent via email to NHFGreview@wildlife.nh.gov or can be sent by mail, and **must include the NHB DataCheck results letter number and "Fis 1004 consultation request" in the subject line**.

If the NHB DataCheck response letter does not include a threatened or endangered wildlife species but includes other wildlife species (e.g., Species of Special Concern), consultation under Fis 1004 is not required; however, some species are protected under other state laws or rules, so coordination with NH Fish & Game is highly recommended or may be required for certain permits. While some permitting processes are exempt from required consultation under Fis 1004 (e.g., *statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule*), coordination with NH Fish & Game may still be required under the rules governing those specific permitting processes, and it is recommended you contact the applicable permitting agency. For projects not requiring consultation under Fis 1004, but where additional coordination with NH Fish and Game is requested, please email NHFGreview@wildlife.nh.gov, and include the NHB DataCheck results letter number and "review request" in the email subject line.
Contact NH Fish & Game at (603) 271-0467 with questions.

NHB Database Records:
The following record(s) have been documented in the vicinity of the proposed project.
Please see the map and detailed information about the record(s) on the following pages.

Natural Community	**State[1]**	**Federal**	**Notes**
Silver maple - false nettle - sensitive fern floodplain forest*	--	--	Threats are primarily changes to the hydrology of the river, land conversion and fragmentation, introduction of invasive species, and increased input of nutrients and pollutants.

Vertebrate species	**State[1]**	**Federal**	**Notes**
Eastern Meadowlark (*Sturnella magna*)	T	--	Contact the NH Fish & Game Dept (see above).
Grasshopper Sparrow (*Ammodramus savannarum*)	T	--	Contact the NH Fish & Game Dept (see above).
Horned Lark (*Eremophila alpestris*)	SC	--	Contact the NH Fish & Game Dept (see above).
Marsh Wren (*Cistothorus palustris*)	--	--	Contact the NH Fish & Game Dept (see above).
Northern Leopard Frog (*Lithobates pipiens*)	SC	--	Contact the NH Fish & Game Dept (see above).
Sora (*Porzana carolina*)	SC	--	Contact the NH Fish & Game Dept (see above).
Vesper Sparrow (*Pooecetes gramineus*)	SC	--	Contact the NH Fish & Game Dept (see above).
Wood Turtle (*Glyptemys insculpta*)	SC	--	Contact the NH Fish & Game Dept (see above).

[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list.
An asterisk (*) indicates that the most recent report for that occurrence was 20 or more years ago.

For all animal reviews, refer to 'IMPORTANT: NHFG Consultation' section above.

Disclaimer: NHB's database can only tell you of known occurrences that have been reported to NHFG/NHB. Known occurrences are based on information gathered by qualified biologists or members of the public, reported to our offices, and verified by NHB/NHFG.
However, many areas have never been surveyed, or have only been surveyed for certain species.
NHB recommends surveys to determine what species/natural communities are present onsite.

APPENDIX E:
LCIP CORRESPONDENCE

Stephen Hoffmann

From: Harding, Charlotte <Charlotte.J.Harding@clsp.nh.gov>
Sent: Wednesday, December 4, 2024 1:54 PM
To: Stephen Hoffmann
Subject: RE: LCIP Property Inquiry: Keene Dillant-Hopkins Airport Wildlife Perimeter Fence Project

Hi Steve,

From a review of the map, it does not appear that any LCIP/CLSP resources would be impacted by this project. We have no concerns at this time.

Thank you,

Charlotte Harding
Stewardship Specialist
Conservation Land Stewardship Program
107 Pleasant Street | Concord, NH 03301
Office: (603) 271-6809
www.clsp.nh.gov

From: Stephen Hoffmann <SHoffmann@mjinc.com>
Sent: Monday, December 2, 2024 10:49 AM
To: Harding, Charlotte <Charlotte.J.Harding@clsp.nh.gov>
Subject: LCIP Property Inquiry: Keene Dillant-Hopkins Airport Wildlife Perimeter Fence Project

---

Good Morning Charlotte,

I am completing the environmental review for a proposed wildlife perimeter fence project at the Keene Dillant-Hopkins Airport in Swanzey, New Hampshire, and I am reaching out to determine if there are any potential LCIP encumbered properties located in the vicinity of the proposed project. The proposed fence would be located entirely on Airport property. I've attached a USGS Location Map and an Aerial Tax Map to assist with your review. Please let me know if you have any questions or require any additional information to complete your review.

Thanks,
Steve

McFARLAND JOHNSON

STEPHEN HOFFMANN
ENVIRONMENTAL ANALYST

802-862-9381

SHOFFMANN@MJINC.COM

APPENDIX F:
LWCF CORRESPONDENCE

Stephen Hoffmann

From: DNCR: Land & Water Conservation Fund <LWCF@dncr.nh.gov>
Sent: Monday, December 2, 2024 11:30 AM
To: Stephen Hoffmann; DNCR: Land & Water Conservation Fund
Subject: RE: LWCF Property Inquiry: Keene Dillant-Hopkins Airport Wildlife Perimeter Fence Project

Hello Steve,

Thank you for your request for information from this agency concerning the Keene Dillant-Hopkins Airport Wildlife Perimeter Fence Project.
Based on the maps provided, we do not expect any impact for LWCF sites in the area. The nearest LWCF sites are north of your project area, just north of Route 101.

If you need any more information, or the project scope changes, please let us know.

Just a note, we do monitor the LWCF email regularly. Sometimes we can answer quickly like today. Other times we may be out of the office for a bit. If you ever have a review that we do not respond to within a few weeks, feel free to follow up with us.

Thank you,
Janet

Janet Horvath
LWCF Compliance Specialist
Bureau of Community Recreation
Division of Parks and Recreation
NH Department of Natural & Cultural Resources
172 Pembroke Road
Concord, NH 03301
Phone 603.271.3007
janet.c.horvath@dncr.nh.gov
nhstateparks.org
dncr.nh.gov

From: Stephen Hoffmann <SHoffmann@mjinc.com>
Sent: Monday, December 2, 2024 10:41 AM
To: DNCR: Land & Water Conservation Fund <LWCF@dncr.nh.gov>
Subject: LWCF Property Inquiry: Keene Dillant-Hopkins Airport Wildlife Perimeter Fence Project

Good Morning,

I am completing the environmental review for a proposed wildlife perimeter fence project at the Keene Dillant-Hopkins Airport in Swanzey, New Hampshire, and I am reaching out to determine if there are any potential LWCF encumbered properties located in the vicinity of the proposed project. The proposed fence would be located entirely on Airport property. I've attached a USGS Location Map and an Aerial Tax Map to assist with your review. Please let me know if you have any questions or require any additional information to complete your review.

Thanks,
Steve

McFARLAND JOHNSON

STEPHEN HOFFMANN
ENVIRONMENTAL ANALYST

802-862-9381
SHOFFMANN@MJINC.COM
WWW.MJINC.COM

APPENDIX G:
LCHIP CORRESPONDENCE

Stephen Hoffmann

From: Nicole DeCarolis <NDeCarolis@lchip.org>
Sent: Tuesday, December 10, 2024 1:04 PM
To: Stephen Hoffmann
Subject: RE: LCHIP Property Inquiry: Keene Dillant-Hopkins Airport Wildlife Perimeter Fence Project

Hi Steve,

Thank you for sharing the shapefile! LCHIP has not assisted in the preservation or conservation of historic, cultural, or natural resources in the project area described.

All the best,
Nicole

Nicole K. DeCarolis
Land Conservation Grant Specialist
Land and Community Heritage Investment Program
3 North Spring Street, Suite 100
Concord, NH 03301
(603) 224-4113, ext. 11

From: Stephen Hoffmann <SHoffmann@mjinc.com>
Sent: Tuesday, December 10, 2024 12:29 PM
To: Nicole DeCarolis <NDeCarolis@lchip.org>
Subject: RE: LCHIP Property Inquiry: Keene Dillant-Hopkins Airport Wildlife Perimeter Fence Project

Hi Nicole,

Please find the attached zip folder containing a shapefile of the project study area. Please note that this study area is much larger than the actual footprint of disturbance from the project. The final fence alignment is still being determined, but it will be located within the study area provided. Let me know if you have any questions or need anything additional.

Thanks,
Steve

McFARLAND JOHNSON

STEPHEN HOFFMANN
ENVIRONMENTAL ANALYST

802-862-9381
SHOFFMANN@MJINC.COM
WWW.MJINC.COM

From: Nicole DeCarolis <NDeCarolis@lchip.org>
Sent: Tuesday, December 10, 2024 10:41 AM
To: Stephen Hoffmann <SHoffmann@mjinc.com>
Subject: RE: LCHIP Property Inquiry: Keene Dillant-Hopkins Airport Wildlife Perimeter Fence Project

> You don't often get email from ndecarolis@lchip.org. Learn why this is important

Hi Steve,

I hope you are doing well! Paula forwarded me your email regarding the Keene Dillant-Hopkins Airport Wildlife Perimeter Fence Project, as I am Ben's successor and tasked with conducting the reviews for LCHIP. Do you have a GIS shapefile for the project that you can share?

All the best,
Nicole

Nicole K. DeCarolis
Land Conservation Grant Specialist
Land and Community Heritage Investment Program
3 North Spring Street, Suite 100
Concord, NH 03301
(603) 224-4113, ext. 11

From: Stephen Hoffmann <SHoffmann@mjinc.com>
Sent: Monday, December 2, 2024 11:00 AM
To: Paula S. Bellemore <PBellemore@lchip.org>
Cc: Katie Midolo <KMidolo@lchip.org>
Subject: FW: LCHIP Property Inquiry: Keene Dillant-Hopkins Airport Wildlife Perimeter Fence Project

Good Morning Paula,

I received an automated response that Ben is no longer with the LCHIP program. Please refer to my email below and the attached figures regarding the request for review of the subject project.

Thanks,
Steve

McFARLAND JOHNSON

STEPHEN HOFFMANN
ENVIRONMENTAL ANALYST

802-862-9381
SHOFFMANN@MJINC.COM
WWW.MJINC.COM

From: Stephen Hoffmann
Sent: Monday, December 2, 2024 10:51 AM
To: Ben Engel <BEngel@lchip.org>
Subject: LCHIP Property Inquiry: Keene Dillant-Hopkins Airport Wildlife Perimeter Fence Project

Good Morning Ben,

I am completing the environmental review for a proposed wildlife perimeter fence project at the Keene Dillant-Hopkins Airport in Swanzey, New Hampshire, and I am reaching out to determine if there are any potential LCHIP encumbered properties located in the vicinity of the proposed project. The proposed fence would be located entirely on Airport property. I've attached a USGS Location Map and an Aerial Tax Map to assist with your review. Please let me know if you have any questions or require any additional information to complete your review.

Thanks,
Steve

McFARLAND JOHNSON

STEPHEN HOFFMANN
ENVIRONMENTAL ANALYST

802-862-9381
SHOFFMANN@MJINC.COM
WWW.MJINC.COM

APPENDIX H:
NRCS CORRESPONDENCE

Stephen Hoffmann

From: Ellis, Nicole - FPAC-NRCS, NH <Nicole.Ellis@usda.gov>
Sent: Thursday, December 5, 2024 8:43 AM
To: Stephen Hoffmann
Subject: RE: [External Email]FPPA Applicability Question

Hi Steve,
If the land that the fence is going on has a current land use of aviation then the project should be exempt from FPPA. An FPPA form is only required in cases where federal dollars are being used for a project that permanently converts prime farmland to other uses(whether that be fence, infrastructure, etc.) but if the fence falls entirely in the footprint of land already converted to aviation use an FPPA review will not be necessary. Thanks!

Nicole Ellis
NRCS Soil Scientist
603-507-2089
10 Ferry Street Concord, NH

From: Stephen Hoffmann <SHoffmann@mjinc.com>
Sent: Tuesday, December 3, 2024 1:34 PM
To: Ellis, Nicole - FPAC-NRCS, NH <Nicole.Ellis@usda.gov>
Subject: [External Email]FPPA Applicability Question

Good Afternoon Nicole,

I am reaching out regarding a proposed wildlife perimeter fence project at the Keene Dillant-Hopkins Airport in Swanzey, NH and the applicability of the FPPA. The proposed project involves the construction of approximately 17,000 LF of proposed fence along the western and eastern sides of the Airport, for the purpose of improving safety by preventing wildlife from entering the aircraft movement areas. Farmland soils are present in the proposed project area, however, the proposed project is located entirely on Airport property on lands committed to aviation land use. The Airport is located immediately south of the Keene, NH Urban Area (2020 Census), but not within this area.

I'm reaching out to determine if the project area would be considered urban development, based on the current aviation land use, and therefore exempt from the FPPA, or if I need to complete the Farmland Conversion Impact Rating Form for the project. Please let me know if you have any questions or need any additional information to make your determination.

Thanks,
Steve

McFARLAND JOHNSON

STEPHEN HOFFMANN
ENVIRONMENTAL ANALYST

802-862-9381
SHOFFMANN@MJINC.COM
WWW.MJINC.COM

APPENDIX I:

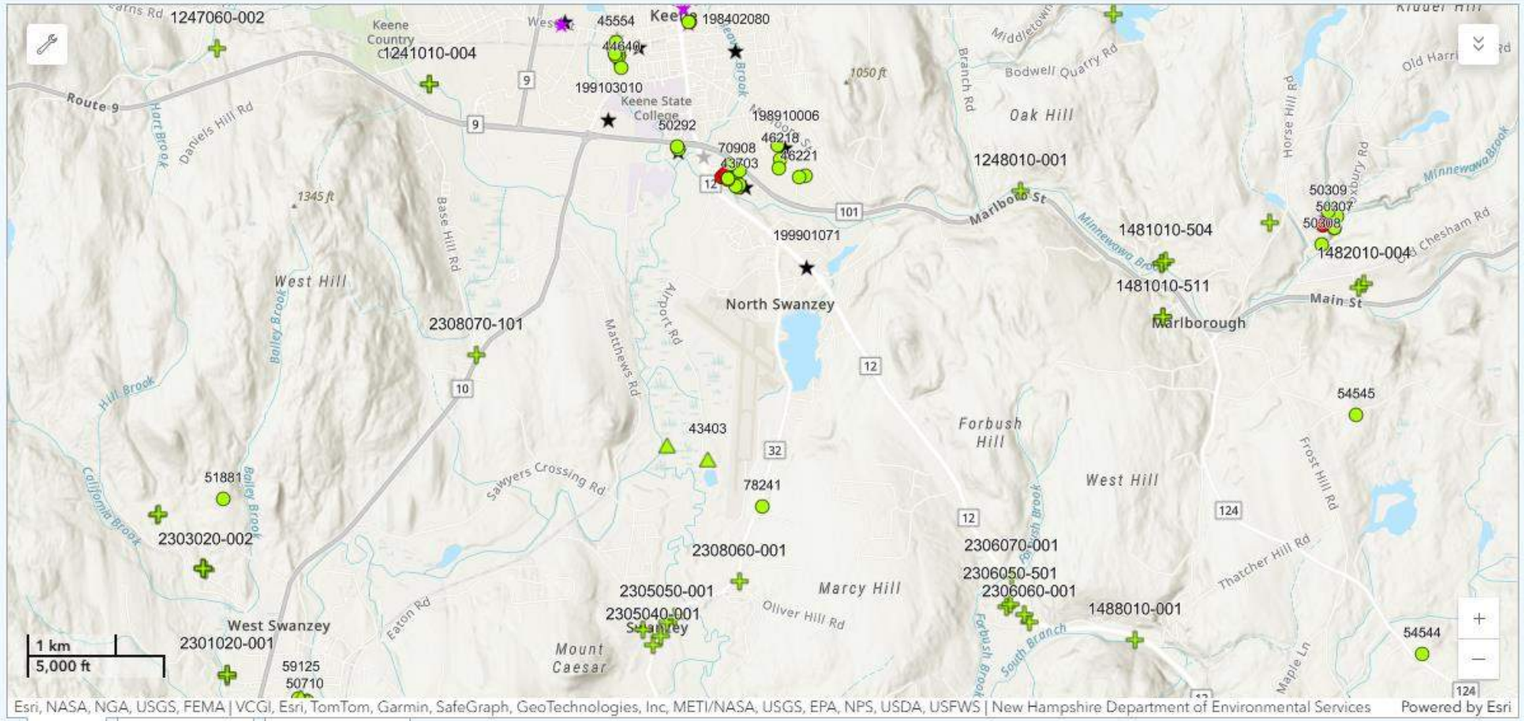
NHDES PFAS SAMPLING DASHBOARD MAP

NHDES PFAS Sampling Dashboard

Public Water Supply Sources and Environmental Monitoring Database Stations

Select a Town
None

Select a Screening Site
None



Map | Information | Map Legend

Environmental Monitoring Database Stations

Search...

- **Station Number:** #54545
- **Station Number:** #54544
- **Station Number:** #43703
- **Station Number:** #43704
- **Station Number:** #70913
- **Station Number:** #70912
- **Station Number:** #70916
- **Station Number:** #43701
- **Station Number:** #43702
- **Station Number:** #70911
- **Station Number:** #70908
- **Station Number:** #70910
- **Station Number:** #70915
- **Station Number:** #50308

Public Water Supply Sources

Search...

- **1241010-004** KEENE WATER DEPT
- **1241010-005** KEENE WATER DEPT
- **1241010-504** KEENE WATER DEPT
- **1247060-002** STONEWALL FARM/LEARNING CTR
- **1248010-001** ROCKY BROOK MOTEL
- **1481010-001** MARLBOROUGH WATER WORKS
- **1481010-004** MARLBOROUGH WATER WORKS
- **1481010-005** MARLBOROUGH WATER WORKS
- **1481010-504** MARLBOROUGH WATER WORKS
- **1481010-511** MARLBOROUGH WATER WORKS
- **1482010-004** MARLBOROUGH ESTATES
- **1482010-005** MARLBOROUGH ESTATES
- **1487010-002** CAMP GLEN BROOK
- **1488010-001** COACH AND FOUR MOTOR INN

Environmental Monitoring Stations - Results Over Time

Please select a feature from Environmental Monitoring Database Stations (found above).

Public Water Supply Sources - Results Over Time

Please select a feature from Public Water Supply Sources (found above).

Enviromental Monitoring Database Sampling Results

Please select a feature from Environmental Monitoring Database Stations (found above).

Public Water Supply Sampling Results

Please select a feature from Public Water Supply Sources (found above).

APPENDIX J:
SECTION 106 EFFECT MEMO

Section 106 Cultural Resources Effect Memo
(Project NOT directly managed by NHDOT)

Project Town: **Swanzey** Date: **4/15/2025**

State No.: **SBG 08-28-2023** Federal No. (as applicable): **N/A**

Lead Federal Agency: **Army Corps of Engineers**

Submitted by: **Stephen Hoffmann** Email address: **shoffmann@mjinc.com**
(Project Manager/Sponsor)

Pursuant to the Request for Project Review signed on 7/23/2024, and for the purpose of compliance with the regulations of National Historic Preservation Act and the Advisory Council on Historic Preservation's *procedures for the Protection of Historic Properties* (36 CFR 800), and NH RSA 227-C the NH Division of Historical Resources, NH Department of Transportation, and the US Army Corps of Engineers have coordinated the identification and evaluation of cultural resources relative to:

Keene Dillant-Hopkins Airport (EEN) Wildlife Perimeter Fence Project
The proposed City of Keene Wildlife Perimeter Fence Project is located at the Keene Dillant-Hopkins Airport in Swanzey, Chester County, New Hampshire. The proposed project involves the installation of approximately 17,211 linear feet of chain link fence around the western, northern, and eastern sides of the airfield. The purpose of the proposed project is to improve safety at the Airport by excluding and deterring wildlife, primarily white-tailed deer, from entering the aircraft movement areas (runways, taxiways, etc.). The majority of the western side of the airfield and a section along the eastern side are currently unfenced, allowing wildlife unrestricted overland access to these areas, posing serious safety risks. The proposed fence will be tied into existing sections of perimeter fence forming a complete enclosure around the airfield and associated infrastructure.

The project is being funded through the FAA's State Block Grant Program (SBGP). FAA does not retain funding for or approval authority for SBGP actions, instead these responsibilities are delegated to the New Hampshire Department of Transportation (NHDOT) – Bureau of Aeronautics (BOA). Therefore, actions under the SBGP technically do not qualify as federal actions. However, under the SBGP, airports are contractually committed to consider the environmental effects of their actions, meet the requirements of NEPA, and special purpose laws outside NEPA (including Section 106 of the NHPA) that would have applied to the actions, had FAA been responsible for those actions. In addition, a US Army Corps of Engineers Section 404 Permit is anticipated to be required for proposed impacts to federally jurisdictional Waters of the US (wetlands). Therefore, this permit would also be considered a federal nexus requiring compliance with Section 106.

A Request for Project Review was submitted to the New Hampshire Division of Historical Resources (NHDHR) in June 2024. In their initial response dated July 9, 2024, NHDHR indicated that, "No above-ground survey appears necessary."; and "Request archaeological sensitivity assessment."

The Dillant-Hopkins Airport was previously determined not eligible (2024RE00418) and no additional inventory was determined necessary based on the project impacts.

Monadnock Archaeological Consulting completed a Phase IA/IB Archaeological Sensitivity Assessment and Intensive Archaeological Investigation in May and June 2024. The results of the Phase IA/IB assessment and investigation were summarized in a report submitted to NHDHR on July 16, 2024. One Archaeological Sensitive Area was identified within the Area of Potential Effect (APE). Through consultation with NHDHR and Monadnock Archaeological Consulting, a "point mitigation" strategy was developed, based on the relatively minor footprint and ground disturbance associated with the proposed fence project. The point mitigation strategy focused on the specific areas of proposed ground disturbance associated with the installation of the proposed fence posts. Monadnock Archaeological Consulting Completed the point mitigation in July-August 2024. A revised Phase IA/IB Report that included the results of the point mitigation was provided to NHDHR in December 2024. and concurred that no further archaeological study was needed.

After the point mitigation was completed, preliminary design continued to progress and it was later determined that the fence posts located within the Archaeologically Sensitive Area would need to be shifted approximately 10 feet to the north, away from the existing tree line and top of a steep bank that leads down to a small unnamed stream. Therefore, the original fence post locations that had been previously cleared during the July-August 2024 point mitigation are no longer applicable. Due to the project schedule and existing funding, the additional point mitigation for the new fence post locations will be completed during final design and permitting (Phase 2) once

the exact locations of the proposed fence posts are finalized. Point mitigation will be completed for all proposed areas of ground disturbance within the Archaeologically Sensitive Area prior to the start of construction including any ground disturbance in this area. An Environmental Commitment in the NEPA document will be included to that effect. Following completion of the additional point mitigation, a supplemental report will be submitted to NHDHR summarizing the results and findings of the additional archaeological investigations.

Please describe all public outreach efforts (see 36 CFR800.2-3) that have been done to-date. Identify Consulting Parties and include any public feedback (if applicable, attached pages if necessary):

The proposed project was discussed at two (2) Town of Swanzey Conservation Commission Meetings in June 2024 and November 2024. No Consulting Parties have been identified, and no public feedback regarding cultural or historic resources has been received at this time.

Based on a review of the project, as presented to date, it has been determined that:

Section 106 Effect Determination	☒ **No Historic or Archaeological Properties will be Affected**
	☐ **There will be No Adverse Effect on Historic or Archaeological Properties**
	☐ **There will be an Adverse Effect on Historic or Archaeological Properties or Resources**
	Additional comments, please explain *why* the undertaking has resulted in the above effect: The archaeological assessment and investigations to date, along with the additional point mitigation that will be completed once the fence post locations are finalized during Phase II of the proposed project will ensure that impacts to Archaeologically Sensitive Areas have been avoided and minimized. The project commits to completing all necessary phases of archaeology and will continue consultation with NHDHR if there are any unanticipated discoveries.

In accordance with the Advisory Council's regulations, we will continue to consult, as appropriate, as this project proceeds.

(Corps signs for Adverse Effects)

Jill Edelmann Digitally signed by Jill Edelmann Date: 2025.04.30 08:38:37-04'00'

Lead Federal Agency (date)
(if applicable)

NHDOT Cultural Resources Program

Nadine Miller Digitally signed by Nadine Miller Date: 2025.05.09 12:35:43 -04'00'

The NH State Historic Preservation Officer concurs with these findings:

NH Division of Historical Resources

APPENDIX K:

WETLAND DELINEATION REPORT

Wetland Delineation Report

Keene Dillant-Hopkins Airport

Swanzey, New Hampshire

2024

prepared by:
McFarland Johnson

TABLE OF CONTENTS

TABLE OF FIGURES

LIST OF TABLES

APPENDICES

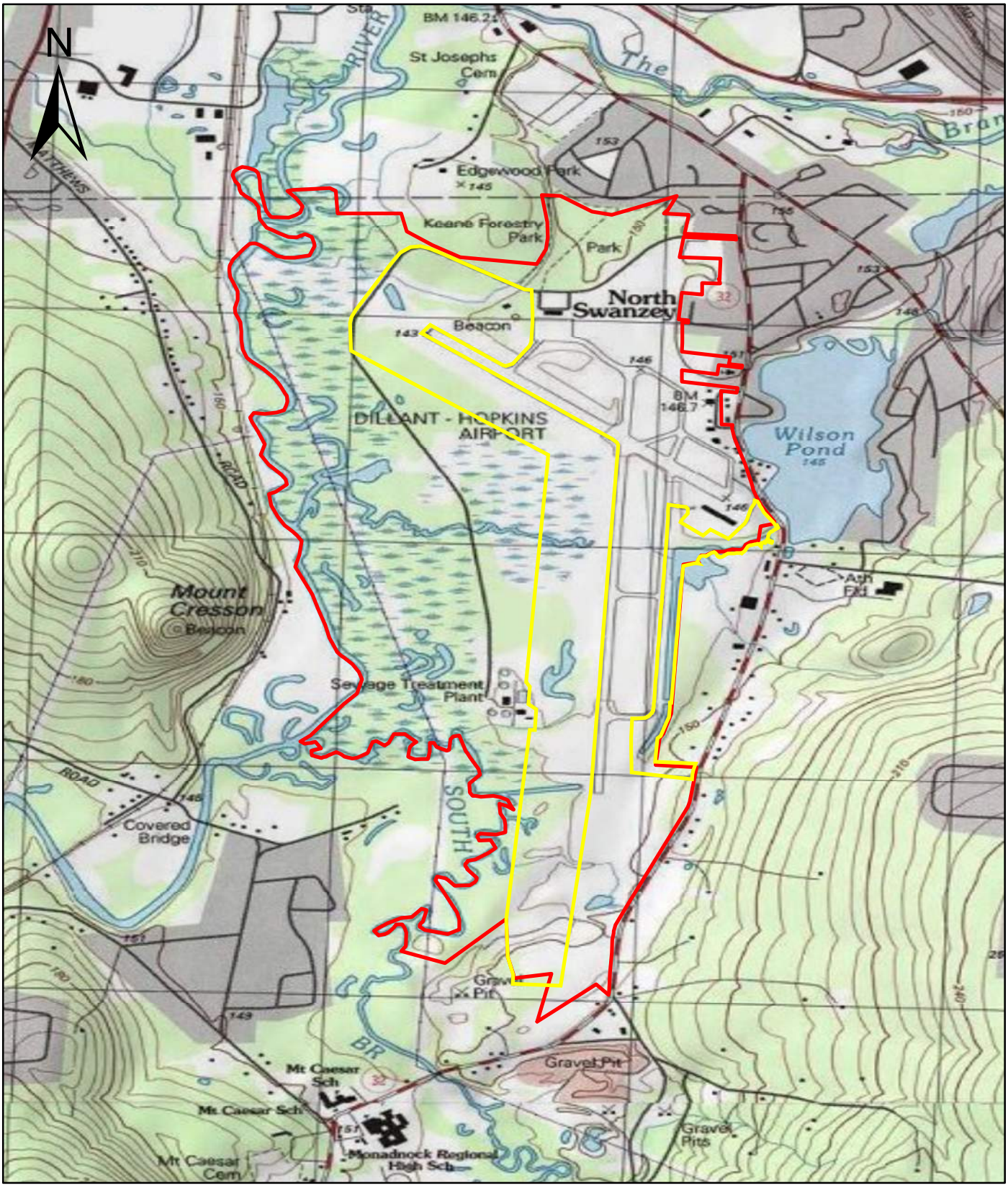
Section 1. Introduction

This Wetland Delineation Report documents the findings of a wetland and surface water delineation completed by McFarland-Johnson, Inc. (MJ) at the Keene Dillant-Hopkins Airport (EEN or the Airport), located in Swanzey, New Hampshire. The delineation was completed in May 2024, in support of a proposed Wildlife Perimeter Fence Project at EEN.

1.1. PROJECT LOCATION AND OVERVIEW

The Airport is situated on approximately 923 acres of land in Swanzey, a town in Cheshire County, located in the Monadnock Region of southwestern New Hampshire (**Figure 1**). The Airport lies approximately 1.5 miles south of downtown Keene. Land use surrounding EEN includes a mix of residential, industrial/commercial, and undeveloped forested areas. The Airport property is bound by the Ashuelot River and South Branch Ashuelot River to the west. The western side of Airport property remains largely forested and undeveloped. These forested areas are associated with the expansive floodplains of the Ashuelot and South Branch Ashuelot Rivers. Airport Road borders the north and west sides of the airfield and terminates at the City of Keene Wastewater Treatment Plant on the west side of the Airport. There is also an existing solar facility located north of the treatment plant. The Keene-Swanzey town line is located immediately north of the Airport property boundary. To the north and northeast, development is concentrated along NH Route 12 and NH Route 32, including industrial, commercial, and dense residential areas. The eastern and southern sides of the Airport property are bound by Old Homestead Highway (NH Route 32). There is scattered residential and commercial development along this corridor. Wilson Pond is also located east of the northern portion of the Airport. Land use south of the Airport is primarily industrial and commercial, and includes a sand and gravel quarry, gas station, post office, and newer developments that are currently under construction.

The proposed project involves the construction of approximately 17,200 linear feet (LF) of 8-foot-high chain link fence topped with three strand barbed wire along the majority of the western and northwestern sides, and a portion of the eastern side of the airfield. The purpose of the proposed action is to improve aviation safety at EEN by reducing the potential for wildlife strikes, particularly with large mammals such as white-tailed deer (*Odocoileus virginianus*), in a manner that is cost feasible, environmentally practicable, effective, and that does not impede Airport operations. The proposed fence would connect to the existing sections of perimeter fence around the northern, southern, and eastern portions of the airfield, providing a complete enclosure intended to prevent and deter wildlife, primarily white-tailed deer, from entering the Aircraft Operations Area.



EEN Airport Property Boundary

Delineation Study Area (MJ May 2024)

0 2,000 4,000

Feet

KEENE DILLANT-HOPKINS AIRPORT

WILDLIFE PERIMETER FENCE PROJECT

WETLAND DELINEATION - SWANZEY, NEW HAMPSHIRE

USGS LOCATION MAP

SCALE :	DATE :	FIGURE :
1 inch = 2,000 feet	MAY 2024	1

McFarland Johnson

K:\Keene\T-18956.01 Wildlife Perim Fence Ph I\Draw\GIS\Wetland Delineation Report Figures\Figure 1 - USGS Location Map.mxd

1.2. STUDY AREA

The Study Area for the wetlands and surface waters delineation was based on the preliminary fence alignment and included the majority of the western and northwestern side of the airfield, and a portion of the eastern side of the airfield along Taxiway A and south of the T-Hangars. The western portion of the Study Area was approximately 211.9 acres, and the eastern portion of the Study Area was approximately 29.2 acres. The overall Study Area had a total combined area of approximately 241.1 acres. The Study Area is depicted on all of the figures included with this report.

1.3. SITE DESCRIPTION

The Airport is located within the Worcester/Monadnock Plateau Ecoregion (United States Environmental Protection Agency [EPA] Level IV Ecoregion), a subregion of the Northeastern Highlands Ecoregion (US EPA Level III Ecoregion). In general, this region is sparsely populated, and the dominant land cover consists of forested areas. Typical forest types include northern hardwood and transitional hardwood forests dominated by maple-beech-birch and oak-hickory forests. The terrain consists of a rolling plateau with scattered monadnocks. Lakes and ponds are numerous in this region. The region is underlain primarily by metamorphic rock including gneiss and schist, as well as granite, an igneous rock type. Soils are primarily derived from glacial till.

Prior to conducting the field delineation, a desktop review of existing data and mapping was completed. The following data layers and resources were reviewed:

- Topographic Maps [U.S. Geological Survey (USGS)]
- Aerial and Satellite Imagery [Google Earth, NH GRANIT, ESRI]
- LiDAR derived 2-foot Contours [NH GRANIT]
- National Wetland Inventory (NWI) [U.S. Fish and Wildlife Service (USFWS)]
- National Hydrography Dataset (NHD) [U.S. Geological Survey (USGS)]
- National Flood Hazard Layer [Federal Emergency Management Agency (FEMA)]
- Soil Survey [U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)]

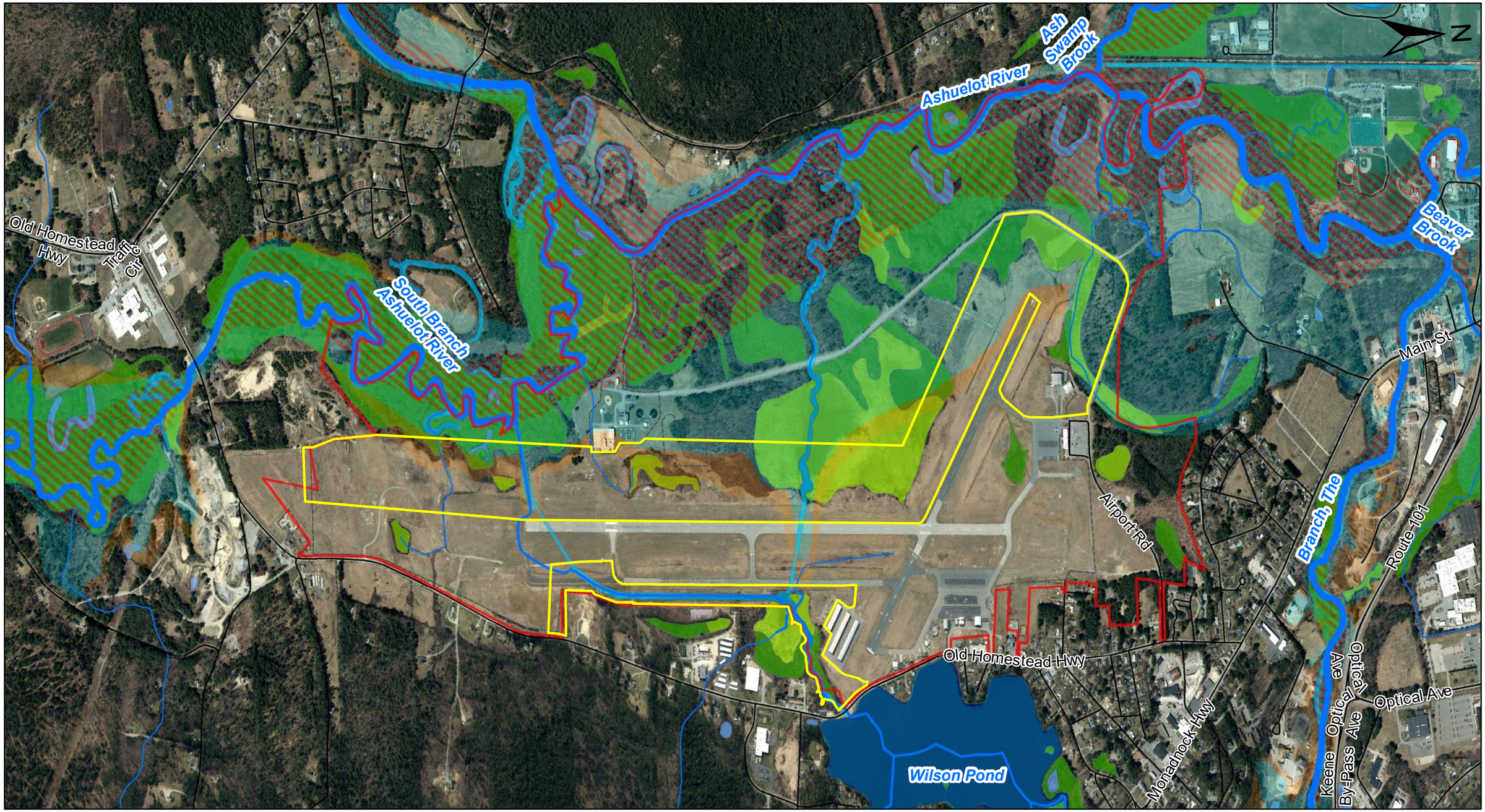
The Airport is situated at the convergence of the Ashuelot River Valley and the South Branch Ashuelot River Valley, in a broad, relatively flat area (**Figure 1**). The valley width varies from approximately 5,000 to 8,000 feet. The confluence of these two rivers is located immediately west of the southwestern portion of Airport property. The Ashuelot River flows primarily in a southerly direction along the western side of the Airport, while the South Branch Ashuelot River generally flows in a northerly direction before turning to the west in the vicinity of the confluence of the two rivers. The surrounding topography rises to the east and west into rolling hills and uplands characteristic of the Monadnock Region. Wilson Pond is a 72-acre waterbody located east of the northern portion of the Airport.

The Airport is located on relatively flat terrain, at an elevation of approximately 485 feet above sea level. The majority of the Airport property consists of existing aviation infrastructure and surrounding cleared grassland areas that are managed by the Airport and mowed on a regular basis. The western and northern side of the Airport contain undeveloped forested areas.

According to NWI mapping, there are expansive palustrine emergent, scrub-shrub, and forested wetland complexes on the west side of the Airport, including portions of the Study Area, associated with the floodplains of the Ashuelot and South Branch Ashuelot Rivers (**Figure 2**). There is also a smaller wetland complex on the east side of the Airport, south of the T-Hangars, that is partially located within the Study Area. The wetland on the east side of the airport is associated with an unnamed stream originating from the outlet of Wilson Pond. According to the NHD data layer, the unnamed stream is mapped as a second order stream. At the location of the Wilson Pond outlet/Old Homestead Highway culvert, the unnamed perennial stream has a watershed size of 1.51 square miles (approximately 966.4 acres). Pursuant to the New Hampshire Department of Environmental Services (NHDES) Stream Crossing Rules, specifically Env-Wt 904.05, the stream would be classified as a Tier 3 watercourse based on watershed size (on a watercourse where the contributing watershed is 640 acres or greater).

The majority of the western side of the Airport, including the expansive wetland complexes, are located within the FEMA mapped 100-year floodplain of the Ashuelot and South Branch Ashuelot Rivers (**Figure 2**). The Ashuelot River and South Branch Ashuelot River are both Tier 3 watercourses. Therefore, the portions of the wetlands located within the limits of the FEMA mapped 100-year floodplain are classified as a Priority Resource Area (PRA), floodplain wetlands on a Tier 3 watercourse, pursuant to Env-Wt 103.68.

The majority of the open, upland grassland areas on the airfield are underlain by loamy sands with an “Excessively Drained” NRCS Drainage Class. The soils in the western and eastern portion of Airport property containing the NWI mapped wetlands generally have an NRCS Drainage Class of “Somewhat Poorly Drained” to “Very Poorly Drained”.



Delineation Study Area (MJ May 2024)
EEN Airport Property Boundary
Existing Fence
Roads

NHD Flowline
Stream Order
1
2
3
4
5
6

NWI Wetlands
Wetland Type
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Riverine

FEMA National Flood Hazard Layer
Flood Hazard Zone Type
1% Annual Chance Flood Hazard
Regulatory Floodway
0.2% Annual Chance Flood Hazard

0 1,200 2,400
Feet

KEENE DILLANT-HOPKINS AIRPORT
WILDLIFE PERIMETER FENCE PROJECT
WETLAND DELINEATION - SWANZEY, NEW HAMPSHIRE

EXISTING WETLANDS & SURFACE WATER RESOURCES

SCALE :	DATE :	FIGURE :
1" = 1,200'	MAY 2024	2

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\Wetland Delineation Report Figures\Figure 2 - Existing Wetlands & Surface Water Resources.mxd

1.4. STATE LISTED RARE, THREATENED, AND ENDANGERED SPECIES AND EXEMPLARY NATURAL COMMUNITIES

A Natural Heritage Bureau (NHB) DataCheck Results Letter was received on April 9, 2024, identifying the following state listed species and exemplary natural communities included in **Table 1**, as having the potential to occur in the proposed project area.

Table 1. NHB DataCheck Results

COMMON NAME	SCIENTIFIC NAME	NH STATE LISTING STATUS
Eastern Meadowlark	(*Sturnella magna*)	Threatened
Grasshopper Sparrow	(*Ammodramus savannarum*)	Threatened
Horned Lark	(*Eremophila alpestris*)	Special Concern
Marsh Wren	(*Cistothorus palustris*	N/A
Northern Leopard Frog	(*Lithobates pipiens*)	Special Concern
Sora	(*Porzana carolina*)	Special Concern
Vesper Sparrow	(*Pooecetes gramineus*)	Special Concern
Wood Turtle	(*Glyptemys insculpta*)	Special Concern
Silver maple - false nettle - sensitive fern floodplain forest	N/A	N/A

Protected species or habitats are defined by Env-Wt 103.71 as any threatened or endangered species, eagle species, habitat of such species determined to be critical by the New Hampshire Fish and Game Department (NHFG), or any exemplary natural community identified by the NHB. The only threatened or endangered species identified by NHB as having the potential to occur in the project area are the state threatened eastern meadowlark and grasshopper sparrow. Both species are grassland bird species that utilize upland grassland habitats and are unlikely to occupy the wetland habitats surrounding the Airport. The remaining species are Special Concern or unlisted, and therefore, do not meet the definition of protected species or habitat. Therefore, it is assumed that the wetlands in the Study Area are not elevated to a PRA classification based solely on the presence of protected species or habitats, due to an absence of state listed threatened or endangered wetland dependent plants, fish, or wildlife.

1.5. REGULATORY CONTEXT

The following provides a brief overview of the applicable state and federal regulations pertaining to wetland and surface water resources.

1.5.1. Clean Water Act

At the federal level, wetlands and surface waters are protected under Section 404 of the Clean Water Act (CWA) which regulates the discharge of dredged or fill material into Waters of the United States (WOTUS). A WOTUS can include tidal waters, rivers, streams, lakes, ponds, and wetlands. Based on the current definition, a WOTUS must have a continuous surface connection to a traditionally navigable water. The USACE uses the three-parameter approach which requires the presence of wetland hydrology, a predominance of hydrophytic vegetation, and the presence of hydric soils for an area to be classified as a wetland. Actions requiring authorization under Section 404 are also subject to Section 401 of the CWA, which precludes federal agencies from issuing a permit or license to conduct any activity that may result in any discharge into WOTUS unless a Section 401 water quality certification is issued, or the certification is waived. Wetland resources are further protected under Executive Order 11990 Protection of Wetlands, which requires federal agencies to "avoid to the extent possible the long and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative."

In New Hampshire, the USACE has issued the New Hampshire General Permit (NHGP) which authorizes certain activities under Section 404 and Section 10 in New Hampshire that are subject to USACE's jurisdiction and have no more than minimal individual and cumulative impacts in WOTUS. The NHGP is intended to streamline reviews and increase efficiency by reducing duplication between state and federal reviews. Activities authorized under the NHGP are assumed to comply with the surface water quality standards outlined in Section 401 of the CWA. The NHDES has issued a Water Quality Certification for activities authorized under the NHGP.

1.5.2. New Hampshire Fill and Dredge in Wetlands Act

Wetlands and surface waters are also regulated at the state level by the New Hampshire Fill and Dredge in Wetlands Act (RSA 482-A). Activities in wetlands and surface waters such as excavation, removal, filling, dredging, and/or construction of structures in or on any bank, flat, marsh, forested wetland, or adjacent to waterbodies generally requires review and approval by NHDES, pursuant to the NHDES Wetland Rules (Env-Wt 100-1000).

In New Hampshire, PRAs are areas within the jurisdiction of the NHDES Wetlands Bureau protected under state law (RSA 482-A) and identified by rule in Env-Wt 103.66, for which a greater level of protection is required. Priority Resource Areas are defined as follows:

1. Protected species or habitat.
2. Bog.
3. Wetland in a river floodplain with a drainage area of at least one square mile (or a tidal area).
4. Designated Prime Wetland - a specific, high-value wetland designated by a municipality - or a duly established 100-foot buffer to a prime wetland.
5. Sand dune, tidal wetland, tidal water, or undeveloped tidal buffer zone.

1.5.3. New Hampshire Shoreland Water Quality Protection Act

In New Hampshire, public waters are also subject to jurisdiction under the Shoreland Water Quality Protection Act (SWQPA, RSA 483-B) and the associated NHDES Shoreland Protection Rules (Env-Wq 1400). Public waters are defined as, all lakes and ponds greater than 10 acres in size, coastal waters subject to the ebb and flow of the tide (including the Great Bay Estuary and the associated tidal rivers), and rivers, meaning perennial (year-round) waters of fourth order or higher and all rivers and river segments designated as New Hampshire Designated Rivers pursuant to RSA 483:15. The Protected Shoreland includes areas within 250 feet of the Reference Line, or ordinary high water mark (OHWM), of public waters. The Protected Shoreland is further divided into the Waterfront Buffer (0 to 50 feet from the Reference Line), Natural Woodland Buffer (0 to 150 feet from the Reference Line), and the Protected Shoreland, which includes all lands between 0 to 250 feet from the Reference Line.

Section 2. Methodology

The wetland and surface water delineation was completed by MJ between May 7-9, 2024, and May 16-17, 2024. The delineation was completed in accordance with the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (1987), the Regional *Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Version 2.0, 2012), and the New Hampshire Code of Administrative Rules Chapter Env-Wt 400 Delineation and Classification of Jurisdictional Areas; Classification of Projects. Additional, reference materials and guidance documents included the USACE *National Wetlands Plant List* (Version 3.5, 2020), and the U.S. Department of Agriculture (USDA), Natural Resources Conservation (NRCS) Field Indicators of Hydric Soils in the U.S. (Version 8.2, 2018).

The boundaries of state and federally jurisdictional wetlands and the OHWM and Top of Bank (TOB) of surface waters were demarcated in the field using intervisible flagging labeled with an alphanumeric sequence. Wetland flag locations were surveyed using a professional grade global position system (GPS) unit capable of submeter accuracy.

Paired wetland-upland data points were recorded for each wetland area using USACE Wetland Determination Data Forms.

Section 3. Results

A total of 11 wetlands and one (1) stream were delineated within the 241.1-acre Study Area on both the east and west sides of the Airport. The locations of the delineated wetlands and surface water are provided on **Figure 3**. The general descriptions of the wetland hydrology, vegetation, and soils are provided below. Copies of the USACE Wetland Determination Data Forms are included in **Appendix A**.

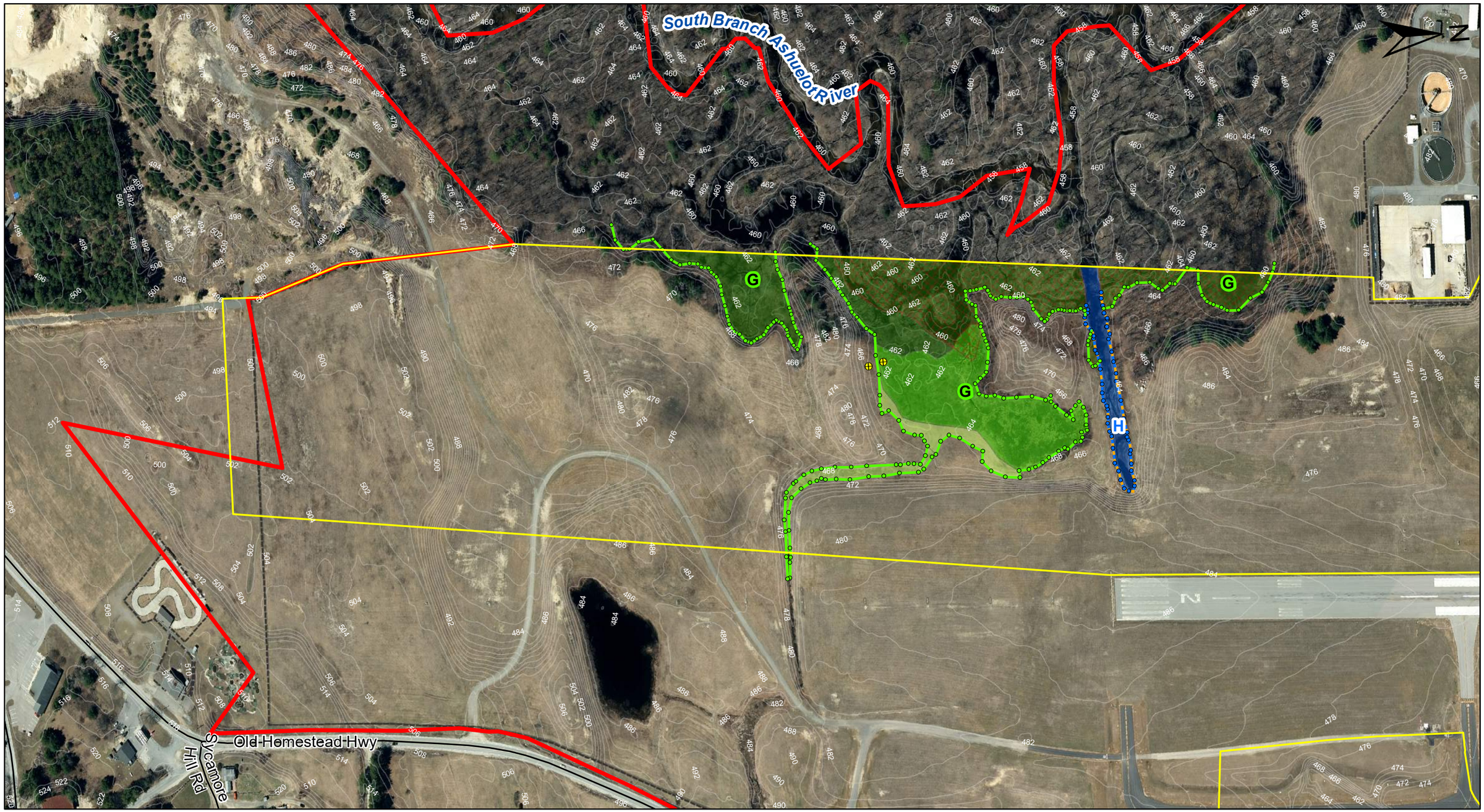
Wetlands within the Study Area were classified according to the Cowardin Classification System developed by the U.S. Fish and Wildlife Service (USFWS), as outlined in Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al., 1979). The Palustrine System is defined as all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt. The four Classes of palustrine wetlands documented in the Study area include the following:

- **Forested Wetland (PFO):** Trees (woody plants at least 20 feet in height) are the dominant life form – i.e., the tallest life form with at least 30 percent areal coverage.

- **Scrub-Shrub Wetland (PSS):** Woody plants less than 20 feet in height (including saplings and true shrubs) are the dominant life form–i.e., the tallest life form with at least 30 percent areal coverage.

- **Emergent Wetland (PEM):** Emergent plants (erect, rooted, herbaceous hydrophytes, excluding mosses and lichens) are the tallest life form with at least 30 percent areal coverage.

- **Unconsolidated Bottom (PUB):** The unconsolidated bottom class includes all wetlands and deepwater habitats with at least 25 percent cover of particles smaller than stones and a vegetative cover less than 30 percent. This classification is typically associated with small, shallow, ponds and areas of open water that lack vegetation.



EEN Airport Property Boundary
Delineation Study Area (MJ May 2024)
Roads
Existing Fence
Keene 2-foot Contours (LiDAR)
Wetland Flags
OHWM Flags
Bank Flags
Wetland Data Point

Delineated Wetlands (MJ 2024)
Approximate Wetland Boundaries (LiDAR Derived)
Delineated OHWM (MJ 2024)
Approximate OHWM (LiDAR / Aerial Derived)
Delineated OHWM-TOB (MJ 2024)
Delineated TOB (MJ 2024)

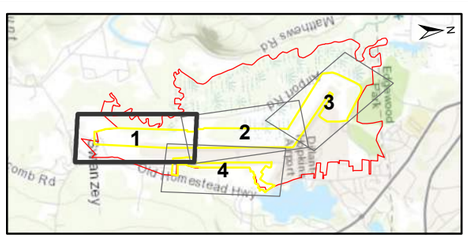
Wilson Pond Shoreland Buffer Zones

Reference Line
Waterfront Buffer (0' - 50')
Natural Woodland Buffer (0' - 150')
Protected Shoreland (0' - 250')

Approximate Wetland Polygons

Wetland Classification

PEM1E / PEM1Ed
PSS1E
PFO1E
PUBFh / PUBHh
R2UBFx
Bank
Priority Resource Area (Floodplain Wetlands on Tier 3 Watercourse)



0 300 600
Feet

KEENE DILLANT-HOPKINS AIRPORT
WILDLIFE PERIMETER FENCE PROJECT
WETLAND DELINEATION - SWANZEY, NEW HAMPSHIRE

DELINEATED WETLANDS & SURFACE WATERS

SCALE :	DATE :	FIGURE :
1" = 300'	MAY 2024	3-1

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\Wetland Delineation Report Figures\Figure 3 - Delineated Wetlands & Surface Waters (May 2024).mxd

Text

Airport Road

A

B

C

N

EEN Airport Property Boundary
Delineation Study Area (MJ May 2024)
Roads
Existing Fence
Keene 2-foot Contours (LiDAR)
Wetland Flags
OHWM Flags
Bank Flags
Wetland Data Point

Delineated Wetlands (MJ 2024)
Approximate Wetland Boundaries (LiDAR Derived)
Delineated OHWM (MJ 2024)
Approximate OHWM (LiDAR / Aerial Derived)
Delineated OHWM-TOB (MJ 2024)
Delineated TOB (MJ 2024)

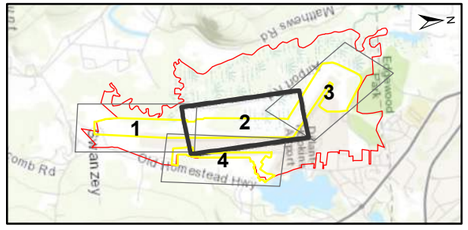
Wilson Pond Shoreland Buffer Zones

Reference Line
Waterfront Buffer (0' - 50')
Natural Woodland Buffer (0' - 150')
Protected Shoreland (0' - 250')

Approximate Wetland Polygons

Wetland Classification

PEM1E / PEM1Ed
PSS1E
PFO1E
PUBFh / PUBHh
R2UBFx
Bank
Priority Resource Area (Floodplain Wetlands on Tier 3 Watercourse)



0 300 600
Feet

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\Wetland Delineation Report Figures\Figure 3 - Delineated Wetlands & Surface Waters (May 2024).mxd

KEENE DILLANT-HOPKINS AIRPORT
WILDLIFE PERIMETER FENCE PROJECT
WETLAND DELINEATION - SWANZEY, NEW HAMPSHIRE

DELINEATED WETLANDS & SURFACE WATERS

SCALE :	DATE :	FIGURE :
1" = 300'	MAY 2024	3-2

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph II\Draw\GIS\Wetland Delineation Report Figures\Figure 3 - Delineated Wetlands & Surface Waters (May 2024).mxd

- EEN Airport Property Boundary
- Delineation Study Area (MJ May 2024)
- Roads
- Existing Fence
- Keene 2-foot Contours (LiDAR)
- Wetland Flags
- OHWM Flags
- Bank Flags
- Wetland Data Point
- Delineated Wetlands (MJ 2024)
- Approximate Wetland Boundaries (LiDAR Derived)
- Delineated OHWM (MJ 2024)
- Approximate OHWM (LiDAR / Aerial Derived)
- Delineated OHWM-TOB (MJ 2024)
- Delineated TOB (MJ 2024)

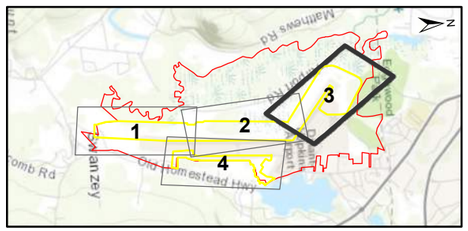
Wilson Pond Shoreland Buffer Zones

- Reference Line
- Waterfront Buffer (0' - 50')
- Natural Woodland Buffer (0' - 150')
- Protected Shoreland (0' - 250')

Approximate Wetland Polygons

Wetland Classification

- PEM1E / PEM1Ed
- PSS1E
- PFO1E
- PUBFh / PUBHh
- R2UBFx
- Bank
- Priority Resource Area (Floodplain Wetlands on Tier 3 Watercourse)



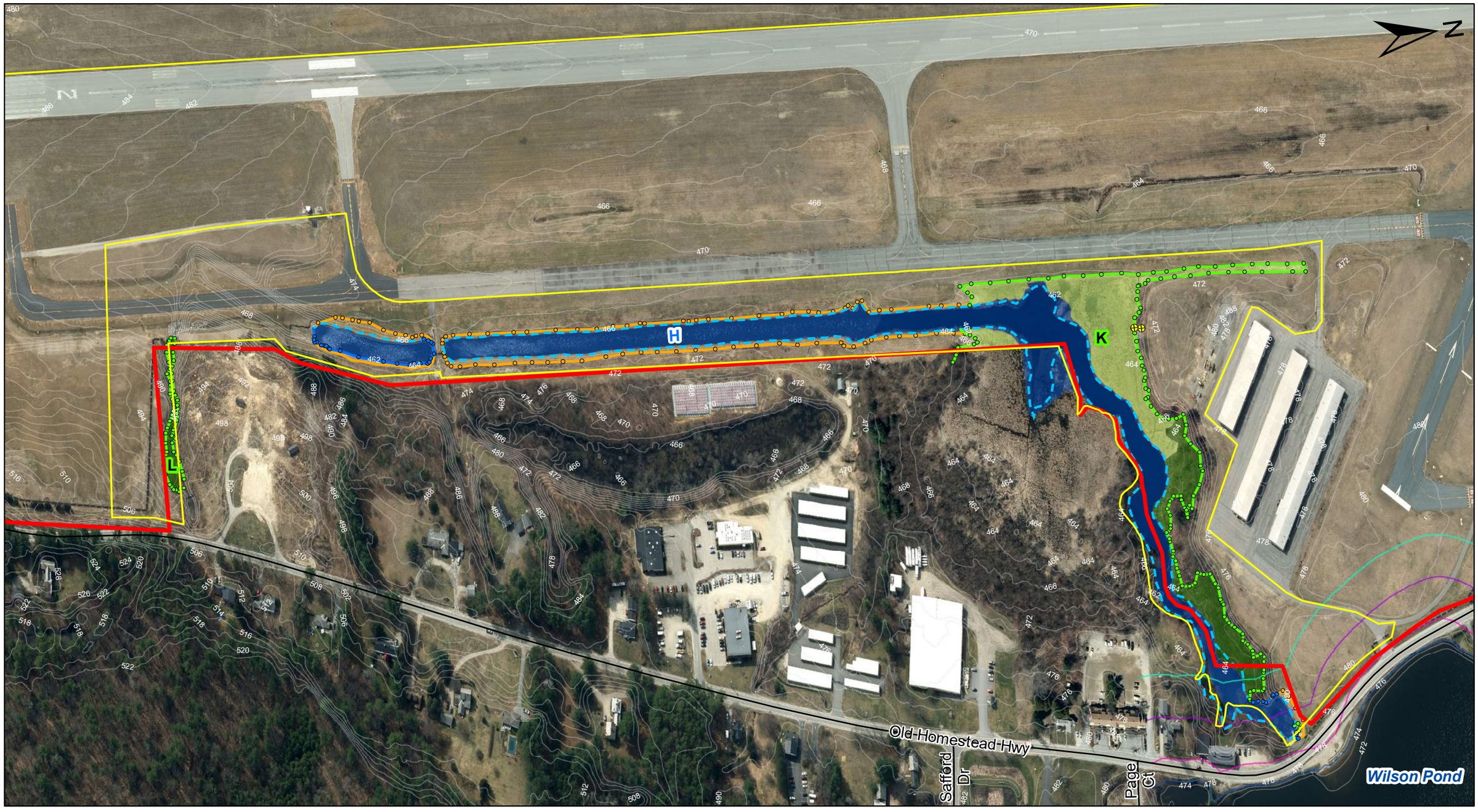
0 300 600
Feet

KEENE DILLANT-HOPKINS AIRPORT
WILDLIFE PERIMETER FENCE PROJECT
WETLAND DELINEATION - SWANZEY, NEW HAMPSHIRE

DELINEATED WETLANDS & SURFACE WATERS

SCALE :	DATE :	FIGURE :
1" = 300'	MAY 2024	3-3

McFARLAND JOHNSON



EEN Airport Property Boundary
Delineation Study Area (MJ May 2024)
Roads
Existing Fence
Keene 2-foot Contours (LiDAR)
Wetland Flags
OHWM Flags
Bank Flags
Wetland Data Point

Delineated Wetlands (MJ 2024)
Approximate Wetland Boundaries (LiDAR Derived)
Delineated OHWM (MJ 2024)
Approximate OHWM (LiDAR / Aerial Derived)
Delineated OHWM-TOB (MJ 2024)
Delineated TOB (MJ 2024)

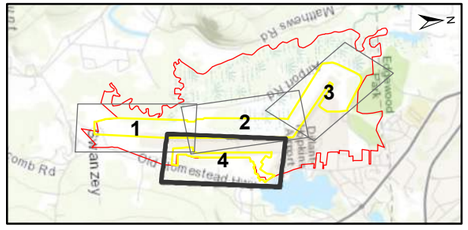
Wilson Pond Shoreland Buffer Zones

Reference Line
Waterfront Buffer (0' - 50')
Natural Woodland Buffer (0' - 150')
Protected Shoreland (0' - 250')

Approximate Wetland Polygons

Wetland Classification

PEM1E / PEM1Ed
PSS1E
PFO1E
PUBFh / PUBHh
R2UBFx
Bank
Priority Resource Area (Floodplain Wetlands on Tier 3 Watercourse)



0 300 600
Feet

KEENE DILLANT-HOPKINS AIRPORT
WILDLIFE PERIMETER FENCE PROJECT
WETLAND DELINEATION - SWANZEY, NEW HAMPSHIRE

DELINEATED WETLANDS & SURFACE WATERS

SCALE :	DATE :	FIGURE :
1" = 300'	MAY 2024	3-4

McFARLAND JOHNSON

K:\Keene\T-18956.01 Wildlife Perim Fence Ph I\Draw\GIS\Wetland Delineation Report Figures\Figure 3 - Delineated Wetlands & Surface Waters (May 2024).mxd

A Wetland Functions and Values Assessment was completed using the USACE Highway Methodology. The Functions and Values Forms are included in **Appendix B** and a general description of the functions and values for each wetland area are provided below. The USACE Highway Methodology includes the following eight functions and five values:

1) Groundwater Recharge/Discharge (Function)
2) Floodflow Alteration (Function)
3) Fish and Shellfish Habitat (Function)
4) Sediment/Toxicant/Pathogen Retention (Function)
5) Nutrient Removal/Retention/Transformation (Function)
6) Production Export (Function)
7) Sediment/Shoreline Stabilization (Function)
8) Wildlife Habitat (Function)
9) Recreation (Value)
10) Educational/Scientific Value (Value)
11) Uniqueness/Heritage (Value)
12) Visual Quality/Aesthetics (Value)
13) Threatened or Endangered Species Habitat (Value)

For the purpose of the Wetlands Functions and Values Assessment and conceptual design, the delineated wetland boundaries that extended outside the northwestern portion of the Study were extended based on the existing delineation, observations in the field, LiDAR contour data, and aerial imagery. These wetland boundaries are approximate and are depicted on **Figure 3**, along with approximate wetland area polygons. These polygons were used to approximate the total area of the wetland resource areas. Portions of the OHWM of Stream H, on the east side of the Airport were also approximated based on LiDAR and aerial imagery due to inaccessibility in the field. The resource areas within the approximated wetland boundaries and approximate OHWM are not anticipated to be impacted by the proposed project and are intended for conceptual mapping level and information purposes only.

Priority Resource Areas are also depicted on **Figure 3** and were derived from the delineated wetland areas and the existing FEMA mapped 100-year floodplain. The only PRA type in the Study Area is Floodplain Wetlands on Tier 3 Watercourses. There are no protected species or habitats, bogs, designated prime wetlands (or duly established 100-foot buffer to a prime wetland), sand dunes, tidal wetlands, tidal waters, or undeveloped tidal buffer zones located in the Study Area.

The silver maple-false nettle-sensitive fern floodplain forest natural community type was not documented in the Study Area during the delineation. This community type appears to be more closely associated with the South Branch Ashuelot and Ashuelot Rivers, occurring in closer proximity to these river systems west of the Study Area.

No vernal pools were identified in the Study Area during the delineation. While portions of Wetland A, Wetland B, Wetland G, and Wetland K contained areas of inundation at the time of the delineation, these wetland areas lacked the defining characteristics of a vernal pool. Observed hydrologic conditions included areas of relatively permanent open water with a prolonged hydroperiod, while other areas appeared to have more variable seasonal fluctuations in water depth.

3.1. DELINEATED WETLANDS & SURFACE WATERS

The following sections provide a more detailed description of the delineated wetland and surface water resources within the Study Area.

While many of the wetlands in the Study Area were delineated as distinct, individual features in the field, in reality, most of the wetlands in the Study Area are part of the interconnected wetland system associated with the floodplains of the Ashuelot River and South Branch Ashuelot River. Hydrologic connections between these wetland areas exist outside the boundaries of the Study Area. Within the Study Area many of these wetlands have been previously impacted and modified by anthropogenic disturbances including construction of the existing Airport and Airport Road. These prior activities likely resulted in fill being placed within historic wetland areas, further contributing to the discontinuity of these wetlands and changes in local hydrology.

3.1.1. Wetland A

Wetland A is a large wetland complex associated with the floodplain of the Ashuelot River located west of Runway 2-20 and southwest of Runway 14-32. The wetland is bisected and fragmented by Airport Road, west of the Study Area, but hydrologic connectivity is maintained between Wetland A and the floodplain wetlands and Ashuelot River west of Airport Road via existing crossing structures under the roadway (these areas were not located within the Study Area, so the exact locations and sizes of existing culverts were not documented). Wetland A is approximately 88.1 acres in size and PSS is the dominant wetland class (approximately 64 percent of the wetland area). Wetland A also contains PFO and PEM wetland classes, as well as a linear open water feature with a PUB wetland class.

Photo 1: PSS portion of Wetland A

The PSS portion of Wetland A in the Study Area was characterized by a dense layer of low-growing shrubs dominated by white meadowsweet (*Spiraea alba*). The PFO portions of Wetland A in the Study Area were located along the northern and southern extents of the wetland. The tree stratum was dominated by red maple (*Acer rubrum*). The PEM portions of the wetland included wet meadow areas at the northern end of the wetland, as well as a ditched portion of the wetland along Runway 2-20 that drains north to the large wetland area. Vegetation in the PEM portions of the wetland included reed canary grass (Phalaris arundinacea), soft rush (Juncus effusus), various sedges (Carex spp.), and grasses (species identification was difficult due to recent mowing of vegetation in portions of the PEM wetland areas).

Photo 2: PUB Portion of Wetland A

The linear PUB portion of Wetland A is likely a relic feature that was one the historic location of the channel of Stream H (unnamed perennial stream) on the east side of the Airport. However, the original stream channel was filled when the Airport was originally constructed, and the existing stream was diverted and rerouted south via the existing ditch along Taxiway A (the current alignment of Stream H). There is no outlet structure located on the west side of the Runway 2-20, in the vicinity of the PUB portion of Wetland A, and water in this area is stagnant with no apparent flow. This feature resembles a stream on existing aerial imagery and is even mapped as a stream/riverine system according to NHD and NWI data layers. However, the original stream has been relocated, and this relic portion of the historic channel no longer functions as a stream that conveys flowing water. Therefore, this feature was included as part of Wetland A, and no OHWM or TOB were delineated.

The portions of Wetland A that are also located within the FEMA mapped 100-year floodplain are classified as a PRA.

Photo 3: Wetland A as seen from Airport Road

Wetland A provides several wetland functions and values, given its large size, multiple wetland classes, high quality wildlife habitat, and proximity to the floodplain of the Ashuelot River. The principal functions and values associated with Wetland A include: Groundwater Recharge/Discharge; Floodflow Alteration; Sediment/Toxicant Retention; Nutrient Removal; Wildlife Habitat; Recreation; Uniqueness/Heritage; and Visual Quality/Aesthetics. Wetland A is easily accessible and visible from Airport Road. Airport Road provides a popular birdwatching and walking destination, and the area is even used by local schools for educational purposes. The overall quality of the wetland is high. Flood control in the Ashuelot River watershed has been an issue and the USACE has several projects in the vicinity design to mitigate flood hazards. The broad, flat depression associated with Wetland A provides substantial flood storage potential and hydrologic connectivity to the Ashuelot River. However, this connectivity is restricted by Airport Road and likely undersized cross culverts under the roadway.

3.1.2. Wetland B

Wetland B is an isolated PSS depression located west of the southern end of Runway 2-20 and east of the City of Keene Water Treatment Plant and the recently constructed solar facility. Wetland B is approximately 5.6 acres in size and appears to be an old oxbow associated with a portion of the abandoned historic channel of the Ashuelot River. Vegetation along the eastern side of Wetland B is actively managed by the Airport due to the proximity to the existing runway infrastructure and the associated FAA safety clearances. The shrub stratum was dominated by glossy buckthorn (*Frangula alnus*) and white meadowsweet. Lower lying areas in the middle of

Wetland B were inundated with approximately two to six inches of surfaces water at the time of the delineation. Vegetation in these interior areas was dominated by woolgrass (*Scirpus cyperinus*).

Photo 4: Wetland B east of solar facility

The principal functions and values associated with Wetland B include Floodflow Alteration. This area is located on Airport property and access is restricted. The wetland is relatively small in size compared to other wetlands in the vicinity, and is isolated from these larger wetlands. Wildlife habitat is limited and actively discouraged due to the proximity to the existing runway.

3.1.3. Wetland C

Wetland C is a small PSS wetland located within an area that has been previously cleared as part of a prior obstruction removal project at EEN. Wetland C is located west of Runway 2-20, south of Wetland A, and north of Wetland B. However, despite the close proximity to Wetlands A and B, there was no direct surface water connection between these wetland areas. Wetland C is approximately 0.8 acres in size and vegetation was dominated by gray birch (*Betula populifolia*), red maple, highbush blueberry (*Vaccinium corymbosum*), and nannyberry (*Viburnum lentago*).

Photo 5: Wetland C

Due to it's relatively small size and prior disturbance Wetland C provides fewer wetland functions and values than some of the other wetlands in the vicinity. The wetland is located on Airport property and access is restricted. The wetland is not located in a confined depression or in a position on the landscape where it is capable of storing floodwaters. The wetland likely provides some wildlife habitat potential, but in general wildlife use of these areas on Airport property is generally discouraged due to safety concerns.

3.1.4. Wetland D

Wetland D is a large wetland complex located in the northwest portion of the Airport, in the vicinity of the end of Runway 14. Wetland D and Wetland A are not contiguous within the Study Area. However, these two wetlands are part of the larger wetland complex to the west that has been bisected by Airport Road. Wetland D is approximately 29.0 acres in size and is dominated by PEM and PFO wetland classes with smaller PFO and PUB areas. The majority of the area of Wetland D located within the Study Area consists of a PEM marsh dominated by broadleaf cattail (*Typha latifolia*).

Photo 6: Wetland D as viewed from Airport Road including PUB areas and cattail marsh PEM

There are areas of open water interspersed throughout Wetland D, including two relatively large, ponded areas of open water totaling approximately 2.7 acres in size located northwest of the end of Runway 14 and adjacent to Airport Road. Similar to Wetland B, portions of Wetland D also appear to be relic oxbow features associated with the former channel of the Ashuelot River. Wetland D also includes portions of existing drainage ditches along the northern and southern sides of Runway 14-32.

The portions of Wetland A that are also located within the FEMA mapped 100-year floodplain are classified as a PRA.

Photo 7: Existing drainage ditch portion of Wetland D along south side of Runway 14-32

Photo 8: Wetland D cattail marsh

Photo 9:PFO portion of Wetland D south of Airport Road

Wetland D provides several wetland functions and values, given its large size, multiple wetland classes, high quality wildlife habitat, and proximity to the floodplain of the Ashuelot River. The principal functions and values associated with Wetland D include: Groundwater Recharge/Discharge; Floodflow Alteration; Sediment/Toxicant Retention; Nutrient Removal; Wildlife Habitat; Recreation; Uniqueness/Heritage; and Visual Quality/Aesthetics. Wetland D is easily accessible and visible from Airport Road. Airport Road provides a popular birdwatching and walking destination, and the area is even used by local schools for educational purposes. The overall quality of the wetland is high. Flood control in the Ashuelot River watershed has been an issue and the USACE has several projects in the vicinity design to mitigate flood hazards. The broad, flat depression associated with Wetland D provides substantial flood storage potential and hydrologic connectivity to the Ashuelot River. However, this connectivity is restricted by Airport Road and likely undersized cross culverts under the roadway. Wetland D also contains areas of relatively permanent open water. However, water levels appear to be variable and it's undetermined whether or not these areas are capable of supporting fish populations.

3.1.5. Wetland E

Wetland E is a small PEM depression located within a mowed grassland area south of the end of Runway 14. The wetland is approximately 0.1 acres (5,566 square feet) in size. Wetland E is located in close proximity to Wetland A, Wetland D, and Wetland F. However, there was no direct hydrologic connection between these wetland areas. Wetland E is separated by Wetland

A by an existing Airport access road. Vegetation is Wetland E was dominated by reed canary grass, tussock sedge, soft rush, and white meadowsweet.

Photo 10: Wetland E

The wetland functions and values associated with Wetland E are limited due to the relatively small size, and location within an actively mowed portion of the Airport. Wetland E likely provides minimal Floodflow Alteration potential and limited Sediment/Toxicant Retention and Nutrient Removal potential.

3.1.6. Wetland F

Wetland F is small PEM depression located approximately 70 feet northwest of Wetland E and in the general vicinity of Wetland D. The wetland is approximately 0.1 acres (4,777 square feet) in size, and is located within an actively mowed portion of Airport Property, south of the end of Runway 14. Vegetation is Wetland F was dominated by reed canary grass, soft rush, and white meadowsweet.

Photo 11: Wetland F

The wetland functions and values associated with Wetland F are limited due to the relatively small size, and location within an actively mowed portion of the Airport. Wetland F likely provides minimal Floodflow Alteration potential and limited Sediment/Toxicant Retention and Nutrient Removal potential.

3.1.7. Wetland G

Wetland G is part of a larger wetland complex associated with the South Branch Ashuelot River floodplain system, located west and southwest of the Runway 2 end. Wetland G is primarily classified as a PFO wetland. However, within the Study Area Wetland G also includes a PSS depression and a PEM vegetated swale or drainage ditch that conveys flow into Wetland G from a small pond and swale located on Airport property to the south, outside the Study Area.

Photo 12: PSS portion of Wetland G in the Study Area

Photo 13: PEM drainage swale portion of Wetland G

Stream H is an unnamed perennial stream that discharges from a 60-inch diameter reinforced concrete pipe (RCP) located immediately west of the end of Runway 2 and flows into Wetland G. Within the Study Ara portions of Wetland G are directly adjacent to Stream H. Approximately 7.4 acres of Wetland G are located within the Study Area, although the wetland extends well beyond the Study Area to the west and is significantly larger.

Photo 14: PFO portion of Wetland G

Vegetation in the PSS portion of Wetland G was dominated by nannyberry and white meadowsweet in the shrub stratum and tussock sedge (*Carex stricta*) in the herbaceous stratum. The PEM swale contained reed canary grass, bluejoint (*Calamagrostis canadensis*), soft rush, and sedges. Vegetation in the ditch is mowed by the Airport due to FAA safety requirements, but shrubs growing along the swale included willows (*Salix spp.*) and white meadowsweet. Rock check dams have been installed at various intervals along the swale in order to reduce water velocities and erosion. The PFO portions of Wetland G were dominated by red maple in the tree stratum, with silver maple (*Acer saccharinum*) interspersed. Continuing west outside the Study Area the vegetation community appears to transition into the silver maple-false nettle-sensitive fern floodplain forest natural community identified by NHB. However, in the Study Area silver maple was not dominant, and the understory vegetation included nannyberry, silky dogwood (*Cornus amomum*), northern arrowwood (*Viburnum dentatum*), tussock sedge, royal fern (*Osmunda regalis*) and sensitive fern (*Onoclea sensibilis*).

Photo 15: Inundated portions of Wetland G at western limits of the Study Area

Wetland G provides several wetland functions and values, given its large size, high quality wildlife habitat, and association with the floodplain of the South Branch Ashuelot River. The principal functions and values associated with Wetland G include: Groundwater Recharge/Discharge; Floodflow Alteration; Sediment/Toxicant Retention; Nutrient Removal; Sediment/Shoreline Stabilization; and Wildlife Habitat. Wetland G is primarily located on Airport property and is not easily accessible or visible from primary viewing locations. The broad, flat forested areas are capable of retaining flood waters and reducing water velocities. The existing vegetation helps stabilize the banks of the South Branch Ashuelot River. Based on the sinuosity of this river system and numerous channel avulsions visible on aerial imagery, the South Branch Ashuelot is a dynamic river system. The forested floodplain habitats also provide high quality wildlife habitat for a variety of species. Portions of Wetland G outside the Study Area also contain the Silver maple - false nettle - sensitive fern floodplain forest exemplary natural community type identified by NHB.

3.1.8. Stream H

Stream H is an unnamed, second order, perennial stream that originates from the outlet of Wilson Pond, located east of the Airport property and Old Homestead Highway. Stream H has a Cowardin Classification of Riverine (R), Lower Perennial (2), Unconsolidated Bottom (UB), with a Semipermanently Flooded Water Regime (F), with an Excavated Special Modifier (x), or R2UBFx.

Photo 16: Stream H outlet under Old Homestead Highway

Photo 17: Existing outlet structure in Wilson Pond

At the Old Homestead Highway crossing location, Stream H is classified as a Tier 3 stream pursuant to Env-Wt 904.95, with a total watershed size of approximately 966.4 acres or 1.51 square miles.

The existing Wilson Pond outlet structure is known as the Lower Wilson Pond Dam, according to the NHDES Dam Inventory dataset. The structure consists of a concrete monk outlet structure, consisting of a vertical concrete shaft with a steel grate over top, that leads to an existing 48-inch diameter culvert under Old Homestead Highway. Water levels in Wilson Pond are controlled by this dam structure. Due to the type and configuration of the existing structure, aquatic organism passage and terrestrial wildlife passage potential along the riparian corridor associated with Stream H is severely restricted by the existing crossing and dam structures.

Photo 18: Stream H and inundated marsh associated with Wetland K

The unnamed stream flows out of the existing culvert under Old Homestead Highway onto Airport property and continues southwest for approximately 1,200 to 1,300 feet before turning sharply south and continuing parallel to Taxiway A via an excavated, approximately 60-foot-wide ditch. The ditch continues south for approximately 2,300 feet before entering a 60-inch concrete culvert that carries the stream underneath Taxiway A and the Runway 2 end of the airfield. There is a secondary culvert structure located approximately 420 feet upstream from the inlet of the 60-inch culvert that carries an unimproved access road across the ditch.

Photo 19: Stream H existing 60-inch RCP inlet on east side of Runway 2

Photo 20: Stream H outlet west of Runway 2

The existing outlet of the 60-inch culvert is located approximately 1,200 feet southwest of the inlet, where the stream daylights west of the end of Runway 2 and flows into Wetland G. The unnamed stream continues west to its confluence with the South Branch Ashuelot River.

As noted above, the existing stream has been significantly modified and relocated by the original construction of the Airport, and various construction, expansion, and improvement projects over the years. The original stream alignment appeared to flow west across what is now Runway 2-20, Taxiway A, and the grass Safety Areas, and infield areas. As previously discussed, the relic portion of the historic channel is still visible in Wetland A on the west side of the Airport. However, the stream was relocated and rerouted south via the existing 2,300-foot-long ditched section parallel to the east side of Taxiway A.

Photo 21: Ditched portion of Stream H east of Taxiway A

Photo 22: Stream H channel downstream from outlet facing east

The length of the existing 60-inch RCP (approximately 1,200 feet) also severely restricts the potential for aquatic organism passage and terrestrial wildlife passage upstream or downstream from the existing culvert structure.

3.1.9. Wetland I

Wetland I is a small PSS wetland located along the northern side of the Airport, north of Wetland D and south of Airport Road. The wetland is only approximately 0.05 acres (2,043 square feet) in size. Vegetation in Wetland I included with-rod (*Viburnum nudum*), gray birch, highbush blueberry, red maple, bristly dewberry (*Rubus hispidus*) and woolgrass.

Photo 23: Wetland I

The wetland functions and values associated with Wetland I are limited due to the relatively small size of this wetland area. Wetland I likely provides minimal Sediment/Toxicant Retention and Nutrient Removal potential, as well as limited wildlife habitat value.

3.1.10. Wetland J

Wetland J is a narrow, linear, PFO depression located north of Wetland D and immediately south of Airport Road in the northernmost portion of the Study Area. The wetland is approximately 500 feet long by 50 to 75 feet wide and has a total area of approximately 0.7 acres. This wetland area also appears to have been formed by a past channel avulsion event associated with the Ashuelot River. The dominant species in the tree and sapling-shrub strata in Wetland J included red maple. Dominant herbaceous vegetation included skunk cabbage (*Symplocarpus foetidus*) and fox sedge (*Carex vulpinoidea*).

Photo 24: Wetland J

The wetland functions and values associated with Wetland J are limited due to the relatively small size of this wetland area. Wetland J likely provides minimal Floodflow Alteration potential, Sediment/Toxicant Retention and Nutrient Removal potential given its close proximity to the existing Airport and Airport Road, as well as limited wildlife habitat value.

3.1.11. Wetland K

Wetland K is located on the east side of the Airport, south of the T-Hangar buildings, and is associated with Stream H. The portion of Wetland K delineated in the Study Area is located along the northern side of Stream H and includes a PFO riparian wetland along the stream that opens up into a PEM marsh as it gets closer to the open airfield. Wetland K also incudes PEM ditch that drains from the north, into Wetland K. The total area of Wetland K delineated in the Study Area is approximately 3.2 acres. However, the wetland complex continues outside the Study Area, and to total area of entire wetland complex is significantly larger.

Photo 25: Wetland K and Stream H along Taxiway A facing north

Vegetation in the PEM portion of Wetland K was dominated by various low-goring sedges including tussock sedge, lake sedge (*Carex lacustris*), soft rush, and woolgrass. Wetland K contained areas of inundation and was interspersed with the open water channel associated with Stream H. Water velocities associated with the stream are very low and there is no discernible flow. This backwatering effect could be do to undersized culverts downstream and/or beaver activity in the area.

Photo 26: Wetland K and Stream H from T-Hangars facing south

Photo 27: Ditched portion of Wetland K east of Taxiway A and west of T-Hangar buildings

Wetland K provides several wetland functions and values, given its relatively large size, high quality wildlife habitat, interspersion of multiple wetland classes, and association with Stream H. The principal functions and values associated with Wetland K include: Groundwater Recharge/Discharge; Floodflow Alteration; Sediment/Toxicant Retention; Nutrient Removal; Sediment/Shoreline Stabilization; and Wildlife Habitat. Wetland K is primarily located on Airport property and is not easily accessible or visible from primary viewing locations. The broad, flat marsh associated with Stream H is capable of retaining flood waters and reducing water velocities as well as stabilizing the banks of the unnamed perennial stream. The existing stream and associated wetland complex also provide potential fish and wildlife habitat. However, aquatic organism and terrestrial wildlife passage along this riparian corridor is greatly reduced by existing barriers.

3.1.12. Wetland L

Wetland L is a narrow, linear, PFO drainage feature located in the southern portion of the eastern side of the Study Area. Portions of Wetland L extend outside the Study area but the majority of the wetland area (0.2 acres) is located within the Study Area. The wetland area originates from an existing outlet under Old Homestead Highway, located northeast of the Study Area, and drains to the west, outside of and parallel to the existing Airport perimeter fence. There is an existing concrete structure outside the Study Area, creating a small impoundment. This area drains into Wetland L. Wetland L did not contain a continuous, stream channel with a well-defined bed or banks. The wetland outlets into a non-jurisdictional, stone-lined, swale that was recently constructed as part of a previous Taxiway A extension project. Vegetation in Wetland L was dominated by gray birch, silky dogwood, red maple, glossy buckthorn, sensitive fern, and spotted jewelweed (*Impatiens capensis*).

Photo 28: Wetland L

Photo 29: Non-jurisdictional stone-lines swale at the western limits of Wetland L

The wetland functions and values associated with Wetland L are limited due to the relatively small size of this wetland area. Wetland L likely provides minimal Floodflow Alteration potential, Sediment/Toxicant Retention and Nutrient Removal potential given its close proximity downstream from Old Homestead Highway, as well as limited wildlife habitat value.

Section 4. Regulatory Considerations & Permitting Requirements

For the purpose of this evaluation, it is assumed that all of the field delineated wetlands located within the Study Area are considered federally jurisdictional WOTUS as defined under Section 401 and 404 of the CWA. Therefore, state and federal permits would be required for potential impacts to any of the jurisdictional wetlands and surface water resources described in Section 3. Wetland impacts should be avoided and minimized to the maximum extent possible as the design process progresses.

4.1. FEDERAL

Based on the current project scope, the proposed project is not anticipated to exceed one acre of permanent impacts, and therefore, would likely qualify for and require authorization under the USACE NHGP. Specifically, the project is anticipated to be covered under General Permit No. 23 – Wetland, Stream, River and Brook Crossings. Federal review under the NHGP is coordinated through the NHDES via submission of a Standard Dredge and Fill Wetlands Permit Application. This process includes a joint federal-state interagency review, which streamlines permitting by eliminating the need for a separate USACE application.

4.2. STATE

The proposed project is anticipated to require a Standard Dredge and Fill Permit from the NHDES Wetlands Bureau for the anticipated temporary and permanent impacts to the wetland resource areas. Due to the presence of the PRAs (floodplain wetlands on Tier 3 watercourses) associated with the floodplains of the Ashuelot and South Branch Ashuelot River, the project classification is anticipated to be elevated to Major Impact. Also, compensatory mitigation is required for permanent impacts to a PRA regardless of whether mitigation thresholds based on the total area of impacts are exceeded. Therefore, compensatory mitigation in the form of an in-lieu fee payment to the NHDES Aquatic Resource Mitigation (ARM) Fund is anticipated to be required for all permanent wetland impacts.

The easternmost portion of the project is located within 250 feet or within the Protected Shoreland of Wilson Pond. Based on the minimal impacts anticipated from the proposed project and the existing lot, it is assumed that the project would likely only require a NHDES Shoreland Permit by Notification.

Coordination with the USACE, NHDES, NHB, and NHFG will continue throughout the project and into the permitting phase to confirm avoidance and minimization measures and permitting requirements.

APPENDIX A:
USACE WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Fence delineation City/County: Swanzey, Cheshire Sampling Date: 2024-05-07

Applicant/Owner: City of Keene State: NH Sampling Point: A UPL 100

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: SWANZEY

Landform (hillslope, terrace, etc.): Rise Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.902986 Long: -72.276928 Datum: NAD83

Soil Map Unit Name: Raynham Silt Loam NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: A UPL 100

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Betula populifolia*	20	Y	FAC
2. *Rubus allegheniensis*	15	Y	FACU
3.			
4.			
5.			
6.			
7.			
	35.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	35	Y	FACW
2. *Solidago rugosa*	5	N	FAC
3. *Solidago canadensis*	5	N	FACU
4. *Ranunculus abortivus*	2	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	47 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	35.00	x 2 =	70.00
FAC species	27.00	x 3 =	81.00
FACU species	20.00	x 4 =	80.00
UPL species	0.00	x 5 =	0.00
Column Totals:	82.00 (A)		231.00 (B)

Prevalence Index = B/A = 2.82

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: A UPL 100

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					CL	
8-12	10YR 4/3	100			C	M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Fence delineation City/County: Swanzey, Cheshire Sampling Date: 2024-05-07

Applicant/Owner: City of Keene State: NH Sampling Point: A UPL 101

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: SWANZEY

Landform (hillslope, terrace, etc.): Rise Local relief (concave, convex, none): Convex Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.902827 Long: -72.274751 Datum: NAD83

Soil Map Unit Name: Udorthents, smoothed NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: A UPL 101

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Festuca rubra*	80	Y	FACU
2. *Solidago altissima*	30	Y	FACU
3. *Prunus serotina*	5	N	FACU
4. *Potentilla simplex*	2	N	FACU
5. *Achillea millefolium*	2	N	FACU
6. *Frangula alnus*	2	N	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	121.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	2.00	x 3 =	6.00
FACU species	119.00	x 4 =	476.00
UPL species	0.00	x 5 =	0.00
Column Totals:	121.00 (A)		482.00 (B)

Prevalence Index = B/A = 3.98

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: A UPL 101

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR 3/3	100					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 3

Hydric Soil Present? Yes _____ No ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Fence delineation City/County: Swanzey, Cheshire Sampling Date: 2024-05-07

Applicant/Owner: City of Keene State: NH Sampling Point: A WET 100

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: SWANZEY

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.902996 Long: -72.276899 Datum: NAD83

Soil Map Unit Name: Raynham Silt Loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓** **No _____**
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 4

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: A WET 100

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	95	Y	FACW
2. *Anemone quinquefolia*	2	N	FACU
3. *Lysimachia ciliata*	2	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	99.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	97.00	x 2 =	194.00
FAC species	0.00	x 3 =	0.00
FACU species	2.00	x 4 =	8.00
UPL species	0.00	x 5 =	0.00
Column Totals:	99.00 (A)		202.00 (B)

Prevalence Index = B/A = 2.04

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: A WET 100

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					SI	
4-18	5YR 4/2	70	5YR 4/6	30	C	M	SIC	
18-20	5Y 5/2	60	5YR 4/6	40	C	M	SIC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Fence delineation City/County: Swanzey, Cheshire Sampling Date: 2024-05-07

Applicant/Owner: City of Keene State: NH Sampling Point: A WET 101

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: SWANZEY

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.902758 Long: -72.274805 Datum: NAD83

Soil Map Unit Name: Udorthents, smoothed NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ✓	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 7
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 6

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: A WET 101

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Salix discolor*	10	Y	FACW
2. *Cornus amomum*	5	Y	FACW
3. *Lonicera morrowii*	5	Y	FACU
4. *Viburnum dentatum*	1	N	FAC
5.			
6.			
7.			
	21.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Typha angustifolia*	30	Y	OBL
2. *Onoclea sensibilis*	3	N	FACW
3. *Rubus idaeus*	2	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	35.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1. *Vitis riparia*	2	N	FAC
2.			
3.			
4.			
	2.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30.00	x 1 =	30.00
FACW species	18.00	x 2 =	36.00
FAC species	3.00	x 3 =	9.00
FACU species	7.00	x 4 =	28.00
UPL species	0.00	x 5 =	0.00
Column Totals:	58.00 (A)		103.00 (B)

Prevalence Index = B/A = 1.78

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: A WET 101

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	99	10YR 5/8	1	C	M	SL	
4-13	10YR 4/1	70	5YR 4/6	30	C	M	SL	
13-18	10YR 3/1	95	10YR 5/8	5	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Fence delineation City/County: Swanzey, Cheshire Sampling Date: 2024-05-07

Applicant/Owner: City of Keene State: NH Sampling Point: D UPL 1

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: SWANZEY

Landform (hillslope, terrace, etc.): Rise Local relief (concave, convex, none): Convex Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.903136 Long: -72.274446 Datum: NAD83

Soil Map Unit Name: Udorthents, smoothed NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: D UPL

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1.			
2. *Festuca rubra*	95	Y	FACU
3. *Achillea millefolium*	7	N	FACU
4. *Trifolium pratense*	5	N	FACU
5. *Erigeron pulchellus*	1	N	FACU
6. *Houstonia pusilla*	1	N	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	204.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	0.00	x 3 =	0.00
FACU species	109.00	x 4 =	436.00
UPL species	0.00	x 5 =	0.00
Column Totals:	109.00 (A)		436.00 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5YR 3/3	100					LS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 3

Hydric Soil Present? Yes _____ No ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Fence delineation City/County: Swanzey, Cheshire Sampling Date: 2024-05-08

Applicant/Owner: City of Keene State: NH Sampling Point: D UPL 2

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: SWANZEY

Landform (hillslope, terrace, etc.): Rise Local relief (concave, convex, none): Convex Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.904959 Long: -72.278407 Datum: NAD83

Soil Map Unit Name: Udorthents, smoothed NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: D UPL 2

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	97	Y	FACU
2. *Achillea millefolium*	1	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	98.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	0.00	x 3 =	0.00
FACU species	98.00	x 4 =	392.00
UPL species	0.00	x 5 =	0.00
Column Totals:	98.00 (A)		392.00 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D UPL 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/4	100					LS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Airport City/County: Swansey Sampling Date: 2024-05-08

Applicant/Owner: City of Keene State: Nh Sampling Point: D UPL 3

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): Convex Slope (%): 3-7

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.905984 Long: -72.275397 Datum: NAD 1984

Soil Map Unit Name: Caesar loamy sand, 3 to 8 percent slopes NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: D UPL 3

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Populus deltoides*	10	Y	FAC
2. *Lonicera morrowii*	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
	15.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Festuca rubra*	60	Y	FACU
2. *Solidago rugosa*	5	N	FAC
3. *Fragaria virginiana*	5	N	FACU
4. *Plantago lanceolata*	5	N	FACU
5. *Taraxacum officinale*	5	N	FACU
6. *Trifolium pratense*	5	N	FACU
7. *Lysimachia ciliata*	2	N	FACW
8. *Daucus carota*	1	N	UPL
9.			
10.			
11.			
12.			
	88.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	2.00	x 2 =	4.00
FAC species	15.00	x 3 =	45.00
FACU species	85.00	x 4 =	340.00
UPL species	1.00	x 5 =	5.00
Column Totals:	103.00 (A)		394.00 (B)

Prevalence Index = B/A = 3.83

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D UPL 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Fence delineation City/County: Swanzey, Cheshire Sampling Date: 2024-05-07

Applicant/Owner: City of Keene State: NH Sampling Point: D WET 1

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: SWANZEY

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.903115 Long: -72.274463 Datum: NAD83

Soil Map Unit Name: Udorthents, smoothed NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓** **No _____**
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 1
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: D WET

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Juncus effusus*	30	Y	OBL
2. *Scirpus atrovirens*	20	Y	OBL
3. *Viburnum dentatum*	10	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1. *Vitis riparia*	2	N	FAC
2.			
3.			
4.			
	2.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50.00	x 1 =	50.00
FACW species	0.00	x 2 =	0.00
FAC species	12.00	x 3 =	36.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	62.00 (A)		86.00 (B)

Prevalence Index = B/A = 1.39

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

Bryophtye

SOIL

Sampling Point: D WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	99	10YR 5/8	1	C	M	MUCK	
4-13	10YR 3/1	90	10YR 5/6	10	C	M	SL	
13-18	10YR 5/1	95	10YR 5/8	5	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Fence delineation City/County: Swanzey, Cheshire Sampling Date: 2024-05-08

Applicant/Owner: City of Keene State: NH Sampling Point: D WET 2

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: SWANZEY

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.904878 Long: -72.278411 Datum: NAD83

Soil Map Unit Name: Udorthents, smoothed NWI classification: PSS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ✓ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 1
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0.

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: D WET 6

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Lonicera morrowii*	20	Y	FACU
2. *Spiraea alba*	7	Y	FACW
3.			
4.			
5.			
6.			
7.			
	27.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Scirpus microcarpus*	90	Y	OBL
2. *Persicaria sagittata*	2	N	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	92.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	92.00	x 1 =	92.00
FACW species	7.00	x 2 =	14.00
FAC species	0.00	x 3 =	0.00
FACU species	20.00	x 4 =	80.00
UPL species	0.00	x 5 =	0.00
Column Totals:	119.00 (A)		186.00 (B)

Prevalence Index = B/A = 1.56

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D WET 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	100					MUCK	50% organic material
2-8	10YR 3/1	98	10YR 4/6	2	C	M	MUCK	
8-10	10YR 4/1	85	7.5YR 5/8	15	C	M	MUCK	
10-16	10YR 4/1	60	7.5YR 6/1	20	C	M	MUCK	
			7.5YR 5/8	20	C	M	MUCK	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Airport City/County: Swansey Sampling Date: 2024-05-08

Applicant/Owner: City of Keene State: Nh Sampling Point: D WET 3

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range:

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.906209 Long: -72.275461 Datum: NAD 1984

Soil Map Unit Name: Caesar loamy sand, 3 to 8 percent slopes NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 7.5
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 4

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: D WET 6

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	30	Y	FAC
2. *Acer rubrum*	10	Y	FAC
3. *Salix discolor*	10	Y	FACW
4.			
5.			
6.			
7.			
	50.0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Lonicera morrowii*	30	Y	FACU
2. *Populus deltoides*	30	Y	FAC
3. *Alnus incana*	10	N	FACW
4. *Salix discolor*	10	N	FACW
5. *Cornus alba*	5	N	FACW
6.			
7.			
	85.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Solidago gigantea*	30	Y	FACW
2. *Clematis virginiana*	5	N	FAC
3. *Scirpus cyperinus*	5	N	OBL
4. *Juncus effusus*	5	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	45.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10.00	x 1 =	10.00
FACW species	65.00	x 2 =	130.00
FAC species	75.00	x 3 =	225.00
FACU species	30.00	x 4 =	120.00
UPL species	0.00	x 5 =	0.00
Column Totals:	180.00 (A)		485.00 (B)

Prevalence Index = B/A = 2.69

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D WET 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100					SL	
4-7	7.5YR 4/1	92	7.5YR 4/6	8	C	M	SL	
7-10	7.5YR 5/1	90	7.5YR 5/8	10	C	M	SL	
10-18	5YR 5/1	80	7.5YR 5/8	12	C	M	C	
			10YR 6/8	8	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Fence delineation City/County: Swanzey, Cheshire Sampling Date: 2024-05-08

Applicant/Owner: City of Keene State: NH Sampling Point: E UPL 1

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: SWANZEY

Landform (hillslope, terrace, etc.): Rise Local relief (concave, convex, none): Convex Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.903733 Long: -72.277692 Datum: NAD83

Soil Map Unit Name: Raynham-Wareham complex, occasionally flooded NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: EF UPL 1

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Festuca rubra*	97	Y	FACU
2. *Trifolium pratense*	5	N	FACU
3. *Achillea millefolium*	2	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	104.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	0.00	x 3 =	0.00
FACU species	104.00	x 4 =	416.00
UPL species	0.00	x 5 =	0.00
Column Totals:	104.00 (A)		416.00 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: EF UPL 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/4	100					CL	
6-12	10YR 5/4	85	5Y 6/1	5	D	M	CL	
			10YR 5/8	10	D	M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Fence delineation City/County: Swanzey, Cheshire Sampling Date: 2024-05-07

Applicant/Owner: _____ State: NH Sampling Point: E WET 1

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: SWANZEY

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.903499 Long: -72.277548 Datum: NAD83

Soil Map Unit Name: Raynham-Wareham complex, occasionally flooded NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓** **No _____**
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ✓ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 18
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 6

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: E WET 1

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	60	Y	FACW
2. *Juncus effusus*	8	N	OBL
3. *Spiraea alba*	5	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	73.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	8.00	x 1 =	8.00
FACW species	65.00	x 2 =	130.00
FAC species	0.00	x 3 =	0.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	73.00 (A)		138.00 (B)

Prevalence Index = B/A = 1.89

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: E WET 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					SL	
4-10	10YR 3/1	90	7.5YR 6/8	10	C	M	SL	
10-18	10YR 3/2	90	7.5YR 6/8	10	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Fence delineation City/County: Swanzey, Cheshire Sampling Date: 2024-05-08

Applicant/Owner: City of Keene State: NH Sampling Point: UPL I

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: SWANZEY

Landform (hillslope, terrace, etc.): Rise Local relief (concave, convex, none): Convex Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.907822 Long: -72.275594 Datum: NAD83

Soil Map Unit Name: Saco mucky silt loam NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: UPL I

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Acer rubrum*	10	Y	FAC
2. *Pinus strobus*	10	Y	FACU
3.			
4.			
5.			
6.			
7.			
	20.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Pinus strobus*	35	Y	FACU
2. *Rubus hispidus*	8	N	FACW
3. *Potentilla simplex*	5	N	FACU
4. *Acer rubrum*	5	N	FAC
5. *Houstonia pusilla*	1	N	FACU
6. *Juncus effusus*	1	N	OBL
7.			
8.			
9.			
10.			
11.			
12.			
	55.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 1.00	x 1 = 1.00
FACW species 8.00	x 2 = 16.00
FAC species 15.00	x 3 = 45.00
FACU species 51.00	x 4 = 204.00
UPL species 0.00	x 5 = 0.00
Column Totals: 75.00 (A)	266.00 (B)

Prevalence Index = B/A = 3.55

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: UPL I

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 2.5/2	100					SIL	
3-9	2.5YR 5/4	95	7.5YR 4/6	5	C	M	FSL	
9-18	2.5YR 4/4	90	2.5YR 5/6	5	C	M	FSL	
			5YR 5/2	5	C	M	FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Fence delineation City/County: Swanzey, Cheshire Sampling Date: 2024-05-08

Applicant/Owner: City of Keene State: NH Sampling Point: I Wet

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: SWANZEY

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.907947 Long: -72.275564 Datum: NAD83

Soil Map Unit Name: Saco mucky silt loam NWI classification: PSS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ✓ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 0	
Water Table Present?	Yes ✓	No _____	Depth (inches): 6	
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 4	**Wetland Hydrology Present?** Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: I Wet

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Viburnum nudum*	10	Y	FAC
2. *Betula populifolia*	8	Y	FAC
3. *Vaccinium corymbosum*	7	Y	FACW
4. *Acer rubrum*	5	N	FAC
5.			
6.			
7.			
	30.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Rubus hispidus*	15	Y	FACW
2. *Scirpus cyperinus*	10	Y	OBL
3. *Aronia melanocarpa*	5	N	FAC
4. *Vaccinium corymbosum*	2	N	FACW
5. *Pyrola americana*	1	N	FAC
6. *Acer rubrum*	1	N	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	34.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10.00	x 1 =	10.00
FACW species	24.00	x 2 =	48.00
FAC species	30.00	x 3 =	90.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	64.00 (A)		148.00 (B)

Prevalence Index = B/A = 2.31

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: I Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					MMI	
5-10	10YR 3/1	98	10YR 7/2	2	D	M	SIC	
10-18	10YR 4/2	95	10YR 6/1	2	D	M	SC	
			7.5YR 5/6	3	D	M	SC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Airport City/County: Swansey Sampling Date: 2024-05-08

Applicant/Owner: City of Keene State: Nh Sampling Point: J UPL

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: Swanzey

Landform (hillslope, terrace, etc.): Summit Local relief (concave, convex, none): Convex Slope (%): 3-7

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.908383 Long: -72.276805 Datum: NAD 1984

Soil Map Unit Name: Saco mucky silt loam NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: J UPL

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Fagus grandifolia*	50	Y	FACU
2. *Betula populifolia*	3	N	FAC
3. *Vaccinium corymbosum*	2	N	FACW
4.			
5.			
6.			
7.			
	55.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Erythronium albidum*	15	Y	FACU
2. *Rubus allegheniensis*	2	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	17.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0.00	x 1 = 0.00
FACW species 2.00	x 2 = 4.00
FAC species 3.00	x 3 = 9.00
FACU species 67.00	x 4 = 268.00
UPL species 0.00	x 5 = 0.00
Column Totals: 72.00 (A)	281.00 (B)

Prevalence Index = B/A = 3.9

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: J UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	10YR 3/3	100					LS	
8-12	7.5YR 5/6	100					COSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene Airport City/County: Swansey Sampling Date: 2024-05-08

Applicant/Owner: City of Keene State: Nh Sampling Point: J Wet

Investigator(s): Corinne Steinmuller, Claire Hilsinger Section, Township, Range: Swanzey

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.908421 Long: -72.276790 Datum: NAD83

Soil Map Unit Name: Saco mucky silt loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓** **No _____**
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): .5
Water Table Present?	Yes ✓	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: J Wet

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	15	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	15.0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Acer rubrum*	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Symplocarpus foetidus*	60	Y	OBL
2. *Carex vulpinoidea*	20	Y	OBL
3. *Onoclea sensibilis*	2	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	82.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80.00	x 1 =	80.00
FACW species	2.00	x 2 =	4.00
FAC species	20.00	x 3 =	60.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	102.00 (A)		144.00 (B)

Prevalence Index = B/A = 1.41

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: J Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					MUCK	
3-8	10YR 3/1	98	7.5YR 5/8	8	C	M	MUCK	
8-18	7.5YR 5/2	95	7.5YR 5/8	5	C	M	MUCK	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ✓ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene airport Delineation City/County: Swanzey Sampling Date: 2024-05-16

Applicant/Owner: City Of Keene State: NH Sampling Point: K1 UPL

Investigator(s): Claire Hilsinger Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope (%): 3-7

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.897087 Long: -72.267478 Datum: WGS84

Soil Map Unit Name: None NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: K1 UPL

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula populifolia*	25	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	25.0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Frangula alnus*	10	Y	FAC
2. *Corylus americana*	3	Y	FACU
3. *Lonicera morrowii*	2	N	FACU
4.			
5.			
6.			
7.			
	15.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Reynoutria japonica*	70	Y	FACU
2. *Spiraea alba*	15	N	FACW
3. *Lysimachia quadrifolia*	8	N	FACU
4. *Rubus idaeus*	7	N	FACU
5. *Potentilla simplex*	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	105.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	15.00	x 2 =	30.00
FAC species	35.00	x 3 =	105.00
FACU species	95.00	x 4 =	380.00
UPL species	0.00	x 5 =	0.00
Column Totals:	145.00 (A)		515.00 (B)

Prevalence Index = B/A = 3.55

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: K1 UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100					LS	
16-20	10YR 3/3	80	7.5YR 4/6	20	C	M	LS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene airport Delineation City/County: Swanzey Sampling Date: 2024-05-16

Applicant/Owner: City Of Keene State: NH Sampling Point: K1 WET

Investigator(s): Claire Hilsinger Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.897029 Long: -72.267493 Datum: WGS84

Soil Map Unit Name: None NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 8
Water Table Present?	Yes ✓	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: K1 WET

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula populifolia*	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	10.0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Spiraea alba*	20	Y	FACW
2. *Cornus amomum*	8	Y	FACW
3. *Lonicera morrowii*	8	Y	FACU
4. *Frangula alnus*	5	N	FAC
5. *Viburnum dentatum*	5	N	FAC
6.			
7.			
	46.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Spiraea alba*	35	Y	FACW
2. *Carex spp*	15	Y	
3. *Carex stricta*	10	N	OBL
4. *Onoclea sensibilis*	3	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	63.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10.00	x 1 =	10.00
FACW species	66.00	x 2 =	132.00
FAC species	20.00	x 3 =	60.00
FACU species	8.00	x 4 =	32.00
UPL species	0.00	x 5 =	0.00
Column Totals:	104.00 (A)		234.00 (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: K1 WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene airport Delineation City/County: Swanzey Sampling Date: 2024-05-16

Applicant/Owner: City Of Keene State: NH Sampling Point: L1 UPL

Investigator(s): Claire Hilsinger Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.888356 Long: -72.267386 Datum: WGS84

Soil Map Unit Name: None NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: L1 UPL

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Festuca rubra*	80	Y	FACU
2. *Vicia americana*	5	N	FACU
3. *Maianthemum canadense*	2	N	FACU
4. *Houstonia caerulea*	1	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	88.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	0.00	x 3 =	0.00
FACU species	88.00	x 4 =	352.00
UPL species	0.00	x 5 =	0.00
Column Totals:	88.00 (A)		352.00 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: L1 UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					SL	
5-16	10YR 3/3						SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Keene airport Delineation City/County: Swanzey Sampling Date: 2024-05-16

Applicant/Owner: City Of Keene State: NH Sampling Point: L1 WET

Investigator(s): Claire Hilsinger Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 42.888418 Long: -72.267378 Datum: WGS84

Soil Map Unit Name: None NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓** **No _____**
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 1
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: L1 WET

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Betula populifolia*	30	Y	FAC
2. *Cornus amomum*	25	Y	FACW
3. *Acer rubrum*	15	N	FAC
4. *Frangula alnus*	10	N	FAC
5. *Corylus americana*	5	N	FACU
6. *Salix bebbiana*	5	N	FACW
7. *Quercus rubra*	5	N	FACU
	95.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Onoclea sensibilis*	33	Y	FACW
2. *Impatiens capensis*	25	Y	FACW
3. *Carex stipata*	5	N	OBL
4. *Rubus pubescens*	1	N	FACW
5. *Frangula alnus*	1	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5.00	x 1 =	5.00
FACW species	89.00	x 2 =	178.00
FAC species	56.00	x 3 =	168.00
FACU species	10.00	x 4 =	40.00
UPL species	0.00	x 5 =	0.00
Column Totals:	160.00 (A)		391.00 (B)

Prevalence Index = B/A = 2.44

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: L1 WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 3/1	100					SL	
6-16	2.5Y 4/1	98	10YR 4/6	2	C	M	LS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

APPENDIX B:
WETLAND FUNCTIONS & VALUES ASSESSMENT

Wetland Function-Value Evaluation Form

Total area of wetland 88 +/- Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Aviation, Transportation, Forested Distance to nearest roadway or other development 10'

Dominant wetland systems present PSS (65%) / PFO 28% / PEM 4% / PUB (2%) Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. A

Latitude 42.89927 Longitude -72.27299

Prepared by: C. Hilsinger Date 06/17/2024

Wetland Impact:
Type PERM & TEMP Area 216 SF / 49,051 SF

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	1, 2, 3, 7, 5, 9, 10, 11, 15	X	Private wells downstream, underlain by stratified drift aquifer, GA2 Groundwater Classification Area, within floodplain of Ashuelot River
Floodflow Alteration	Y	1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 18	X	Ashuelot River floodplain, history of flooding, variable water levels, relatively large size, critical infrastructure in the vicinity
Fish and Shellfish Habitat	N	7, 10, 14		Wetland has a relatively small area of shallow, open water (relic stream channel), not directly adjacent to the Ashuelot River, minimal fish and shellfish potential
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 14, 15, 16	X	Wetland is adjacent to existing airport, transportation infrastructure, and residential/commercial development, dense vegetation, effective flood storage potential
Nutrient Removal	Y	1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14	X	Relatively large wetland, dense vegetation, organic soils, constricted outlet within the Ashuelot River floodplain
Production Export	Y	1, 2, 4, 5, 7, 8, 10, 12		Wildlife food sources within wetland
Sediment/Shoreline Stabilization	Y	3, 4, 14, 15		Dense vegetation, within the floodplain of but not directly adjacent to the Ashuelot River
Wildlife Habitat	Y	7, 8, 9, 13, 14, 15, 17, 19, 20, 21	X	Large wetland area with a diversity of habitat and cover types, identified as Highest Ranked Habitat in NH WAP
Recreation	Y	3, 4, 5, 7, 10, 11, 12	X	The wetland area is a known birding hotspot due to a diversity in habitats and bird species, Airport Road is a popular recreation area
Educational/Scientific Value	Y	1, 2, 3, 4, 5, 8, 9, 10, 13, 14		Wetland is visible and accessible along Airport Road
Uniqueness/Heritage	Y	4, 5, 6, 8, 9, 10, 12, 13, 14, 15, 16, 17, 19, 27, 28, 30	X	Large wetland complex, diversity of wetland classes/vegetation, Priority Resource Area, valuable wildlife habitat,
Visual Quality/Aesthetics	Y	1, 2, 3, 5, 6, 8, 9, 11, 12	X	Multiple wetland classes visible, low growing vegetation marsh/open water, unobstructed site lines, popular recreation area
ES Endangered Species Habitat	Y			NHB identified eastern meadowlark (T), grasshopper sparrow (T), horned lark (SC), marsh wren (N/A_, northern leopard frog (SC), sora (SC), vesper sparrow (SC), wood turtle (SC)
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland ~ 5.5 acres Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? Yes

Adjacent land use Airport, forested Distance to nearest roadway or other development 70'

Dominant wetland systems present PSS, PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? mid

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. B

Latitude 42.89179 Longitude -72.27254

Prepared by: C. Hilsinger Date 06/18/2024

Wetland Impact:
Type _____ Area unknown

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	2		Wetland is within the floodplain associated with Ashuelot River, but is an isolated wetland
Floodflow Alteration	Y	5, 6, 7, 8, 9, 10, 11, 15	X	Wetland is within the floodplain associated with Ashuelot River, but is an isolated wetland
Fish and Shellfish Habitat	N			Wetland is within the floodplain associated with Ashuelot River, but is an isolated wetland
Sediment/Toxicant Retention	Y	1, 2, 4, 5, 7		Standing water is present
Nutrient Removal	N	3, 4, 10		Standing water is present
Production Export	N	1, 2, 4, 12		Limited potential for Production Export
Sediment/Shoreline Stabilization	N	3		Isolated wetland, not adjacent to a waterbody
Wildlife Habitat	N	7, 8, 19, 20, 21		Isolated wetland, not adjacent to a waterbody
Recreation	N	5		Limited recreation potential
Educational/Scientific Value	N	5		Limited education potential
Uniqueness/Heritage	N	10, 12, 13, 17,		Limited uniqueness
Visual Quality/Aesthetics	N	8, 9, 11, 12		Limited visual quality
ES Endangered Species Habitat	Y			NHB identified eastern meadowlark, grasshopper sparrow, horned lark, marsh wren, northern leopard frog, sora, vesper sparrow and wood turtle in the vicinity
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland ~0.8 acres Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Airport, forested Distance to nearest roadway or other development 400'

Dominant wetland systems present PSS, PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? mid

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. C

Latitude 42.89432 Longitude -72.27236

Prepared by: C. Hilsinger Date 06/18/2024

Wetland Impact:
Type _____ Area unknown

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	2		Wetland is within the Ashuelot River floodplain; isolated wetland
Floodflow Alteration	N	5, 6, 8		Wetland is within the Ashuelot River floodplain
Fish and Shellfish Habitat	N	15		Limited fish/shellfish habitat
Sediment/Toxicant Retention	N	1, 2, 9		Limited sediment retention
Nutrient Removal	N	3, 4, 9, 10		Limited nutrient removal
Production Export	N	1, 2, 12		Limited producgtion export
Sediment/Shoreline Stabilization	N	3		Limited sediment/shoreline stabilization, Isolated wetland, not adjacent to a waterbody
Wildlife Habitat	N	7, 8, 19, 21		Some potential for wildlife habitat
Recreation	N	5		Limited recreation value
Educational/Scientific Value	N	13		Limited educational/scientific value
Uniqueness/Heritage	N	10		Limited heritage value
Visual Quality/Aesthetics	N	8, 11		Limited aesthetic value
ES Endangered Species Habitat	Y			NHB identified eastern meadowlark, grasshopper sparrow, horned lark, marsh wren, northern leopard frog, sora, vesper sparrow and wood turtle in the vicinity
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 29.0 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Aviation, Transportation, Forested Distance to nearest roadway or other development 10'

Dominant wetland systems present PEM (38%), PFO (34%), PSS (19%), PUB (9%) Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. D

Latitude 42.90647 Longitude -72.27911

Prepared by: C. Hilsinger Date 06/18/2024

Wetland Impact:
Type PERM & TEMP Area 221 SF / 47,279 SF

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	1, 2, 3, 7, 5, 9, 10, 11, 15	X	Private wells downstream, underlain by stratified drift aquifer, GA2 Groundwater Classification Area, within floodplain of Ashuelot River
Floodflow Alteration	Y	1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 18	X	Ashuelot River floodplain, history of flooding, variable water levels, relatively large size, critical infrastructure in the vicinity
Fish and Shellfish Habitat	N	7, 10, 14		Wetland has a relatively small area of shallow, open water (relic stream channel), not directly adjacent to the Ashuelot River, minimal fish and shellfish potential
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 14, 15, 16	X	Wetland is adjacent to existing airport, transportation infrastructure, and residential/commercial development, dense vegetation, effective flood storage potential
Nutrient Removal	Y	1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14	X	Relatively large wetland, dense vegetation, organic soils, constricted outlet within the Ashuelot River floodplain
Production Export	Y	1, 2, 4, 5, 7, 8, 10, 12		Wildlife food sources within wetland
Sediment/Shoreline Stabilization	Y	3, 4, 14, 15		Dense vegetation, within the floodplain of but not directly adjacent to the Ashuelot River
Wildlife Habitat	Y	7, 8, 9, 13, 14, 15, 17, 19, 20, 21	X	Large wetland area with a diversity of habitat and cover types, open water areas, identified as Highest Ranked Habitat in NH WAP
Recreation	Y	3, 4, 5, 7, 10, 11, 12	X	The wetland area is a known birding hotspot due to a diversity in habitats and bird species, Airport Road is a popular recreation area
Educational/Scientific Value	Y	3, 4, 5, 8, 10, 12, 13		Wetland is visible and accessible along Airport Road
Uniqueness/Heritage	Y	4, 5, 6, 8, 9, 10, 12, 13, 14, 15, 16, 17, 19, 27, 28, 30	X	Large wetland complex, diversity of wetland classes/vegetation, Priority Resource Area, valuable wildlife habitat,
Visual Quality/Aesthetics	Y	1, 2, 3, 5, 6, 8, 9, 11, 12	X	Multiple wetland classes visible, low growing vegetation marsh/open water, unobstructed site lines, popular recreation area
ES Endangered Species Habitat	Y			NHB identified eastern meadowlark (T), grasshopper sparrow (T), horned lark (SC), marsh wren (N/A_, northern leopard frog (SC), sora (SC), vesper sparrow (SC), wood turtle (SC)
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland .24 acres Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"?

Adjacent land use Airport, forested Distance to nearest roadway or other development 30'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? mid

How many tributaries contribute to the wetland? unknown Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. E and F

Latitude 42.90369 Longitude -72.27768

Prepared by: C. Hilsinger Date 06/19/2024

Wetland Impact:
Type _____ Area Unknown

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	2		Limited groundwater recharge
Floodflow Alteration	Y	5, 6, 7, 8, 9, 10, 11		Wetlands are small depressions in a mowed area, standing water in Wetland E
Fish and Shellfish Habitat	N			Limited fish or shellfish habitat
Sediment/Toxicant Retention	N	1, 2, 5		Limited sediment/toxicant/pathogen retention
Nutrient Removal	N	3, 4, 5, 9		Limited nutrient removal/retention
Production Export	N	1, 4		Mallard ducks and frogs in Wetland E
Sediment/Shoreline Stabilization	N	3, 5, 15		Limited sediment/shoreline stabilization; no shoreline present
Wildlife Habitat	N	7, 17		Mallard ducks and frogs in Wetland E
Recreation	N			Limited recreation potential
Educational/Scientific Value	N	13		Limited educational potential
Uniqueness/Heritage	N			Limited uniqueness/heritage
Visual Quality/Aesthetics	N	7, 11		Limited visual quality
ES Endangered Species Habitat	Y			NHB identified eastern meadowlark, grasshopper sparrow, horned lark, marsh wren, northern leopard frog, sora, vesper sparrow and wood turtle in the vicinity
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland: Unknown Human made? no Is wetland part of a wildlife corridor? Yes or a "habitat island"? no

Adjacent land use: Airport, forested Distance to nearest roadway or other development: 170'

Dominant wetland systems present: PEM, PSS, PFO Contiguous undeveloped buffer zone present: no

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? mid

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D.: Wetland G

Latitude: 42.88593 Longitude: -72.27332

Prepared by: C. Hilsinger Date: 06/20/2024

Wetland Impact:
Type: _____ Area: unknown

Evaluation based on:
Office: X Field: X

Corps manual wetland delineation completed? Y: X N: _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	2, 7, 15		Limited groundwater recharge/discharge
Floodflow Alteration	Y	1, 5, 6, 7, 8, 9, 10, 11, 13, 14, 17, 18	X	Wetland has high vegetation density and diversity, standing water and a variety of wetland types
Fish and Shellfish Habitat	Y	2, 4, 8, 10, 12, 14, 16		Wetland has some areas of ponding and is associated with South Branch Ashuelot River
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 7, 8, 10, 12, 13, 14, 15, 16	X	Wetland has some areas of ponding and is associated with South Branch Ashuelot River
Nutrient Removal	Y	1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14	X	Wetland has some areas of ponding and is associated with South Branch Ashuelot River
Production Export	Y	1, 2, 4, 7, 8, 10, 12		Wetland has some areas of ponding and is associated with South Branch Ashuelot River
Sediment/Shoreline Stabilization	N	3, 4, 7, 14		No distinct shoreline present
Wildlife Habitat	Y	1, 6, 7, 8, 9, 11, 13, 14, 15, 17, 19, 20, 21	X	Wetland has high vegetation density and diversity, standing water and a variety of wetland types, a diversity of bird species occurs in wetland
Recreation	N	5, 7		Limited recreation potential, wetland not easily accessible
Educational/Scientific Value	N	5		Wetland not easily accessible
Uniqueness/Heritage	N	4, 5, 6, 10, 30		Wetland not easily accessible
Visual Quality/Aesthetics	N	6, 8		Wetland not easily accessible
ES Endangered Species Habitat	Y			NHB identified eastern meadowlark, grasshopper sparrow, horned lark, marsh wren, northern leopard frog, sora, vesper sparrow and wood turtle in the vicinity
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland unknown Human made? yes Is wetland part of a wildlife corridor? yes or a "habitat island"? _____

Adjacent land use Airport, forested Distance to nearest roadway or other development 25'

Dominant wetland systems present Perennial stream Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? mid

How many tributaries contribute to the wetland? 3 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Stream H

Latitude 42.89329 Longitude -72.26798

Prepared by: C. Hilsinger Date 06/20/2024

Wetland Impact:
Type _____ Area unknown

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	2, 7		Stream originates from outlet of Wilson Pond
Floodflow Alteration	N	5, 6, 11		Stream is constructed channel parallel to runway, drains into Wetland G and South Branch Ashuelot River
Fish and Shellfish Habitat	Y	4, 5, 6, 10, 14, 17		Stream is constructed channel
Sediment/Toxicant Retention	Y	1, 2, 3, 10, 11		
Nutrient Removal	N	2, 4, 5, 14		Constructed channel
Production Export	N	10		
Sediment/Shoreline Stabilization	N	3, 4, 9, 12		
Wildlife Habitat	N	6, 7		
Recreation	N			Limited recreation potential
Educational/Scientific Value	N			Limited educational potential
Uniqueness/Heritage	N			Limited uniqueness
Visual Quality/Aesthetics	N			Limited visual quality
ES Endangered Species Habitat	Y			NHB identified eastern meadowlark, grasshopper sparrow, horned lark, marsh wren, northern leopard frog, sora, vesper sparrow and wood turtle in the vicinity
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland .73 acres Human made? no Is wetland part of a wildlife corridor? yes or a "habitat island"? no

Adjacent land use Airport. forested, rural Distance to nearest roadway or other development 15'

Dominant wetland systems present PEM, PSS, PFO Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? mid

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. I/J

Latitude 42.90809 Longitude -72.27648

Prepared by: C. Hilsinger Date 6/20/2024

Wetland Impact:
Type _____ Area unknown

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	2, 9, 10, 15		Wetlands appear to be portions of old oxbows of nearby stream
Floodflow Alteration	Y	5, 6, 7, 8, 10, 11, 14, 15, 18	X	Wetlands are depressions with standing water, potential for flood storage
Fish and Shellfish Habitat	N	1, 2		Not associated with a watercourse
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 7, 9		Wetlands are depressions with standing water, potential for sediment/toxicant retention
Nutrient Removal	Y	2, 3, 4, 5, 8, 9, 10, 11		Wetlands are depressions with standing water, potential for nutrient removal
Production Export	Y	1, 2, 7, 8, 9, 12		
Sediment/Shoreline Stabilization	N	3, 12, 13, 14		No streambank present
Wildlife Habitat	Y	7, 8, 9, 14, 15, 19, 20, 21	X	
Recreation	N	5		Limited recreation potential
Educational/Scientific Value	N	13		Limited educational potential
Uniqueness/Heritage	N	4, 10		Limited uniqueness/heritage potential
Visual Quality/Aesthetics	N	7, 11		Limited visual quality/aesthetic potential
ES Endangered Species Habitat	Y			NHB identified eastern meadowlark, grasshopper sparrow, horned lark, marsh wren, northern leopard frog, sora, vesper sparrow and wood turtle in the vicinity
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland unknowjn Human made? no Is wetland part of a wildlife corridor? Yes or a "habitat island"?

Adjacent land use Airport, forested, commercial Distance to nearest roadway or other development 30'

Dominant wetland systems present PEM, PSS, PFO Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? mid

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. K

Latitude 42.89717 Longitude -72.26638

Prepared by: C. Hilsinger Date 6/20/2024

Wetland Impact:
Type _____ Area unknown

Evaluation based on:
Office x Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	2, 7		Wetland surrounds Stream H, which outlets from Wilson Pond
Floodflow Alteration	Y	5, 6, 7, 8, 9, 10, 11, 13, 14, 18	X	Wetland on the bank of Stream H
Fish and Shellfish Habitat	Y	1, 2, 4, 5, 8		Some open water habitat; wetland associated with Stream H
Sediment/Toxicant Retention	Y	1, 2, 3, 4, 5, 7, 8, 10, 12, 14, 15, 16	X	Wetland associated with Stream H
Nutrient Removal	Y	2, 3, 4, 5, 8, 9, 10, 11, 12, 14	X	Potential for nutrient removal
Production Export	Y	1, 2, 7, 8, 9, 12		Potential for production export
Sediment/Shoreline Stabilization	Y	2, 3, 4, 5, 6, 7, 9, 10, 12, 13, 14, 15	X	High potential for sediment stabilization, diverse vegetation throughout wetland
Wildlife Habitat	Y	6, 7, 8, 9, 13, 14, 15, 19, 20, 21	X	Wildlife habitat present. Diverse plant populations.
Recreation	N	5		Limited recreation potential
Educational/Scientific Value	N	5, 13		Limited educational value
Uniqueness/Heritage	Y	4, 7, 10, 12, 16, 19, 22, 30	X	Wetland associated with Stream H which is hydrologically connected to Ashuelot River
Visual Quality/Aesthetics	N	2, 3, 11		Limited visual quality potential
ES Endangered Species Habitat	Y			NHB identified eastern meadowlark, grasshopper sparrow, horned lark, marsh wren, northern leopard frog, sora, vesper sparrow and wood turtle in the vicinity
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland unknown Human made? no Is wetland part of a wildlife corridor? yes or a "habitat island"?

Adjacent land use Airport, forested, residential Distance to nearest roadway or other development 60'

Dominant wetland systems present PSS, PFO Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? mid

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. L

Latitude 42.88853 Longitude -72.26793

Prepared by: C. Hilsinger Date 6/20/2024

Wetland Impact:
Type _____ Area unknown

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	2, 7		Wetland is drainage from moist forest on the east side of Old Homestead Hwy, drains into Stream H
Floodflow Alteration	Y	5, 13, 15, 18		Drains into Stream H
Fish and Shellfish Habitat	N	1, 2		Wetland is drainage from moist forest on the east side of Old Homestead Hwy, drains into Stream H. Rip-rap separates Stream H from Wetland L
Sediment/Toxicant Retention	Y	1, 2, 3, 10, 16		Wetland is narrow area of drainage from forest east of Old Homestead Hwy
Nutrient Removal	Y	3, 4, 8, 9, 10, 11		Wetland is narrow area of drainage from forest east of Old Homestead Hwy
Production Export	Y	1, 2, 7, 12		Limited production export potential
Sediment/Shoreline Stabilization	N	2, 3, 4		No shoreline present
Wildlife Habitat	N	6, 7		Low wildlife habitat potential
Recreation	N			Limited recreation potential
Educational/Scientific Value	N			Limited educational/scientific value
Uniqueness/Heritage	N			Limited uniqueness/heritage potential
Visual Quality/Aesthetics	N			Limited visual quality
ES Endangered Species Habitat	Y			NHB identified eastern meadowlark, grasshopper sparrow, horned lark, marsh wren, northern leopard frog, sora, vesper sparrow and wood turtle in the vicinity
Other				

Notes:

* Refer to backup list of numbered considerations.

APPENDIX L:

NHDOT NATURAL RESOURCE AGENCY COORDINATION MEETING MINUTES

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: July 17, 2024
LOCATION OF CONFERENCE: Virtual meeting held via Zoom

ATTENDED BY:

NHDOT
Andrew O'Sullivan
Joshua Brown
Matt Urban
Kirk Mudgett
Arin Mills
Samantha Fifield
Kerry Ryan
Rick Dyment
Carol Niewola

ACOE
Mike Hicks

USCG
Absent

EPA
Absent

NHDES
Karl Benedict
Emily Nichols

NHB
Absent

NH Fish & Game
Mike Dionne
Jennifer Buchanan

Federal Highway
Absent

US Fish & Wildlife
Absent

NH Transportation & Wildlife Workgroup
Absent

Consultants/ Public Participants
Steve Hoffman
David Hickling

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH: *(minutes on subsequent pages)*

Table of Contents

Keene Dillant-Hopkins Airport Wildlife Perimeter Fence, SBG 08-28-2023:

Stephen Hoffmann gave an overview of the project. The proposed project is located at the Keene Dillant-Hopkins Airport in Swanzey, New Hampshire. The Airport is owned and operated by the City of Keene, and funding for the project is through the FAA's State Block Grant Program administered by the NHDOR Bureau of Aeronautics (BOA). The project is in the preliminary design phase and the current scope includes 30% design and preparation of an environmental assessment. The project was previously discussed at the November 2021 NRAM, but it was presented by a different consultant at that time. The project is proposing approximately 17,000 linear feet of 8-foot-high chain-link fence with three-strand barbed wire. The proposed fence would tie into the existing fence resulting in a complete enclosure around the active airfield.

The primary purpose of the project is to improve safety. Design constraints include FAA safety clearances and surfaces, existing wetland and surface water resources, wildlife/rare species habitat, visual impacts, and public recreation. The need for the project is demonstrated by three relatively recent incidents at the Airport involving white-tailed deer.

Wetlands and surface waters were delineated by MJ in May 2024. An expansive floodplain wetland complex is located on the west side of the airfield. These wetlands are associated with the floodplains of the Ashuelot and South Branch Ashuelot Rivers. An unnamed perennial stream originates from the outlet of Wilson Pond. The stream has been ditched and relocated on Airport Property and flows south, parallel to Taxiway A before flowing into a culvert that carries the stream under RW 2-20, and outlets west of the RW 2 end. FEMA mapped 100-year floodplains are mapped primarily in the NW portion of the project area. Wetlands located within the 100-year floodplain would be considered Priority Resource Areas (PRAs) under the NHDES Wetland Rules.

It is assumed mitigation would be required for impacts to PRAs. The Ashuelot River is also Designated River. Portions of the project area on the east side of the Airport are located within the Protected Shoreland of Wilson Pond. The proposed fence is anticipated to be located greater than 250 from the Ashuelot and South Branch Ashuelot Rivers. The proposed project is anticipated to requires A NHDES Wetlands Permit and a Shoreland Permit. The large wetland complexes and surrounding habitats provide high quality wildlife habitat. Airport Road is also a popular area for walking, bird watching, and public recreation.

The project was submitted to NHB and the DataCheck Results Letter was received. Coordination with NHB has occurred and impacts to the Silver Maple – False Nettle – Sensitive Fern Floodplain Forest are not anticipated. This community type was not observed in the study area during the wetland delineation. Vertebrate species include eastern meadowlark, grasshopper sparrow, horned lark, marsh wren, northern leopard frog, sora, vesper sparrow, and wood turtle. According to the 2020 NH Wildlife Action Plan mapping, much of the airfield and surrounding forested areas to the west are identified as Highest Ranked Habitat in the State. According to the NH Wildlife Corridor Mapping two wildlife corridors cross the existing airfield with supporting landscapes identified west of the airfield. Federally listed species include the northern long eared bat (endangered), tricolored bat (proposed endangered), dwarf wedge mussel (endangered), and monarch butterfly (candidate). Coordination with NHFG and USFW is ongoing and will continue as the design progresses.

Preliminary fence alternatives include an alternative following the Part 77 Clearance, and alternative following the Runway Object Free Area (ROFA), and an alternative along Airport Road. The Airport Road alternative has previously received strong opposition and criticism from the local conservation commissions and general public due to the popularity of this area for recreation. The preferred alternative roughly follows the ROFA, while avoiding impacts to other FAA surfaces/clearances including the existing Runway Visibility Zone, Runway Safety Areas, and approach/departure surfaces.

Next steps include continuing to progress the 30% design and refining avoidance and mitigation measures. A Phase IA/IB archaeological survey has been completed along with a Wildlife Hazard Site Visit. The report and recommendations from the site visit are pending and could further inform design. Agency coordination will continue throughout the NEPA process. The project will be presented again at a future meeting, once preliminary impacts are identified.

AGENCY DISCUSSION:

Karl Benedict (NHDES Wetlands):
Karl Bendict indicated that he could not provide specific comments at this time until wetland impact totals are determined. He indicated that he preferred the ROFA alternative as it appeared to minimize impacts. However, Mr. Benedict indicated that his main concern was that with the Airport Road alternative, the ROFA alternative is not the least impacting, and therefore does not meet the avoidance and minimization requirements. Mr. Hoffmann clarified if avoidance and minimization is for direct physical impacts or if impacts to the overall functions and values of the wetland complex are taken into consideration. Mr. Benedict indicated that it depends and that additional information on impacts would be required to inform this decision. Mr. Benedict indicated that he understands the local preferences locate the fence closer to the runway

environment rather than adjacent to the road, however, if it won't meet the state law, it is not a viable alternative. Additional coordination and input from NHFG regarding rare species and fragmentation of habitats is needed to inform this discussion. Mr. Benedict requested a more detailed graphic depicting the NHB species occurrences. Mr. Hoffman went back to a previous slide, and explained that six of the eight species are bird species. While direct impacts from the project would need to be taken into consideration, the presence of a fence would not impact movement of these species on the landscape. In addition, leopard frogs would likely be able to pass through the openings in a chain-link fence. Therefore, wood turtle would be the only species identified in the NHB DataCheck Results Letter whose movements might be obstructed by the presence of the fence. Mr. Hoffmann indicated that higher quality wood turtle habitat is likely associated with the larger river systems of the Ashuelot River and South Branch Ashuelot River, and are less likely to be present in the project area. However, additional coordination with NHFG will be completed to get their input. Mr. Benedict would like to coordinate more one-on-one to find a solution that meets FAA safety standards and state wetland laws. Mr. Hoffmann suggested a follow up with DES in a separate conversation to discuss alternatives, impacts, wildlife impacts, and avoidance/minimization measures.

Emily Nichols (NHDES Wetland Mitigation):
Emily Nichols concurred with Mr. Bendict's comments. Ms. Nichols clarified that impacts to a PRA would trigger mitigation for all permanent wetland impacts for the entire project, not just the impacts located within the PRA.

Mike Dionne (NHF&G):
Mike Dionne requested that coordination continue with NHFG on these issues.

Jennifer Buchannon (NHF&G):
Jennifer Buchannon inquired if any vernal pools were evaluated within the study area. Mr. Hoffmann explained that no vernal pools were documented within the study area during the wetland delineation. Ms. Buchannon asked how this was confirmed and if formal vernal pool dip net or egg mass surveys were conducted during the appropriate time of year. Mr. Hoffmann explain that the delineation occurred in early- to mid-May and that no areas that exhibited the characteristics of a vernal pool were documented. Mr. Hoffmann agreed that while the large wetland complexes likely provide suitable amphibian breeding habitat, there areas of open water appeared to be relatively permanent with a prolonged hydroperiod, and no egg masses or primary indicator species were observed during the delineation. Ms. Buchannon also expressed concerns regarding habitat fragmentation and asked if the bottom of the fence could be raised a few inches to allow turtles and other smaller wildlife to pass under the fence. Mr. Hoffman responded that the same question was asked at the Swanzey Conservation Commission, and that this was not a viable option. Deer and other large mammals such as coyotes can squeeze under surprisingly small openings and raising the fence off the ground would not meet the purpose and need of the project.

Mike Hicks (USACE):
Mike Hicks asked for the quantity of proposed wetland fill. Mr. Hoffmann indicated that this number was not available at this time, but the project team plans to attend the August or September NRAM to provide this information. Mr. Hicks reiterated that the USACE only regulates fill in wetland, and the fence structure itself. Mr. Hicks also noted the proximity to an existing Corps project along the Ashuelot River and that we would coordinate internally to confirm the proposed

fence does not impact the Corps project. Mr. Hoffman confirmed that the proposed fence is not proximal to the Ashuelot River and would not expect impacts from the proposed fence. Mr. Hicks inquired about the funding source and who the lead federal agency is. Mr. Hoffmann reiterated that funding was through the FAA's State Block Grant Program and deferred to Carol Niewola to confirm that the FAA is still the lead federal agency. MS. Niewola confirmed that the FAA is still the lead federal agency, but since the project won't qualify for FAA discretionary funds, the NHDOT/Bureau of Aeronautics will be making the NEPA determination under the FAA's State Block Grant Program requirements. Mr. Hicks asked about tribal coordination, and commented that the USACE is required to coordinate with local tribes. Ms. Niewola indicated that there are no federally recognized tribes in NH, but would follow up with the FAA to confirm that the FAA's tribal coordination requirements for NEPA would be met.

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: September 18, 2024
LOCATION OF CONFERENCE: Virtual meeting held via Zoom

ATTENDED BY:

NHDOT
Andrew O'Sullivan
Jon Evans
Deidra Benjamin
Arin Mills
Candace Comer
Leah Savage
Nicholas Sanders
Carol Niewola
Jason Ayotte
Marc Laurin
Kirk Mudgett
Marlon Austin

ACOE
Absent

USCG
Absent

EPA
Absent

NHDES
Karl Benedict
Chris Williams
Kevin Lucey
Judy Houston
Emily Nichols

NHB
Absent

NH Fish & Game
Mike Dionne
Jennifer Buchanan

Federal Highway
Absent

US Fish & Wildlife
Brittany Nahorney

NH Transportation & Wildlife Workgroup
Absent

Consultants/ Public Participants
Tim Higgins
Liviu Sfintescu
Keith Snow
Michael Leach
Rene LeBranche
Gerard Fortin
John Byatt
Jonathan Niro
Jim Taylor
Stephen Hoffman
David Hickling

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH: *(minutes on subsequent pages)*

Table of Contents

Keene Dillant-Hopkins Airport Wildlife Perimeter Fence, SBG-08-28-2023:

Stephen Hoffmann gave an overview of the project. The project was previously discussed at the July Natural Resource Agency Coordination Meeting. The proposed project is located at the Keene Dillant-Hopkins Airport in Swanzey, New Hampshire. The project is in the preliminary design phase and the current scope includes 30% design and preparation of an environmental assessment. The project is proposing approximately 17,000 linear feet of 8-foot-high chain-link fence with three-strand barbed wire. The proposed fence would tie into the existing fence resulting in a complete enclosure around the active airfield, resulting in increased safety by preventing and deterring wildlife, primarily white-tailed deer from entering aircraft movement areas.

Wetlands and surface waters were delineated by MJ in May 2024. An expansive floodplain wetland complex is located on the west side of the airfield. These wetlands are associated with the floodplains of the Ashuelot and South Branch Ashuelot Rivers. No vernal pools were documented in the project area. An unnamed perennial stream originates from the outlet of Wilson Pond. The stream has been ditched and relocated on Airport Property and flows south, parallel to Taxiway A before flowing into a culvert that carries the stream under RW 2-20, and outlets west of the RW 2 end. The stream is a Tier 3 stream with a watershed size of 2.14 square miles at the location of the culvert inlet on Airport property. FEMA mapped 100-year floodplains are mapped primarily in the NW portion of the project area. Wetlands located within the 100-year floodplain would be considered Priority Resource Areas (PRAs) under the NHDES Wetland Rules. It is assumed mitigation would be required all wetland impacts due to the presence of the PRAs. Portions of the project area on the east side of the Airport are located within the Protected Shoreland of Wilson Pond.

Coordination with NHB has occurred and impacts to the Silver Maple – False Nettle – Sensitive Fern Floodplain Forest are not anticipated. This community type was not observed in the study area during the wetland delineation. Vertebrate species include eastern meadowlark, grasshopper sparrow, horned lark, marsh wren, northern leopard frog, sora, vesper sparrow, and wood turtle. Federally listed species include the northern long eared bat (endangered), tricolored bat (proposed endangered), dwarf wedge mussel (endangered), and monarch butterfly (candidate). Coordination with NHFG and USFW is ongoing and will continue as the design progresses.

Preliminary fence alternatives include an alternative generally based on the Runway Object Free Area (ROFA), and an alternative along Airport Road. At the July meeting, NHDES and the USACE raised questions regarding avoidance and minimization measures and the least impacting alternative. The design of the Airport Road alternative was progressed further, and preliminary wetland impacts were calculated for both alternatives.

The ROFA alternative bas been brought as close to the existing runways and taxiways while maintaining the required FAA safety clearances and distances. The ROFA alternative minimizes habitat enclosed inside the proposed fence, minimizes direct wetland impacts, and also minimizes impacts to the wetland functions and values.

Due to the presence of utility poles (approximately 15 feet from the edge of pavement), required clear zone (10 feet), access/maintenance issues associated with enclosing the utility poles inside the fence, and FAA guidelines that recommend a 10-foot buffer free of vegetation or other objects along the perimeter fence, the proposed Airport Road fence alignment was offset approximately 25 +/- feet from the edge pavement. This resulted in greater direct impacts from additional fence posts in the wetland area.

Env-WT 311.10 requires the results of the functional assessment to be used to select the location of a proposed project having the least impact to wetland functions. The Airport Road alternative would result in increased impacts to the overall wetland functions, primarily the wildlife habitat function. The Airport Road Alternative would enclose approximately 136 acres of valuable wildlife habitat (approximately 108 acres of wetlands) inside the proposed fence. This would preclude wildlife from accessing this area, and could possible entrap some wildlife inside the fence due to the large area. In addition, the Airport Road alternative has previously received strong opposition and criticism from the local conservation commissions and general public due to the popularity of this area for recreation. The Airport road would result in impacts to the visual/aesthetic quality and reduce the recreation quality of the wetland.

Based on the current alignment the ROFA alternative is anticipated to result in 340 SF of permanent impacts. The Airport Road alignment is anticipated to result in 542 SF of permanent impacts.

AGENCY DISCUSSION:

Karl Benedict (NHDES Wetlands)
Karl Bendict requested further information on how the direct impacts were calculated, and thought that the proposed 25-30 foot offset was too far. Karl wanted to confirm that all avoidance and minimization measures for the Airport Road alternative had been looked at. Karl suggested possible moving the utility poles or changing the alignment to include bump outs around the utility poles to try to minimize impacts along the rest of the alignment. Karl requested a more detailed functions and values assessment and additional explanation of the FAA surfaces and clearances. Karl said he would defer to NHFG regarding the impacts to wildlife habitat. Karl suggested a site visit with the agencies to review the project area. Karl confirmed that linear feet of impacts at the stream crossings would be measured parallel to the channel.

Emily Nichols (NHDES Wetland Mitigation)
Emily Nichols concurred with Mr. Bendict's comments. Ms. Nichols clarified that impacts to a PRA would trigger mitigation for all permanent wetland impacts for the entire project, not just the impacts located within the PRA.

Mike Dionne (NHF&G)
Mike Dionne agreed that a site visit would be helpful.

Jennifer Buchannon (NHFG)

Jennifer Buchannon also agreed that a site visit would be helpful. Agreed that habitat fragmentation was a main concern associated with the proposed fence project.

APPENDIX M:

TOWN OF SWANZEY CONSERVATION COMMISSION MEETING MINUTES

Town of Swanzey, New Hampshire
Conservation Commission Meeting
Whitcomb Hall, Main Street, Swanzey, NH
Meeting Minutes – June 3, 2024

Note: Minutes are subject to review, correction, and approval by the Commission. Review, correction, and approval of minutes generally occur at the next regularly scheduled meeting of the Commission.

CALL TO ORDER
The meeting of the Swanzey Conservation Commission was called to order by Chair Cheri Domina at 4:00 p.m. Committee members present: Chair Domina, Bud Winsor, Mark Scalera, Jay Ward, and Alternate Wally Smith. Also present was Assistant Town Planner Stephon Mehu and Recording Secretary Beverly Bernard. The Chair seated Smith for Karlson.

ABSENT
Nancy Karlson, Bob Goodrich, Alternate Jane Johnson

OTHERS PRESENT
Ken Bergman with the Keene Conservation Commission, Steve Hoffmann with McFarland, Johnson Consulting, David Hickling, Dillant-Hopkins Airport Director

MINUTES
- The commission members considered the meeting Minutes for May 6, 2024. There was a **motion** by Scalera to approve the Minutes of May 6, 2024 as presented. There was a second to the motion by Winsor and no further discussion. All were in favor. ***Motion passed.***

PUBLIC INPUT
There was none.

NEW BUSINESS
Airport Fence Project – McFarland, Johnson Inc.
Hoffman spoke about the overall project and their environmental assessment. The airport proposes to build 17,000 linear feet of 8-ft. chain-link fence with 3 strands barbed wire, where no fence exists, mainly on the west side of the airport. Two deer/aircraft collisions at the airport fairly recently—it is a known safety issue. Deer are the main threat to aircraft. Discussed options for locating the fence—must be at least 500 feet from the runway per the Federal Aviation Administration (FAA), unless a variance is obtained. Wetlands are along the western side of the airport. There is unnamed stream at the east side of the runway, flowing under the runways via a culvert toward the west. Hoffman noted shoreline protection for Wilson Pond is also a factor. Hickling noted that the wetlands provide important wildlife habitat, and Airport Road is noted for birdwatching and recreation. Hoffmann noted a number of protected species present at this wildlife habitat.
They have rejected an option to run the fence along Airport Road, in favor of trying to skirt the runway as closely as possible. If a variance is obtained, they may be able to avoid siting the fence in the wetlands in most places.
Smith asked for the cost of the project and Hickling said $4,000,000 is the estimate. Hickling said the FAA does not classify this project as highly important. He said he is working on funding. Various sources will be addressed. There is a 5% local match, which would impact Keene taxpayers, but not Swanzey taxpayers.

Hoffmann noted important grassland habitat a state 2020 Wildlife Corridor Plan. He said the corridor mapping is more ground-based (not for birds). Mehu noted trees cannot be cleared during the summer, due to protected bats. Hoffman said the FAA has concern about visibility such that the fence might interfere with takeoff. He said he could make an argument that one runway isn't used very often because of the prevailing winds. Bergman asked about the fence height at different locations. Bergman said the Keene Conservation Commission has reviewed the preliminary plans. It has been on the agenda at their meetings for years. He noted trying to balance aviation safety, wetlands protection and safety of citizens who visit the site.

Ward asked if the fence can be designed to keep out deer but allow other species to move beneath. He asked if the fencing could be a bit higher off the ground which would allow smaller creatures into the wetlands. Hickling said the FAA may mandate a fence to keep out all wildlife, but he said he would investigate that. The goal is to put the fence as close to the runways as the FAA will allow. He cannot avoid the wetlands completely. Hickling noted bow hunting is allowed at times during the year. Smith said that would help out hunters to allow them in. Domina asked about vernal pools. Hoffmann said they have not identified any to be enclosed.

Ward asked about the construction process. What is the impact on the wetlands? Hoffmann said there will be temporary matting to access the wetlands. The fence posts will have an impact and there will be some challenges at the wetlands. Hickling said the wetlands are a small percentage of the linear feet of fencing. He said the cost is higher because of wetland impact mitigation. Hoffmann said frozen ground conditions can be a factor.
Next step is finalizing the design. Waiting for a wildlife site visit and an archeological survey as well. They will be consulting with NH Fish and Game. They will prepare a draft at the end of this year, early winter. Domina asked if final plans are required to come to the Swanzey Planning Board. Hickling said he has no problem coming to the Planning Board, but it would not be required just for a fence. Mehu encouraged them to come to the Planning Board. Hoffman said they would come back to the Conservation Commission with final plans.

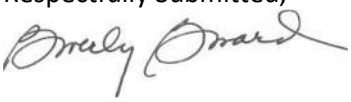
Bergman asked about visualizing the lateral part of the fence where it intersects with Airport Road with stakes. He said that is difficult to visualize where the fence is planned to be. FY 2025 application for grant, but Hickling said grant funding doesn't always come in a timely fashion.

Domina asked if there is a wildlife plan for mowing to accommodate grassland birds, and Hickling said they mow to keep the grass down to keep hawks from hunting there, but Winsor said geese also prefer short grass. Hickling said they are focused on mitigating hazards. Domina spoke about species habitat planning and management at other NH airports, done with both wildlife and safety in mind. Domina said she could research folks to talk to and Hickling said he'd be open to discussing it. The Chair thanked Hickling and Bergman noted Hickling has been very open to speaking to folks about balancing needs.

OTHER BUSINESS
Next Meeting: July 1, 2024

ADJOURNMENT
Motion was made by Ward to adjourn, second by Winsor without further discussion. All were in favor. ***Motion passed.*** Adjournment occurred at 6:02 pm

Respectfully Submitted,



Beverly Bernard, Recording Secretary

Town of Swanzey, New Hampshire
Conservation Commission Meeting
Whitcomb Hall, Main Street, Swanzey, NH
Meeting Minutes – November 4, 2024

Note: Minutes are subject to review, correction, and approval by the Commission. Review, correction, and approval of minutes generally occur at the next regularly scheduled meeting of the Commission.

CALL TO ORDER
The meeting of the Swanzey Conservation Commission was called to order by Chair Cheri Domina at 4:00 p.m. Committee members present - Chair Domina, Mark Scalera, Nancy Karlson, Jay Ward, Bud Winsor, Wally Smith, Jane Johnson, Bob Goodrich and Bonnie Hart. Also present was Town Planner Adam Paquette and Recording Secretary Beverly Bernard. A quorum was present.

ABSENT
none

OTHERS PRESENT
City of Keene Airport Director David Hickling, and Steve Hoffman with McFarland Johnson.

MINUTES
- The commission members considered the regular meeting Minutes of October 7, 2024. **Motion** was made by Ward to approve the regular meeting Minutes of October 7, 2024. There was a second to the motion by Karlson and no further discussion. All were in favor. ***Motion passed.***
- The commission members considered the special meeting Minutes of October 16, 2024. **Motion** was made by Ward to approve the special meeting Minutes of October 16, 2024 with change of an observation. There was a second to the motion by Karlson and no further discussion. All were in favor except Winsor and Scalera who abstained. ***Motion passed***

PUBLIC INPUT

NEW BUSINESS
Airport Fence Project
Steve Hoffman, with McFarland Johnson was present and he passed out an update of the design. He said they're at about 30% preliminary design phase right now. He noted the plan is for 17,000 linear feet of fencing to keep deer and other wildlife from causing safety risks to aircraft. He spoke about the water flowing from Wilson Pond towards the west through a culvert, continuing to taxiway Alpha. The stream is unnamed. Discussed the idea of raising the fence off the ground just a bit to allow for turtle passage, although it was also noted that even fairly large animals can squeeze through small spaces.

Hoffman said their preferred option is to keep the fence as close to the runways as possible (the ROFA Alternative). He said New Hampshire Department of Environmental Services (DES) has pushed back on the idea of fencing close to the runways, as it would require some fencing in wetlands areas. They suggest putting the fence along the roadway, which would eliminate some of the wetland issues. Hoffman said other wetland functions and values need to be considered as well such as wildlife habitat. The fencing along the road will fragment the wetlands from upland areas.

Discussion continued regarding the Runway Object Free Area (ROFA) Alternative. Hoffman pointed out the ROFA alternative as shown on the map he distributed to the members. Hoffman spoke about the flatness of the airport which determines the height of fence they can recommend. There is a 15–20-foot drop at one end of one of the runways. He said his design has brought the fence as far from the wetlands as possible. He said there are two primary alternatives.

Hoffman also spoke about the Airport Roadway alternative. There would be a 7-foot buffer of vegetation along airport road. Utility poles are 15 feet from the edge of road, however. By the time you move the fence to accommodate the poles, you are back into the wetlands. DES suggested perhaps going around the utility poles which is not really acceptable. Hoffman said he hopes that DES will come around and agree on ROFA for the project to move ahead.

Hoffman continued speaking about the Airport Roadway alternative – of 136 acres, 108 acres are wetland habitat. Some of the highest quality habitat within the State. He said it doesn't make sense to block the area off to wildlife, which you do if you have fencing at the road. He said this alternative would have a more significant impact on Functions and Values than the ROFA alternative.

Hoffman noted with the ROFA alternative the culvert outlet may need to be extended. Nothing can be inside the safety area. He also referred to permits they will need including shoreland permit as they are close to Wilson Pond.

Hickling said the schedule has changed. The environmental assessment will not be finished in time for funding. 2025 will be design and permitting. Pushing construction back another year.

Domina said her issue is the wood turtles and could we come up with a solution to allow for small passage through. She also asked if DES would be willing to come to a meeting with Keene Conservation Commission to help with decision making. Hoffman said he hesitates to commit that kind of action until he can go back to DES for a follow-up. He said he wants to find out if DES might be happy with the changes they have provided to DES. Scalera said a fence along the road will also be more impactful for folks walking along the road.

Hickling said even turtles can be a hazard to aircraft. He noted a possibility of having a skirt on the bottom of the fencing providing a very small space for passage.

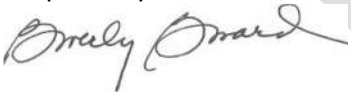
Domina asked what is needed from the Conservation Commission. She suggested writing a letter might help. Hickling and Hoffman agreed.

Next Meeting: November 21, 2024 special meeting with the Planning Board

ADJOURNMENT

Motion was made by Ward to adjourn, second by Winsor without further discussion. All were in favor. ***Motion passed.*** Adjournment occurred at 6:10 pm

Respectfully Submitted,



Beverly Bernard, Recording Secretary

APPENDIX N:

INTERAGENCY FIELD REVIEW MEETING MINUTES

426 Industrial Avenue, Suite 164 • Williston, VT 05495
Phone: (603) 225-2978
www.mjinc.com

Meeting Minutes:

PROJECT TITLE: Wildlife Perimeter Fence Phase 1
Keene Dillant-Hopkins Airport

NHDOT Project No.: SBG 08-28-2023
Minutes Dated: 11/13/2024

MJ Project No: 18956.01
Meeting Date: 10/10/2024
Meeting Time: 10:00 AM

SUBJECT: Interagency Field Review Meeting - Draft Minutes

Attendees:

Stephen Hoffmann	McFarland-Johnson
Christine Perron	McFarland Johnson
Ben Albert	City of Keene
Carol Niewola	NHDOT Bureau of Aeronautics
Karl Benedict	NHDES Wetlands Bureau
Mary Ann Tilton	NHDES Wetlands Bureau
Mike Dionne	NHFG
Jennifer Buchanan	NHFG
Brit Nahorney	NHFG
Maddie Severence	NHB

MEETING SUMMARY:

- The interagency team met onsite at the Keene Dillant-Hopkins Airport Terminal at 10 AM.
- Stephen Hoffmann distributed paper copies of a document titled, *Wetlands Functions & Values and Impact Assessment Memo* (updated version attached). The document summarized the purpose and need of the proposed project, alternative analysis, results of the functional assessment completed for the large wetland complex on the west side of the Airport, and a summary of preliminary wetland impacts.
- There are two alternatives under consideration:
  - Runway Object Free Area or "ROFA" Alternative
  - Airport Road Alternative
- The ROFA alternative is preferred by the Airport and the local Conservation Commissions (Keene and Swanzey), as well as the general public based on input received during the last Master Plan Update process.
- The project was initially presented at the July 2024 NHDOT Natural Resource Agency Meeting. Initial comments received from NHDES asked the project team to consider further wetland impact avoidance and minimization measures including further evaluation of the Airport Road Alternative.
- The project was subsequently discussed at the September 2024 NHDOT Natural Resource Agency Meeting and preliminary wetland impacts for both alternatives were presented.
  - Due to the presence of existing utility poles located approximately 15 feet from the edge of Airport Road, the proposed Airport Road fence alignment was sited outside the utility poles in order to avoid

utility maintenance and access issues. This resulted in a substantial portion of the Airport Road Alignment be located in wetlands resulting in greater wetland impacts (due to the longer length associated with this alignment) as compared to the ROFA Alternative.
    - NHDES requested the design team further evaluate avoidance and minimization measures for the Airport Road Alternative that would reduce wetland impacts.
- Based on the results of the wetland functional assessment, the design team/environment consultant believes that the Airport Road Alternative would have substantially greater impacts to wetland functions and values including wildlife habitat, rare species habitat, visual quality/aesthetics, and recreation due to placement of the fence along the outer edge of the large wetland complex. The impacts on wildlife accessibility/habitat fragmentation from the approximately 2.3 miles of proposed fence along the western side of the Airport would be disproportionate compared to the area of permanent wetland impacts (< 600 SF) associated with individual fence post locations.
- The Airport Road Alternative would enclose approximately 135.8 acres of habitat inside the fence, most of which has been delineated as wetlands and also identified by NHFG as Highest Quality Ranked Habitat in the State and a Priority Habitat Block.
- The purpose of this field review was to review the locations of the two alternatives and potential wetland impacts in order to receive further input from the resource agencies. This input will be used to help inform the selection of the preferred alternative, which will be documented in an Environmental Assessment to be completed this year. Following approval of the Environmental Assessment by FAA and NHDOT, the project will move into the permitting phase, at which time further coordination with the resource agencies will occur.
- The Interagency Team drove along Airport Road and stopped at the Runway (RW) 14 approach to review the proposed fence locations.
    - Utilities are underground at this location due to the height restrictions associated with the RW approach/departure surfaces.
    - The ROFA alternative would be much less visible than the Roadway Alternative from Airport Road.
    - This is the closest location of the proposed ROFA alternative to Airport Road.
    - It was also noted that due to the change in elevation from the top of the roadway embankment, that a fence located downslope would not be as effective, because deer and other wildlife would be able to jump from a higher point and more easily clear the fence. Therefore, the fence would be less effective at achieving the overall purpose of the project.
    - Also, the Airport wants to minimize the amount of habitat and cover inside the fence in order to make it easier to find and remove wildlife should they get inside the fence. Approximately 136 acres of dense forested, scrub-shrub, and emergent/herbaceous vegetation would substantially decrease the ability to effectively find and remove any hazardous wildlife from inside the fence.
- The next stop was at a location north of the Keene Waste Water Treatment plant, at the location of the relic/historic stream crossing.
    - It was noted that this area is no longer a stream. The stream on the east side of the airport has been ditched and relocated.
    - Ben Albert noted that this area is subject to flooding/inundation, and water elevation appears to be controlled by Army Corps flood control projects associated with the Ashuelot River.
    - The ROFA alternative fence is located approximately 1,100 feet east of Airport Road at this location.
- The third stop was the stream outlet located west of the RW 2 end.
    - The team talked about the alternatives for crossings which would likely include extending the existing culvert to allow the proposed fence to run along the top of the headwall of the culvert.
    - The existing outlet is at the edge of the Runway Safety Area (RSA), thus the extension is required to provide a continuous, complete fence barrier.
    - The team reviewed the area to the west and it was confirmed that the NHB Significant Natural Community, Silver maple - false nettle - sensitive fern floodplain forest, was outside the proposed fence

project area, and was associated with the floodplains of the Ashuelot and South Branch Ashuelot Rivers. It was confirmed that impacts from the proposed fence to this community type are not anticipated.
    - NHFG asked about the area of the fence that bumped out further from the ROFA, and was concerned about the sandy soils providing potential nesting habitat for turtles. Ben Albert explained that this was avoiding some instrumentation that was shown on the Airport Layout Plan, but that it has been determined that this equipment did not need to be relocated. Therefore, the design team would revisit this area and bring the fence closer to the ROFA.
    - It was noted that there are also areas of sandy soils that would be located outside of the fence with the ROFA alternative; however, all areas of sandy soils on the airport would be inaccessible to turtles with the Airport Road alternative.
- The fourth stop was at Wetland B, an isolated wetland east of the Wastewater Plant and the Solar Farm.
    - The proposed ROFA fence alignment is clipping the edge of the wetland.
    - These impacts are unavoidable due to the location of the ROFA and elevations of the existing runway and ground surface
- The fifth and final stop was along the eastern edge of Wetland A, south of the runway intersection, and east of stop #2.
    - NHDES expressed that this was their primary area of concern with regards to wetland impacts from the ROFA alternative.
    - NHDES asked about the possibility of evaluating a shorter fence height at this location, seeking approval for an exception for moving the fence closer to the runway, or eliminating the fence at this location to avoid wetland impacts.
    - The design team agreed to evaluate a 6’ fence height and the possibility of moving the fence at this location to see if it is possible to bring the fence out of the wetland or any closer to the existing runway. Eliminating the fence completely would not achieve the overall purpose of the project, and even a 6’ fence would reduce the overall effectiveness of keeping deer out, factors that are supported by the wildlife hazard site visit and report that was prepared.