TOWN OF BRUNSWICK, ME

Management Plan

MAY 2025

Former Maine Gravel Services Area

WRIGHT-PIERCE
Engineering a Better Environment

VIEWSHED

Former Maine Gravel Services Area

Town of Brunswick, ME

May 2025

_____

Owen Chaplin, PE
Maine Engineering License #15522
Date: May 6, 2025

Prepared By:

Wright-Pierce
11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
207.725.8721 | wright-pierce.com

Table of Contents

List of Appendices

List of Figures

List of Tables

Section 1 Goals and Management Principles

The Former Maine Gravel Services Area was donated by Maine Gravel Services, Inc. to the Town of Brunswick in 2019 for public recreational use. The site is located off Old Bath Road in East Brunswick and consists of several lots totaling 163.4 acres of property, with notable features including a large freshwater pond and sand stockpile. The property also abuts the Captain Fitzgerald Recreation and Conservation Area.

1.1 Management and Stewardship Vision

The overall vision for the Former Maine Gravel Services Area site is to provide a year-round passive and active recreational area for the general public where visitors can enjoy outdoor activities and learn about the history, culture, and ecologic features of the property.

Site improvements will be carefully selected and planned to use the site's existing features and promote outdoor recreational uses for the public. Uses will be located throughout the site including trails, outdoor recreational facilities, and a group gathering place. Signage will be used throughout the site to educate visitors about the history of the property, existing ecosystem management, historical features located throughout the site, and allowed site uses. A variety of trails could be used on site to promote nature walks and to provide maintenance access throughout the property. Visitors can enjoy nature trails that encapsulate the site's natural features and ecosystem by meandering through existing wetlands on site. A multi-use path can provide easy access and connectivity for foot, bike, and maintenance vehicle traffic throughout the site and to the adjacent Captain Fitzgerald Recreation and Conservation Area. Multi-use athletic fields, playgrounds, and restrooms can be made available to the public during the day for sporting events, practices, and general use. A swimming area, dock, and launch for non-motorized boats can be added to the site to encourage public use of the existing large freshwater pond on site.

Figure 1-1 Existing Conditions

1.2 Purpose

The purpose of the Former Maine Gravel Services Area Management Plan is to provide a comprehensive plan that outlines goals including managing and preserving the existing ecosystems and natural resources on site, providing a site available to the public that promotes active and passive outdoor recreation, and educating the public about the significance of the property. The goals discussed in this plan will help guide decision making for the future of the site.

1.3 Management Goals

The management goals for the Former Maine Gravel Services Area Management Plan are as follows:

- Protect and preserve the existing ecosystem and habitats located on site
- Provide a site that offers year-round active and passive outdoor recreation use by the public
- Educate visitors on the history, ecology and features of the site

Section 2 Conservation Area

2.1 How the Parcel Became the Conservation Area

Maine Gravel Services donated, and the Town accepted, the approximately 160-acre site adjacent to the Captain Fitzgerald Recreation and Conservation Area in December 2019. The site was donated to the Town for conservation and recreation purposes and includes a 53-acre pond. The overall site was made up of 4 individual tax parcels (48-22, 48-25, 48-28, 48-29), as shown in **Figure 2-1** below.

Figure 2-1 Conservation Area Map

2.2 Site Overview

The setting of the Former Maine Gravel Services site is dominated by the pond. It is a visually appealing landscape with an unimproved access road around a good portion of the pond and out to the sandy peninsula. The area directly next to the pond is quite sandy with sparse vegetation. The remainder of the site is forested, with some forested wetland areas. The site is already used for some forms of recreation and intentional planning will make an excellent location for expanding the Town's recreational offerings. The Former Maine Gravel Services site generally includes a 53-acre pond, access along the Old Bath Road, two residential structures, a barn, a large sand pile, a sandy peninsula, wetland areas and forested areas.

2.2.1 Cultural and Historic Significance

The Former Maine Gravel Services site has little information about its historical record, compared to that of the Fitzgerald Recreation and Conservation Area since no reconnaissance survey was completed there. Since the sites are contiguous, it seems reasonable to assume that the indigenous peoples and early European settlement patterns would be similar to those noted around the Fitzgerald property. From the Town's StoryMap about this site and the Fitzgerald Recreation and Conservation Area:

What today is the shore plain abutting Merrymeeting Bay has been the site of occupation for indigenous people from 11,000 years ago until colonial settlement. During the Paleoindian period littoral dune fields covered the (area). Changes in landscape and climate occurred through the Archaic and Ceramic phases and the region of Merrymeeting Bay's north shore remained active.

Early colonial farmsteads of East Brunswick nestled along the New Meadows River with hinterlands that stretched back away from the shore. In early times these were the least used areas of the farms and held back-country timber reserves. Because it was regarded as low value agricultural land, frequent deed exchange occurred.

More recently, the Site served as a private mining pit for aggregate from the 1960's until it was donated to the Town in 2019.

2.2.2 Natural and Ecological Resources

The central ecological feature of the Former Maine Gravel Services site is a 53-acre pond created through gravel extraction. A wetland study of the property has been conducted and the delineated wetland areas are on the site map. The area of the site surrounding the pond includes a large sand pile remaining on the Southwest side of the pond, some low shrubby vegetation along the edge of the pond, some un and then the remainder of the property is forested. There is a large sandy peninsula within the lake which was used as a shooting range for the Brunswick Police Department from 2021 – 2024, totaling six qualification courses.

The pond supports a warm water fishery due to its relatively shallow depth. There was some question about the pond being spring fed, however, the pond is generally indicative of the natural groundwater level for the aquifer. A spring fed pond would have a significant thermal gradient due to the influx of groundwater. Refer to Appendix C for specifics on the Hydrogeologic Investigation completed by Wright-Pierce in December 2024.

The pond currently supports a native population of sea-run alewife (Alosa pseudoharengus). Sea-run alewife are a species of Greatest Conservation Need in Maines' Wildlife Action Plan. While statewide there has been a contraction of locations where sea-run alewife populations are found, the Maine Gravel Services pond is a new location where this species has been established. Adults arrive at the pond in the spring (April-May) to spawn and then migrate back to ocean shortly after spawning. The greatest threat to the population is the beaver damming off the stream and thus blocking entrance to the pond to the migrating fish in the spring. Maine Department of Marine Resources has been monitoring the pond in order to ensure that the stream stays open. Coordination between the Town and the Department should be maintained to ensure a sustainable sea-run alewife population.

Currently, there are no identified rare or endangered plant or animal species known on the Site; however, a full survey has not been conducted at this time. Due to the presence of rare plant communities on the Fitzgerald Recreation and Conservation Area property, it will be important to work with the Maine Natural Area Program and consider expanding the survey of the Former Maine Gravel Services site for the presence of specific species recommended in **Section 5.1.1**.

The Town retained Flycatcher LLC (Flycatcher) to complete a wetland, watercourse and waterbody delineation and potential vernal pool survey report of the Site. The full report can be found in **Appendix D.**

Section 3 Site Clean Up

The are some existing areas within the Former Maine Gravel Service site that will require investigation and clean up to ensure a safe and clean site for public use including existing vacant residential homes, the existing sand pile, and potential bullet casings at the sandy peninsula.

3.1 Existing Buildings

The Town of Brunswick acquired the property at 418 Old Bath Road which has one vacant residential house and a garage. These structures will need to be evaluated to determine if they can be preserved or if they would need to be demolished.

3.2 Existing Sand Pile

There is an existing sand pile left over from when the site was being excavated for sand and aggregate materials. The sand pile is located on the southwest side of the site adjacent to the Captain Fitzgerald Recreation and Conservation Area site. Depending on the desired use of the area and proposed development, the sand pile may have to be relocated, reused, or disposed of. Any work done to the sand pile should be discussed with the Maine Department of Environmental Protection (Maine DEP) to determine any permits that would be required.

Figure 3-1 Existing Sand Pile Onsite

3.3 Sandy Peninsula

The Brunswick Police Department previously used the sandy peninsula located on the southern corner of the site as a shooting range between 2021 and 2024, during which, six qualification courses were conducted. Details of the qualification courses can be found in **Appendix C**. A survey of the site should be conducted to determine if any bullet fragments or casings remain in the area. If bullet fragments or casings are found, they will need to be removed and properly disposed of to eliminate any potential hazards on site. Should the Town wish to investigate the potential for lead contamination, water quality testing of the pond surface water at a point downgradient and nearest to the firing range is recommended. Water quality testing is recommended at three locations to confirm water quality, including two samples in water bodies adjacent to the shooting range and a third sample located at the proposed recreational swimming area. Water quality samples should be collected and field filtered using a 0.45-micron filter and analyzed for dissolved lead. If water quality results indicate lead concentrations above state regulatory thresholds, then a more comprehensive investigation (Phase II Environmental Site Assessment) should be implemented to determine the extent of contamination and applicable remediation methods. It is recommended that the Conservation Commission be informed of the test results. The Town may consider removing and properly disposing of the soils at the shooting range. Ammunition typically will not penetrate more than 2 feet into sand, indicating that a limited volume of soil would need to be removed if this course of action is taken.

Figure 3-2 Sandy Peninsula

3.4 Hydrogeologic Survey

Wright-Pierce conducted a Hydrogeologic Investigation at the site with the goal of verifying the water quality and quantity impacts on nearby private bedrock wells. The investigation concluded that the proposed project is not anticipated to have an impact on nearby bedrock wells or groundwater levels. In addition to this, beaver dam activity was observed to partially obstruct Bonny Brook. Beavers can cause giardia blooms, or “Beaver Fever”, which can result in a parasitic infection if the water is ingested. The water in Bonny Brook was also observed to be stagnant, murky, and dark in color. To improve water quality and limit health risks, beavers and beaver dams should be removed before allowing recreational swimming at the pond. The Hydrogeologic Investigation included additional site management recommendations, and the full investigation report can be found in **Appendix C**.

Section 4 Site Opportunities and Constraints for Recreational Development

4.1 Site Opportunities and Constraints

The 163.4-acre site can provide for multiple uses but also has some constraints that will need to be considered in planning for the site:

- **Vacant residential structures**
  As mentioned under Section 3 Site Clean Up, there is a vacant residential home and garage at 418 Old Bath Road that the Town acquired. Additionally, there is a residential house and vacant trailer located off Sturgeon Lane that is part of the Town-acquired property. The structures will need to be evaluated for use and may require demolition. If through evaluation it is determined the units are structurally sound, they may be reused for things like storage or housing a seasonal ranger, if appropriate for site management support.
- **Existing wooded areas**
  Wooded and vegetated areas may need to be cleared depending on the location of proposed site entities. For instance, selective tree removal within wooded areas will likely be required for development nature trails or multi-use paths. Tree removal should be minimized as much as possible as the wooded and vegetated areas contain existing habitats and will also appeal to visitors of the site.
- **Existing wetlands**
  Development in or adjacent to wetlands may require permits. Regulatory agencies may have wetland impact requirements that must be met. Wetlands will also provide an educational opportunity for visitors.
- **Existing freshwater pond**
  Development in or adjacent to the pond may require permits. There are different regulatory requirements depending on project proximity to the pond. The pond can also provide uses for the public including fishing, non-motorized boating, and swimming.
- **Bonny Brook and Unnamed Stream**
  Bonny Brook is the primary outlet of the existing freshwater pond. An unnamed inlet stream is also present along the east side of the Site. If a multi-use path will circulate the entire pond, boardwalks/pedestrian bridges will be required to cross the stream. Similar to the wetlands on site, the streams can also provide an educational opportunity regarding fish habitat.
- **Existing site topography**
  Although the site is generally flat, there are some steeper slopes that may require grading. For instance, if the multi-use path is to be ADA accessible, there are certain slope requirements the path must meet to be considered ADA which will likely require site grading.
- **Existing trails at the Captain Fitzgerald Recreation & Conservation Area**
  The Captain Fitzgerald Recreation & Conservation Area on the southwest end of the property has existing trails that can seamlessly connect to the trails within the Former Maine Gravel Services Area.
- **Sturgeon Lane** There is an existing access road to the site through Sturgeon Lane that can be used and expanded on. The paved section of the road extends approximately 450 feet from Old Bath Road, however the gravel section continues for an additional 3,000 feet into the Site, providing opportunity for future access drive and path facilities.

Figure 4-1 Bonny Brook and Sturgeon Lane

4.2 Recreational Development Opportunities

- **Location**
  Providing a recreational space in East Brunswick.
- **Large parcel**
  The total acreage owned by the Town, 163.4, permits space for multiple site uses and entities. The parcel directly abuts the Captain William A. Fitzgerald Recreation and Conservation Area parcel, which is also owned by the Town.
- **Freshwater Pond**
  The pond can provide year-round recreational uses such as fishing, kayaking, canoeing, swimming, a beach, ice skating, and ice fishing.
- **Access Roads**
  Gravel access roads are present around a majority of the pond perimeter and can be used for proposed access drives and recreational trails.
- **Sand Pile**
  A large existing sand pile is located on the southwest side of the pond, providing opportunity for natural playgrounds and sledding.
- **Electricity**
  Electricity will likely be available from nearby Old Bath Road.
- **Captain Fitzgerald Recreation and Conservation Area**
  Providing access to the Captain Fitzgerald Recreation and Conservation Area site will allow visitors access to additional recreational trails and uses.
- **Public education**
  The natural resources on site, including the freshwater pond, wetlands, and habitats on site, will provide educational opportunities for visitors and educational institutions.

4.3 Recreational Development Constraints

- **Rare, threatened, or endangered species**
  The presence of rare, threatened, or endangered species can create additional permitting requirements and limit time-of-year work windows for construction. These requirements are in place to protect these species.
- **Existing sewer**
  The nearest sewer line is located on Deerfield Drive, just south of the Captain Fitzgerald Recreation and Conservation Area, which is approximately 6,000 linear feet from the existing sand pile.
- **Public water**
  The nearest public water line is located on Old Bath Road, south of the Captain Fitzgerald Recreation and Conservation Area, which is approximately 8,000 linear feet from the existing sand pile.
- **Beaver dams**
  As previously discussed, a beaver dam and low water quality were observed at Bonny Brook while completing a Hydrogeologic Investigation of the site. Beavers can cause giardia blooms in the water, which can lead to serious illness if ingested. Beaver activity should be removed from the site before recreational swimming is permitted.
- **Site grading and clearing**
  As mentioned, although the site is generally flat, clearing and site grading may be required for access drives, parking lots, playing fields, and trails.
- **Town of Brunswick property lines**
  Any work must be within the Town of Brunswick property and meet the setback requirements outlined in the Brunswick Zoning Ordinance.

Table 4-1 Brunswick Zoning Ordinance Setback Requirements

Standard	Setback Requirement
Front of lot	25 feet
Rear of lot	30 feet
Side of lot	30 feet

- **Sandy peninsula**
  As discussed in Section 3 Site Clean Up, the Brunswick Police Department used the sandy peninsula on site for a shooting range between 2021 and 2024. There may be leftover hazardous bullet casings that would require cleanup.

Section 5 Management Priorities and Recommendations

The following sections include management recommendations to preserve the site's existing natural resources and historical and cultural features while providing a site that promotes passive and active outdoor recreation uses and public education.

5.1 Natural Resources

Portions of the site are within a Wildlife Protection Block based on the Town of Brunswick's Planning Overlays mapping. Mapping developed by the Maine Inland Fisheries and Wildlife (MDIFW) indicate there are nearby habitats of the Cobweb Skipper, a special species of concern, and sandplain grassland, a rare/exemplary natural community at the Captain Fitzgerald Recreation and Conservation Area site. Additionally, there are existing wetlands on site that provide essential habitat to ecosystems.

5.1.1 Specific Natural Resource Concerns

Flycatcher conducted a site survey and developed a Wetland, Watercourse & Waterbody Delineation and Potential Vernal Pool Survey Report that summarizes the natural resources on site, refer to **Appendix D**. As part of the site survey, Flycatcher did outreach to the Maine Natural Areas Program (MNAP) where Sandplain Grassland, which is known to be present at the Fitzgerald Recreation and Conservation Area, was identified west of the site. MNAP recommends a 100-foot buffer be maintained around the grassland. The soil types identified by Flycatcher indicate proximity to the grasslands and that there may be a habitat for the Sandplain Grassland at the Former Maine Gravel Services site. MNAP also recommends the site be surveyed for rare plants clothed sedge (*Carex vestita*) and dry land sedge (*Carex siccata*). If these plants, or any other rare plants, are discovered, it must be reported to MNAP.

Figure 5-1 Carex siccata (Source: Maine Natural Areas Program)

Flycatcher also requested an Official Species List from the US Fish and Wildlife Service (USFWS) which identified the following species listed under the Federal Endangered Species Act within the site:

- Northern Long-eared Bat (endangered species)
- Tri-colored Bat (proposed endangered species)
- Atlantic Salmon (endangered species)
- Monarch Butterfly (candidate for listing)

The MDIFW completed an assessment of the freshwater pond in 2021 to determine its habitability for trout species. They determined the current condition of the pond is not suitable for trout species in the long term due to the pond being "homothermous", meaning that pond's temperature was the same at varying depths and is oxygen deficient below 10 feet. The MDIFW suggested the pond could be suitable for put-and-take fall yearling and brook trout ice fishing. The following fish were identified in the pond during MDIFW's assessment:

- Largemouth Bass
- Smallmouth Bass
- Pumpkinseed Sunfish
- Black Crappie
- White Perch
- Yellow Perch

As discussed in Section 3 Site Clean Up, Wright-Pierce completed a Hydrogeologic Investigation of the Site and provided site management recommendations based on the investigation, refer to **Appendix C**. One of the recommendations is to minimize tree and vegetation removal and clearing as much as possible to reduce the impact on water quality in the freshwater pond. Maintaining established vegetation on site will help prevent erosion and siltation of sediments into the pond and overall protect the water quality in the long term. However, vegetation should also be managed to limit the potential for organics to enter the water, which can also poorly impact water quality. For unstable areas on site, erosion and sediments can also be treated through the use of best management practices. Similarly, it is recommended that a "leave no trace" policy be implemented to manage litter and pet waste on site and minimize the potential for waste to impact the pond's water quality. This can be attained through signage on site and by providing and maintaining trash receptables throughout the Site. Fertilizers, pesticides, and herbicides are also recommended to be prohibited on site.

Depending on the total natural resource impact of the development, Maine DEP and the Army Corps of Engineers (ACOE) permits will likely be required. Part of the permitting process will require outreach to the MDIFW and MNAP to verify the potential impacts development could have on existing habitats and natural areas. There are requirements and recommendations through permitting that will aim to protect the endangered species already identified by the USFWS, including extent of impact and time-of-year work windows. The following can also be completed to further understand the existing natural resources site and how to protect them:

- Conduct yearly surveys of the site for existing habitats and natural areas conducted by volunteers or students from Bowdoin College with guidance from the Brunswick Conservation Commission.
- Develop an up-to-date list of potential rare, threatened, or endangered species and species of special concern that can be maintained by the Brunswick Conservation Commission.
- Report any identified rare natural plants to MNAP.

In addition to understanding the threatened and endangered species of site, there are existing bird habitats that can allow for bird watching and provide overall enjoyment of the natural site. The grassland community at the Captain William A. Fitzgerald Recreation and Conservation Area site has unique habitats for breeding bird populations. This site is well known locally among recreational birders, and they have recorded seeing many different species. The following recommendations will promote interest in birds for visitors while protecting their habitat:

- Work with the local birding community to develop a list of known breeding and migratory birds at the Site.
- Publicize the Site and educate a wider audience about the opportunities for birding.
- Make bird lists available to visitors online and through signage or pamphlets at the Site.
- Encourage local groups to lead annual birding trips.
- Recreational uses that create significant noise should be conducted away from known habitats of breeding birds.

Figure 5-2 Captain Fitzgerald Recreation and Conservation Area

Invasive species can disrupt ecosystems through overgrowth, killing native species, and destroying habitats. Invasive species should be monitored at the Site and recorded annually to ensure native plants and species are not impacted. Invasive species control measures should also be implemented in the short term. To further manage and monitor invasive species, a list of Best Management Practices for Invasive Species Control can be developed.

5.1.2 Natural Resource Management Partners

The following list contains governmental and non-governmental partners and their management role at the Former Maine Gravel Services Area:

- **The Brunswick Parks and Recreation Department:** The Department is tasked with overseeing the Site and administering funds related to property management. Responsibilities of the Department include coordination of site management activities, including coordinating controlled burns with management partners.

- **Brunswick Conservation Commission:** The Commission will be responsible for oversight of plan implementation regarding natural resources, conducting or supervising inventories for rare, threatened, or endangered species, species of special concern, or invasive species, and oversee invasive species eradication or control efforts.
- **The Nature Conservancy:** The Conservancy will be responsible for providing expertise regarding planning and execution of controlled burns.
- **Maine Department of Inland Fisheries and Wildlife:** The Department has conducted surveys for rare butterflies, fish, and may conduct future inventories for rare, threatened, or endangered species or species of special concern; the Department would also specify survey methodologies to use for rare species in support of any development permit applications.
- **Maine Natural Areas Program:** The Maine Natural Areas Program has conducted limited surveys for rare plants and may conduct future inventories for rare, threatened, or endangered plants; the Program would also specify survey methodologies to use for rare plants in support of any development permit applications.
- **Maine Department of Marine Resources:** The Maine Department of Marine Resource (DMR) has monitored and cleared obstructions to prevent upstream migration of the native sea-run alewives in the pond. DMR would like to continue to access the site to ensure upstream passage, monitor the population status, and conduct scientific studies. They would also be interested in developing citizen science initiatives to benefit DR's management and inform the public about this import resource. Refer to letter from DMR in **Appendix E**.
- **Bowdoin College:** The college could be a potential partner for rare species inventories.

5.1.3 Pertinent Natural Resource Regulations

The Former Maine Gravel Services Area is located within the Town of Brunswick's Rural Residential zoning district and development within the parcel is subject to the Town's Zoning Ordinance. A portion of the site also falls within the Wildlife Protection Overlay Block and will be subject to those standards in the Zoning Ordinance. The project will likely require Brunswick Planning Board approval as a major development project.

Figure 5-3 Wetlands on Site

The Site contains mapped wetlands and potential vernal pools as identified by Flycatcher LLC which will likely require a Natural Resource Protection Act (NRPA) permit from Maine DEP. A NRPA permit is required when an activity occurs in, on, or over a protected natural resource or adjacent to a coastal wetland, great pond, river, stream, brook, significant wildlife habitat within a freshwater wetland, or certain freshwater wetlands. There are mapped freshwater wetlands on site and the existing artificial freshwater pond is considered a "great pond" since its surface area exceeds 30 acres; therefore, development of the site will likely require a NRPA permit.

A Site Location of Development Permit (Site Law) will be required by Maine DEP if there are more than 3 acres of new impervious area or more than 20 acres of developed area on site. If the project results in less than those areas but still creates 1 or more acres of impervious area or 5 acres or more or developed area, a Stormwater Permit will be required by Maine DEP. If the project results in less than these areas, it may be eligible for a Stormwater Permit by Rule. A pre-application meeting with Maine DEP is recommended to verify permit needs once the preliminary design is complete.

If any work is completed within wetlands or the existing freshwater pond, a permit from ACOE will likely be required. The ACOE has jurisdiction for any construction in, over, or under any navigable water and work that occurs below the ordinary high-water mark or within wetlands. Depending on the amount of site grading or construction that occurs within the existing wetlands or the existing freshwater pond, the project may require a General Permit or Individual Permit through ACOE. General Permits are generally for projects that have less impact on natural resources and do not require a lengthy review process. Any project that cannot meet the requirements of a General Permit will require an Individual Permit.

5.2 Cultural and Historic Resources

The site was historically used for agriculture prior to being owned by Maine Gravel Services, Inc. Once owned by Maine Gravel Services, Inc., the site was used to excavate sand and gravel aggregate materials which created the large freshwater pond in the center of the site. The following recommendations will help manage any cultural and historic resources at the Former Maine Gravel Services site:

- Conduct annual outreach to the MHPC and exchange any archeological site information.
- Notify the MHPC of development at the site before site disturbance occurs.
- Work with MHPC to ensure that there is a buffer around the existing archeological site on the Fitzgerald Property. If that buffer extends onto the Former Maine Gravel Services site set the following policies within the buffer:
    - Establish "No Ground Disturbance" and "No Removal of Debris" policies via signage throughout the site.
    - Reduce ground disturbance when site grading and constructing access roads, trails, and other site entities.

5.3 Education

The Former Maine Gravel Services Area site has multiple educational opportunities for the public, site visitors, and students. Posting signage throughout the site that provides information for existing natural and historical resources will help educate visitors about the property. Nature trails can be used by educational institutions for field trips or student projects to teach students about the existing ecosystem and historical uses of the site. The educational signage plan for the Former Maine Gravel Services areas should be developed in conjunction with the Fitzgerald Recreation and Conservation Area.

5.3.1 Natural Resource Education Topics

- Stormwater treatment occurring on site
- Protection of any rare, threatened, and endangered species on site
- Biological and environmental topics including ecosystems, habitats, and plant and tree species

5.3.2 Cultural and Historic Resource Education Topics

- Work with the Wabanaki Center to create informational signage reflecting the Wabanaki settlement patterns in the area.
- Work with MHPC to create informational signage reflecting the early European settlement patterns in the area.
- Work with the Pejepscot History Center in developing historic signage and/or programming for the site.
- Work with the Patten Free Library in developing historic signage and/or programming for the site.

5.3.3 Site Improvements to Support Education

- An educational pavilion is proposed in the center of the Site near the existing sand pile and will provide opportunity for daytime educational classes.
- Educational signage is proposed along the multi-use paths as well as the nature trails and will provide low-cost conduit for educating users of the Site.

5.4 Recreational Development

The Captain William A. Fitzgerald Recreation and Conservation Area site will remain very similar to its current state under this Management Plan. Proposed improvements include a small parking area for people with disabilities, modest trail enhancements with improved accessibility, as well as connectivity to the trail system at both the Former Maine Gravel Services site and the Androscoggin to Kennebec (A2K) Trail which is currently intended to connect Cooks Corner with Congress Street in Bath following the U.S. Route 1 corridor. The 66-acre parcel will continue to be used for hiking, biking and other passive recreation uses including birdwatching, foraging, snowshoeing and cross-country skiing.

The Former Maine Gravel Services site was donated to the Town of Brunswick in 2019 with the condition that the parcels be used for public recreational purposes. The 163.4-acre block is large enough to accommodate both passive and active recreational activities. The overall site will play host to a wide variety of recreational uses including fishing, kayaking, canoeing, hiking, trail biking and nature observation. Additionally, the conceptual site plan features many areas intended to support other forms of recreation including a playground, public swimming area and playing fields. It also includes, among other improvements, an improved access road, parking areas, restrooms, an outdoor pavilion and a dock to support both passive and active recreational uses.

5.4.1 Site Context and Recreational Development Components

The proposed conceptual site plan outlined in this section incorporates uses identified by the Former Maine Gravel Services & Captain William Fitzgerald Recreation & Conservation Area Master Plan Committee (Committee) in July 2024. Wright-Pierce and Viewshed facilitated workshops in August and September 2024 to understand the preferred site layouts from Committee members. Three alternative site plans were developed that best represented the vision and goals of the Committee. These alternatives were presented at the October 29, 2024, Committee Meeting and were voted on by the Committee members to collect additional feedback on preferred layout, priority uses, and concerns. Feedback received was consolidated and addressed into the final conceptual site plan, which was presented to the Committee on December 12, 2024, and can be found in **Appendix A**. The final conceptual site plan represents a conceptual level design effort, for planning purposes only, to help the

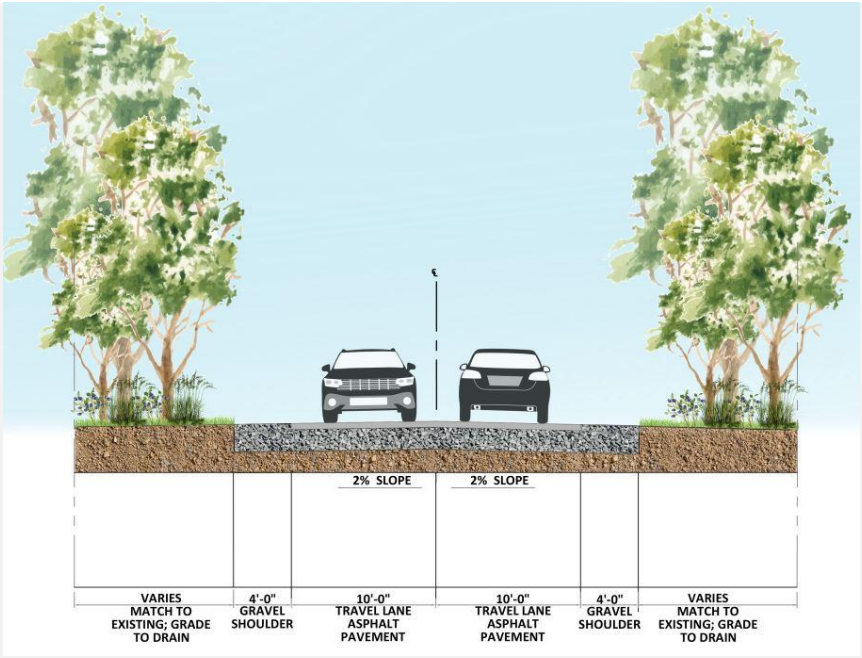
Committee and public understand how the proposed uses and facilities could be constructed on site and implemented over time. The site plan is accompanied by conceptual level opinions of cost for each use and can be used for budgetary and implementation planning. The opinion of costs can be found in **Appendix B**.

5.4.2 Site Access Improvements

The proposed access points are located at Sturgeon Lane and 418 Old Bath Road, both of which have ample space within the Town's right of way. There is an existing paved access way to the Site through Sturgeon Lane located off Old Bath Road. Sturgeon Lane provides access to two residences in addition to the Former Maine Services Gravel Site. Sturgeon Lane is overall in good condition with little to no pavement distresses and it is likely that drainage can be attained by providing a crown in the roadway and an open channel ditching on each side. 418 Old Bath Road was previously private but has been attained by the Town of Brunswick for the project. There is a vacant residence and garage that will either be reused or demolished depending on the condition of the structures. The existing access drives to the property are gravel with pavement directly in front of the residence. Similar to Sturgeon Lane, constructing a crown to the roadway and ditching can likely provide drainage for the access drive. Although there is no existing storm drain system on either of these proposed access roads, there is an existing drainage network on Old Bath Road approximately 1,000 feet east of Sturgeon Lane and 240 feet east of 418 Old Bath Road that could be tied into if deemed necessary during preliminary design.

Both access points should be rebuilt to meet the Town of Brunswick Zoning Ordinance's which requires a 20-foot pavement width for uncurbed roads and a 24-foot pavement width for curbed roads. A 4-foot shoulder would also need to be provided on both sides of the road as required by the Town Ordinance. The access roads would have an asphalt surface and be crowned with a 2% cross slope.

Figure 5-4 Access Road Typical Section



5.4.3 Passive Recreation Development

Passive recreation refers to leisure activities that do not require scheduling or coordination. Passive recreation entities proposed in the Conceptual Site Plan include:

- **Multi-Use Path Trail**
  A multi-use path trail is proposed to circulate the property providing access and connectivity to all site entities totaling approximately 11,500 feet. There is an existing gravel trail that wraps around the western portion of the site that could be reused and updated for the multi-use path. The path should be designed to meet AASHTO's Guide for the Development of Bicycle Facilities (2024, 5th Edition), or most recent edition, and any applicable Town of Brunswick Zoning Ordinance and Municipal Code of Ordinances. The path is anticipated to be 10-feet wide, as recommended by AASHTO, and can be used by pedestrians or bicyclists and smaller Town owned maintenance vehicles only. Benches and signage can also be provided throughout the trail for visitor use and education. Since the site would be expected to experience a lower pedestrian and bicycle volume, striping of the path is likely not needed, but could be added if desired. A portion of the trail is proposed to provide ADA access and meet ADA requirements. The ADA portion of the path is proposed to have an asphalt surface and be located on the western side of the site and provide ADA-connectivity from the playing fields on the northeast side of the Site to the play area and parking lot on the southwest side of the Site, totaling approximately 5,300 feet. For the path to be ADA compliant, it will need to have a minimum 5-foot clear width (unless passing spaces can be provided every 200 feet), have a maximum 1.5% cross slope, and not exceed a 5% running slope along the profile of the path. The portions of the path that are non-ADA compliant, approximately 6,200 feet, is proposed to be a stone dust path and will follow the natural topography of the site to reduce costs related to site grading and will feature two boardwalks: (1) that crosses an unnamed stream on the southeast side of the site, and (2) that crosses Bonny Brook on the northeast side of the site. The path is proposed to connect to existing trails within the Captain Fitzgerald Recreation and Conservation Area and ultimately provide access to the Androscoggin to Kennebec Trail which connects Brunswick to Bath. If available funds are limited and trails that were initially intended to be ADA accessible cannot be constructed, the Town should consider constructing the gravel base as a temporary measure. This will provide a barrier-free level trail but will not be fully accessible. As funding becomes available, the gravel base can be paved to fully meet ADA accessibility guidelines.

Figure 5-5 ADA-Compliant Multi-Use Path Typical Section

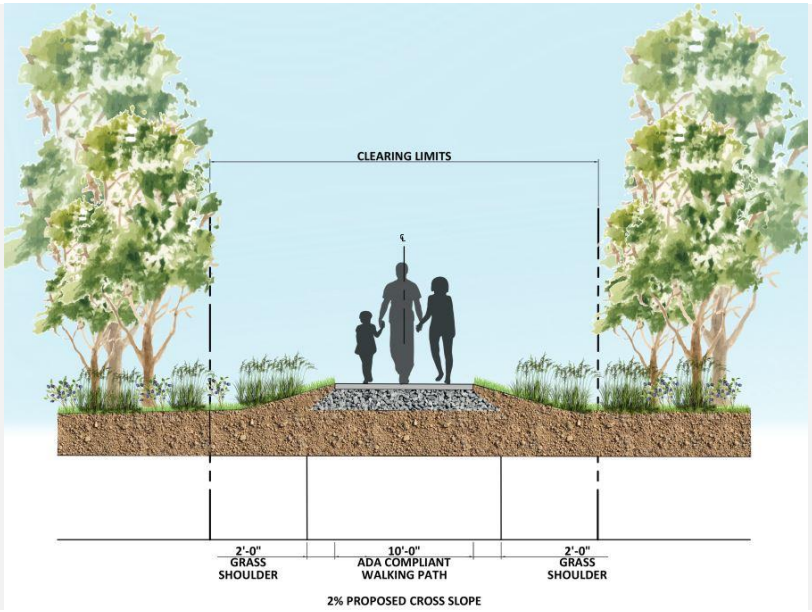
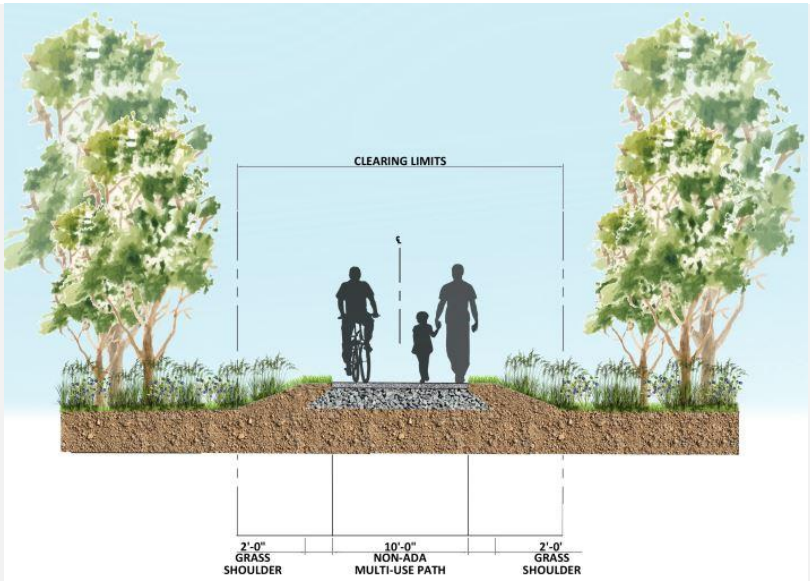
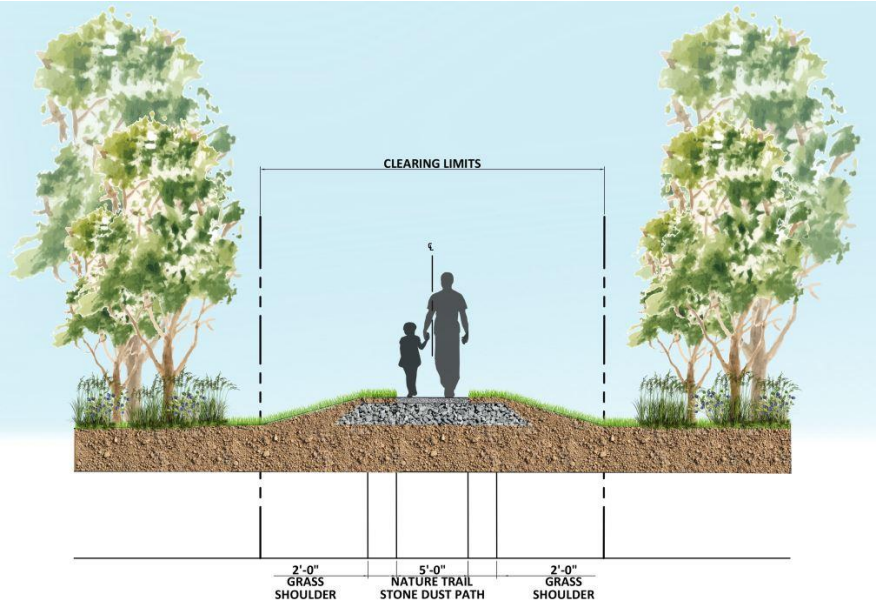


Figure 5-6 Non-ADA-Compliant Multi-Use Path Typical Section



- **Nature Trails**
  Natural trails are proposed on the west side of the property to meander through existing forest and wetlands providing pedestrian access for walking, photography, and bird watching. The proposed total length of the trails is approximately 5,515 feet. The layout and total length of the trails can be adjusted to align with the Town's budget and maintenance capabilities. The trails will be accessible through the multi-use path with two access points. The trails are anticipated to be 5-feet wide, constructed of stone dust, and only accessible to foot traffic. The suggested locations of the nature trails reflect the desire to minimize disturbance to the existing wetland network. To maintain existing vegetation and prevent erosion, the trial system should follow existing topography as closely as possible, which will likely result in sections that do not meet ADA path design requirements. However, by maintaining a 5-foot minimum width and smooth surface, these trails should be designed as Barrier-free to preserve access by users of all abilities. It is recommended to include signage throughout the natural trails as an educational opportunity that directs visitors to varying ecosystems and habitats within the forest and wetlands.

Figure 5-7 Natural Trail Typical Section



5.4.4 Active Recreation Development

Active recreation refers to more physical engagement, often requiring scheduling or coordination. Active recreation entities proposed in the Conceptual Site Plan include:

- **Playing Fields**
  Two recreational playing fields are proposed to be located on the northeast edge of the site and will be sized to accommodate lacrosse, soccer, field hockey, and football. The dimensions of each field are 225 feet by 360 feet and are both positioned to have the long axis on the northeast-southwest axis. Although the desired orientation for playing fields is north-south to keep the players from squinting in the sun, this is the most efficient use of space given the Town of Brunswick Property lines in the proposed location. A recommended buffer zone on the outside of a field is 6 feet for football and 10 feet for soccer. A minimum 30 foot offset from property lines, and the multi-use path is provided in the concept plans which allows for safety clearances, spectator circulation, spaces for bleachers if desired, and surface drainage. The orientation and positioning of the fields can also be revisited during preliminary design.

  Based on soil data from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), the soils at the proposed playing field location consist of Windsor loamy fine sand and is considered excessively drained, meaning that water drains from the soil very quickly. Due to this, it is recommended that organic matter be brought in to help maintain grass growth. As recommended in the Hydrogeologic Study, it is recommended that fertilizers be minimized to protect the water quality of the adjacent pond. In order to maintain good grass coverage, irrigation should be considered. However, neither water nor power sources are currently provided near the proposed playing fields and therefore if an irrigation system is considered, a solar powered well may be the most cost-effective solution.

- **Play Area**
  There are two proposed play areas, one to be located at the northern corner of the site right off Old Bath Road and the other on the southwest side of the site near the swimming area. The style and design of play areas can vary widely in type of play, type of equipment, and age group, amongst other factors. Playgrounds can be standardized off-the-shelf systems, custom / adventure play areas, inclusive play systems (fully accessible), or natural play areas. Ideally, as there are two separate play area locations, providing two different playground types would service more families in this more remote area of town. Prior to the design and installation of these play areas, it is recommended that the town engages the public of east Brunswick before determining the type of playground at each of these locations.

- **Parking Lots**
  There are five proposed parking areas throughout the site that will provide approximately 200 parking spaces. Two of the proposed parking areas will be sized for 80 parking spaces, two other parking areas will be sized for 15 parking spaces, and one will be sized for 10 parking spaces.

  The access road at 418 Old Bath Road is proposed to connect parking areas and provide access to a play area, athletic fields, multi-use path, and the dock on the northern side of the Site. One of the smaller parking areas with 15 on-street parking spaces is proposed to be located near the proposed play area on the northern corner of the Site, providing access to the play area and adjacent storage building. Any parking lots that are within 50 feet and visible from a street, development, or vacant property must provide and maintain perimeter landscaping that meets the requirements of Section 4.9.3 of the Town of Brunswick Zoning Ordinance. The

proposed location of the parking area on the northern corner of the site is approximately 85 feet from Old Bath Road, therefore the requirement for perimeter landscaping won't be required; however, this should be kept in mind during preliminary design of the Site. One of the larger parking lots will be located on the northern side of the Site adjacent to the two playing fields. The lot size will assume 40 parking spaces per field, totaling approximately 80 spaces for the lot. The multi-use path will also be accessible from this lot. The road is proposed to have a one-way loop that provides access to the smaller parking area with 10 on-street spaces for the dock and non-motorized boat launch.

The access road through Sturgeon Lane is proposed to have two parking areas, one dedicated lot with 80 parking spaces near the beach area and another with 15 on-street parking spaces that will provide parking for the nature trails, a gathering area, play area, picnic area, swimming area, and multi-use path on the southern end of the site.

Increased access to the Fitzgerald site will be provided by creating on-street parking along Lindbergh Landing and a small parking area developed inside the gate at the end of Lindbergh Landing to provide handicap accessible parking. There are a variety of ways the Town can control the opening of the gate including the use of RFID tags or cards which can be provided to people at the town office, a license plate recognition system, a mobile application tied to a disability permit, or a simple keypad opening system. The Town will have to consider the best method for providing access to these spaces. The important elements of the system are balancing the costs with ease of access.

As required by Section 4.9.3. of the Town of Brunswick Zoning Ordinance, parking lots with more than 30 parking spaces need to be broken up and separated with landscaped islands, pedestrian and bicycle areas, or buildings. Landscaped islands will need to be provided at the end of every row of parking spaces, along a row of parking that is spaced more than 20 spaces apart, and between at least every three parallel parking bays. This will need to be implemented in both parking lots that propose 80 parking spaces each. There is an opportunity to use some of the landscaped spaced within the parking lots as Stormwater Management Best Management Practice devices for water treatment and infiltration.

Section 4.9.2. of the Town of Brunswick Zoning Ordinance requires that at least 2 bicycle parking spaces be provided for every 10 vehicle parking spaces provided, assuming no more than 20. Therefore, 16 bicycles parking spaces will need to be provided in the parking lots with 80 parking spaces and 4 bicycle parking spaces will need to be provided in the parking lots with 15 parking spaces.

- **Swimming Area**
  The swimming area is proposed to be located on the southwest side of the site near the existing gravel/sand pile. The proposed swimming area is approximately 124,400 square feet in area and occupies approximately 470 feet of shoreline.

Figure 5-8 Proposed Beach Location

An example of a local beach and swimming area is Coffin Pond located off River Road in Brunswick. The beach at Coffin Pond has a maximum width of approximately 90 feet from the parking lot to the swimming area. To achieve a similar footprint of the beach at Coffin Pond, there are trees and vegetation that will need to be cleared to create a sandy beach area. Additionally, the proposed area will likely have to be replenished with sand, which can likely be accomplished by reusing the sand from the sand pile adjacent to the proposed swimming aera. The size of the beach and swimming area can be adjusted as desired to fit the Town's budget and maintenance capabilities. It would be recommended the swimming area be enclosed by buoys to restrict swimming elsewhere in the pond, provide a shallow entry into the swimming area for safety, and minimize conflicts with fishing and non-motorized boaters. There could be an opportunity to create a shallow zone for children and a deeper zone for adults.

- **Dock**
  An ADA accessible dock is proposed to be located on the west side of the pond just southeast of the proposed parking lot off Sturgeon Lane and north of the proposed swimming area. This location is relatively flat and along the existing access road.

  The dock will provide water access for non-motorized boats, such as canoes, kayaks, or paddleboards into the water. The dock will also provide an area for fishing that is purposefully located some distance from the swimming area for safety. The Hydrogeologic Investigation, completed by Wright-Pierce in 2024, recommends coordinating with the MDIFW to determine sustainable practices and permitted schedules for fishing at the site. This will help prevent overfishing while still allowing visitors to fish recreationally at the Site.

- **Restrooms and Changing Facility**
  There are two different proposed type of restroom facilities on the Site. One is a vault toilet located near the parking lot for the playing fields and near Sturgeon Lane. This will be a smaller structure consisting of a gender-neutral restroom stall and sink. The other proposed restroom is a combined restroom and changing facility for

use near the swimming area. In order to serve users of all identities as well as families with varied ages/gendered members, it is recommended that changing stalls be separate (not grouped) and non-gendered.

There are two options for this facility:

1. Develop Vault Toilet area with 4 restrooms stalls and develop separate non gendered changing areas which could be near the bathroom or closer to the beach. There are a variety of options for how to develop these, they could harken back to 1920s bathing shacks, be very modern designed Nordic changing stalls, or simple state park like enclosures.

Figure 5-9 Retro Bathing Shacks

Figure 5-10 Modern Nordic Changing Stalls

2. Develop a single enclosure with both restrooms and changing areas. This will be a larger structure anticipated to be 50 feet by 25 feet with 4 restroom stalls and 10-15 changing stalls. In order for the changing stalls to be gender neutral, they will need to have doors, it is suggested that the doors be open on bottom and not higher than 4.5 ft in order to let in as much light as possible. The changing area should also have an open roof to allow for free air flow and light. This arrangement would be more similar to Coffin Pond although those changing areas are divided by gender.

Figure 5-11 Single Enclosure with Restrooms and Changing Areas

The Hydrogeologic Investigation completed by Wright-Pierce recommends the restrooms facilities be located as far away from the pond as possible. This will allow for natural attenuation of grey water by naturally occurring microbes in overlying soils and within the aquifer. Adding a septic system on site is not anticipated to have any adverse impacts on the aquifer due to varying seasonal use of the facilities.

- **Signage**
  The following signage can be used on site to provide information related to site identification, land uses, and site interpretation:
  - Identification signage would contain information such as the name of the site or park and site hours. Text font and size should be large enough for passers-by to read.
  - Signs for land use would generally include site rules which should be posted at the entrance and at different site entities if allowed uses and rules vary. For instance, bicycles will be allowed on the multi-use path but not within the natural trails. A separate sign should be posted at the entrances to the nature trails clearly stating bicycles are not allowed.
  - Interpretive signage can be used for educational purposes throughout the Site. As mentioned within this plan, one of the goals of the project is to educate visitors about the natural and historical resources at the Site. Providing signage containing this information will help achieve this goal. There has been discussion of including scannable QR codes on site that will bring visitors to a link with information about that specific habitat area of the Site. The example provided in Photo 12 is from the Iroquois National Wildlife Refuge in Basom, NY. The QR code brings visitors to a website that plays an audio tour for the trail.

Figure 5-12 QR Code Sign (Source: Friends of Iroquois National Wildlife Refuge)

5.4.5 Other Uses Considered

In addition to the recreational uses described above, the Committee considered other uses during the development of this Plan. The results of the straw poll can be found in **Appendix F**. Ultimately, these uses were not prioritized and therefore excluded from the Plan:

- Motorized boating
- Hunting
- Tourist business
- Campsites for rental
- Brunswick Aerial Modelers (BAM)
- Off-leash dog area

5.5 Public Access, Uses, and Management Issues

5.5.1 Athletic Field Use

Athletic field use will be scheduled by the Brunswick Parks and Recreation Department.

5.5.2 Bicycles

Bicycle use within the Former Maine Gravel Services Area will follow the current Town of Brunswick Bicycle Recreation policy.

5.5.3 Camping

Camping is prohibited.

Campfires are not allowed due to the danger they pose to the natural forest habitat. Any fire rings found will be dismantled and “Kindle No Fires” signs will be posted. “No Camping” signs will be posted if illegal camping becomes a problem.

5.5.4 Dogs

Dogs will be allowed on leash only as per town and state laws and ordinances.

Dog owners must pick up after their dogs at all times. Due to the size and topography of the site and the ecology of the pond, even small amounts of dog waste not attended to will cause the swimming area to be closed. The Town will have to monitor the ability of dog owners to comply with picking up waste. If the swimming area needs to be closed due to dog waste, the Town will have to change its policy of allowing dogs on the property. It is recommended that signage be added to emphasize the importance of picking up dog waste to protect the environment and water recreation opportunities.

5.5.5 Fires

Other than authorized controlled burns for ecological management purposes, no fires are allowed.

5.5.6 Horses

No horses will be allowed on the property.

5.5.7 Hours of Operation

The park will be open from ½ hour before sunrise to ½ after sunset. Parking will be allowed only when the park is open. The Recreation Commission has the authority to change the hours of operation or open the park during special hours for sanctioned events. Signs will be posted at all entrances with regular hours and if a special event is happening it will be posted at all entrances as well.

5.5.8 Hunting and Trapping

No hunting or trapping will be permitted on the Site.

5.5.9 Ice Skating

Ice skating will be permitted on the beach side of the pond. Markers will be placed to identify the ice-skating area. The Town is not planning to clear or maintain the ice.

5.5.10 Ice Fishing

Ice fishing can take place away from the ice-skating areas. No ice fishing shacks may be built or used at any time, no vehicles may be driven onto the ice, gas powered augers may not be used.

5.5.11 Motorized Recreation

Motorized recreation vehicles are only allowed on the property for management, emergency, or maintenance activities. Access is not allowed for ATV's, snowmobiles, and/or golf carts. No motorized recreational boating is allowed on the pond. Motorized wheelchairs are permitted on portions of the Site where pedestrian traffic is permitted.

5.5.12 Sales or Promotion

Selling or promoting the sale of items is prohibited within the park, except with respect to the park's authorized concession.

5.5.13 Signage

Ensuring proper signage for directing and instructing users, displaying park rules and to clearly mark trail locations is critical to management objectives.

Interpretive signage as determined by the Committee will be developed and implemented in coordination with the Fitzgerald Recreation and Conservation Area.

5.5.14 Swimming

Swimming is only allowed in the designated swimming areas identified by buoys. Swimming is only permitted when the lifeguard is on duty. The Department of Parks and Recreation will set swimming rules.

Until the infrastructure and the beach development are complete, there will be no swimming allowed at any time.

5.5.15 Trash

Trash will be removed by the Town. Trash receptacles will be provided in parking areas, playgrounds, swimming areas, picnic pavilions, changing rooms/bathrooms, and anywhere else the Town deems necessary. Dog waste bags will also be provided in specific locations around the Site.

5.5.16 Trails

Walking trails will be available for birdwatching, nature photography, dog walking, and enjoyment of the natural community as well as winter uses such as cross-country skiing and snowshoeing. Park users must remain on designated trails during the months of May, June and July, when birds are nesting.

5.5.17 Foraging (i.e. Blueberries)

Citizens are allowed to forage at their own risk. Foragers must follow the same trail rules as all others. Foraging can only be done by hand and only for personal consumption. Specifically, blueberry harvesting may only be conducted by hand (no raking) across the Site.

5.5.18 Invasive Plants and Animals

Some plant and animal invasions may not be particularly disruptive. However, others can be very serious, threatening the biological integrity of the site. Plants such as Japanese knotweed, burning bush and non-native honeysuckles have been documented to out-compete native vegetation in southern Maine and should therefore be considered a serious threat. The Conservation Commission will conduct routine monitoring to recommend removal of infestations of new invasive plants to the Parks and Recreation Department before they become a major concern. Due to the desire to preserve the water quality of the pond and ensure its use for swimming and fishing, herbicides and pesticides will be banned from use on the site.

5.5.19 Structures

Unauthorized temporary or permanent structures are not permitted on the Site. Memorials, unauthorized signs and posters, tree houses, forts and deer stands are examples of structures not permitted.

Any structures deemed necessary to implement the Conceptual Site Plan and approved by the Town of Brunswick through proper processes are allowed. If warranted, the Parks and Recreation Department can place portable toilets in the parking areas.

5.5.20 Monitoring of the Natural Community

The Conservation Commission will organize any baseline inventories to understand the natural resource values of property and will maintain data collected in a format readily viewable by interested staff and volunteers. In the interest of furthering the ability to engage the community in understanding the site, it is recommended that a

Community Science application be developed which could be used for community members to input information in a consistent format which could be used by the Conservation Commission, staff, and other interested parties to review recorded findings over time.

5.6 Public Feedback

A draft of this management plan was presented to the public at a public workshop on January 11, 2025. Formal comments submitted to the Town can be found in **Appendix G.**

5.7 Recommended Implementation

Ideally, park projects are constructed all at once, beginning with amenities located furthest away from the site entrance(s), then constructing your way out of the project site. This minimizes damage to infrastructure and newly constructed facilities in the park such as roadways or access drives. However, in reality, implementation and phasing of large recreational areas is mostly dependent on funding blocks – driven both by construction costs of facilities as well as by the type of amenity (i.e. infrastructure, recreational facilities, educational pavilions, etc.). Additionally, each option will be further reviewed by the Town's Planning Board through the site plan review process, as well as environmental agencies with jurisdictional permitting requirements including MaineDEP and the U.S. Army Corps of Engineers.

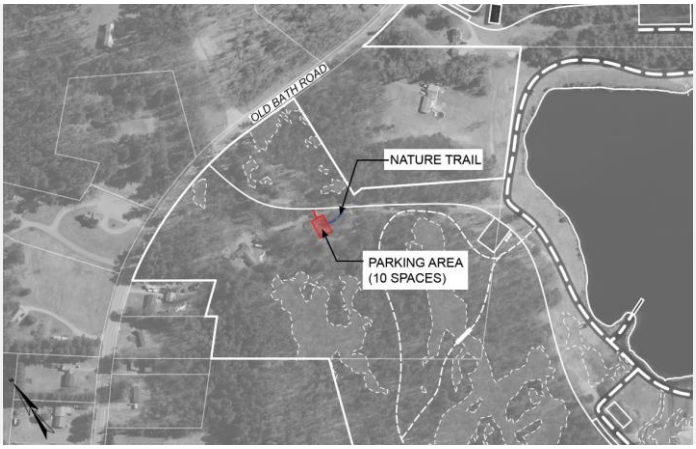
The improvements outlined below are recommended and can be implemented in an order the Town chooses as funding becomes available. Each improvement includes a list of prerequisite improvements that are required for construction.

5.7.1 Improvement 1 – Short-term Parking

Improvement 1 addresses short-term parking needs for the Site and includes a 10-space parking lot at the existing residential structure location just off Sturgeon Lane. An access trail will be provided from the parking lot to Sturgeon Lane. The proposed parking lot will utilize the driveway and house lot to minimize tree clearing, parking lot reconstruction, and overall construction costs.

This improvement does not require implementation of other improvements.

A placeholder cost of **$40,000** has been included for Improvement 1.



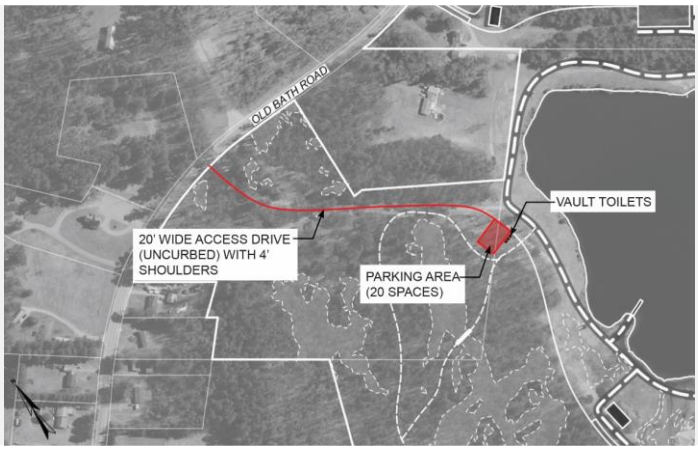
5.7.2 Improvement 2 – Centralized Access & Parking

Improvement 2 utilizes the existing Sturgeon Lane access drive and provides a centralized access point to the existing features of the Site. These improvements include a parking lot (20 spaces) and vault toilets. Proposed access drive and parking lot will minimize tree clearing, road reconstruction, and overall construction costs.

This improvement does not require implementation of other improvements.

A placeholder cost of **$842,000** has been included for Improvement 2.

Figure 5-13 Improvement 2 – Centralized Access & Parking



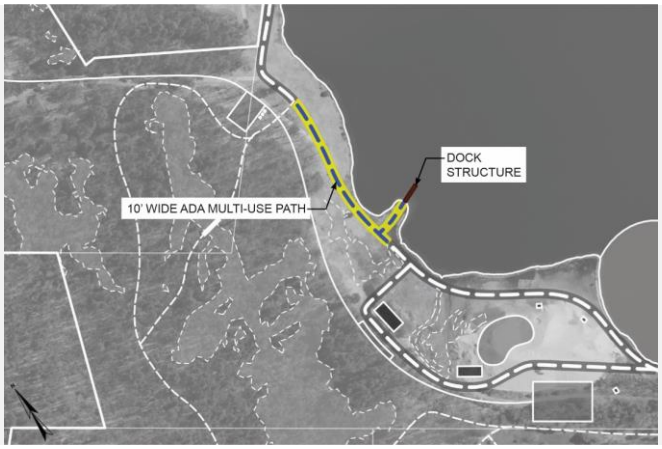
5.7.3 Improvement 3 – Pond Access

Improvement 3 is a recreational focused option and includes a dock structure located on the west side of the pond. There is a need for water access for non-motorized boats and recreational fishing is a high priority for the community. In order to provide access, this improvement also includes an ADA multi-use path connecting the centralized access and parking lot (Improvement 2) to the proposed dock.

This improvement requires implementation of Improvement 2 as a prerequisite.

A placeholder cost of **$295,000** has been included for Improvement 3.

Figure 5-14 Improvement 3 – Pond Access



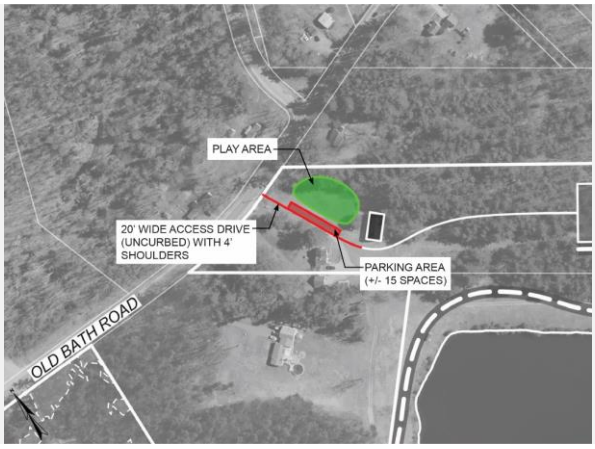
5.7.4 Improvement 4 – Neighborhood Playground

Improvement 4 is also a recreational focused option, providing a playground and 15 parking space-area near Old Bath Road. There is a clear need for a playground in this area due to the close proximity of residential neighborhood to the north. This improvement utilizes the existing access drive at 418 Old Bath Road therefore minimizing construction costs.

This improvement does not require implementation of other improvements.

A placeholder cost of **$419,000** has been included for Improvement 4.

Figure 5-15 Improvement 4 – Neighborhood Playground



5.7.5 Improvement 5 – Captain Fitzgerald Site Access

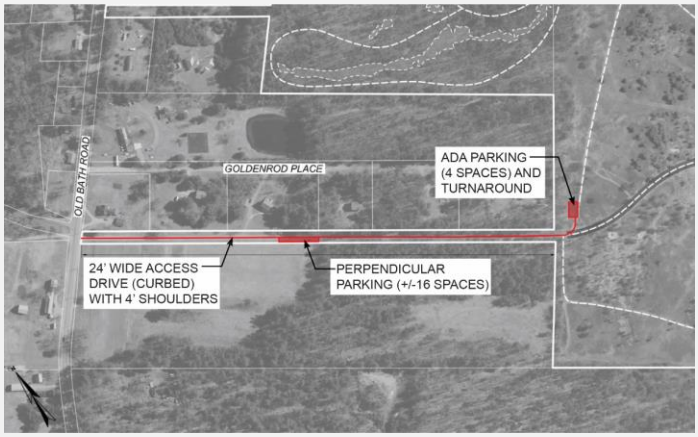
Improvement 5 provides vehicular access to the Captain William A. Fitzgerald Recreation and Conservation Area parcel, which is somewhat isolated from the proposed improvements to the Former Maine Gravel Services site. The pavement condition of Lindbergh Landing is quickly deteriorating and when improvements to this parcel are implemented, traffic along this road will likely increase. When Lindbergh Landing is resurfaced, it would be ideal to use this opportunity to construct the perpendicular parking before the existing gate. However, ADA handicap

parking spaces will be provided beyond the gate and more centralized on the site. This improvement also assumes a closed drainage system will be installed due to the constrained right-of-way space on either side of the access drive.

This improvement does not require implementation of other improvements.

A placeholder cost of **$1,877,000** has been included for Improvement 5.

Figure 5-16 Improvement 5 – Captain Fitzgerald Site Access



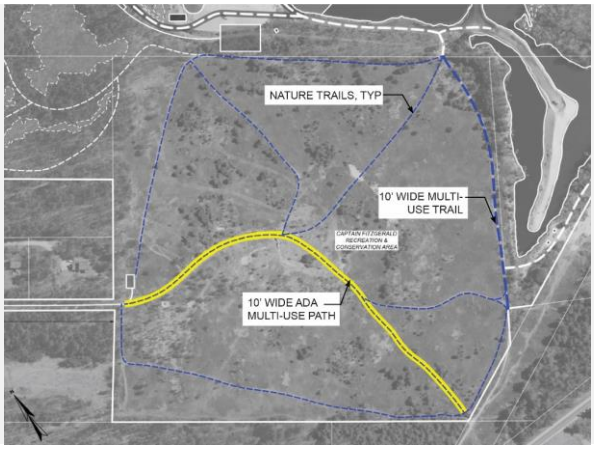
5.7.6 Improvement 6 – Captain Fitzgerald Site Amenities

Improvement 6 includes recreational trails on the Captain Fitzgerald Recreation and Conservation Area parcel. Trails include paved ADA multi-use paths, as well as non-ADA multi-use paths and nature trailed with a stone dust surface. Trails are interconnected from the Lindbergh Landing access drive to the proposed trails on the Former Maine Gravel Services parcel, as well as a future connection to the Androscoggin to Kennebec (A2K) Bike system. Trail alignments generally match the existing trail system and paved access drive running through the existing site.

This improvement requires implementation of Improvement 5 as a prerequisite.

A placeholder cost of **$823,000** has been included for Improvement 6.

Figure 5-17 Improvement 6 – Captain Fitzgerald Site Amenities



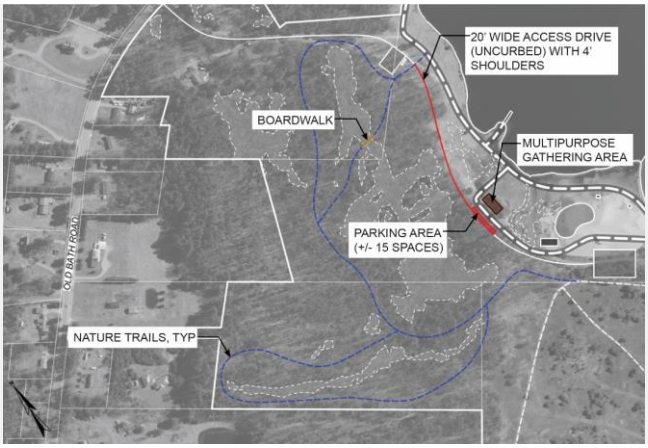
5.7.7 Improvement 7 – Gathering Center and Trail Expansion

Improvement 7 includes an expansion of the nature trail system to the southwest of the Sturgeon Lane short-term parking lot and includes educational signage. This improvement also includes a gathering center for educational classes and organized groups including (but not limited to) stargazers, birdwatchers, fishing groups, scout groups, and ice skating. Additionally, this improvement includes extending Sturgeon Lane access drive further into the Site and a 15-space parking lot adjacent to the gathering center.

This improvement requires implementation of Improvement 2 as a prerequisite.

A placeholder cost of **$1,489,000** has been included for Improvement 7.

Figure 5-18 Improvement 7 – Gathering Center and Trail Expansion



5.7.8 Improvement 8 – Swimming Area and Amenities

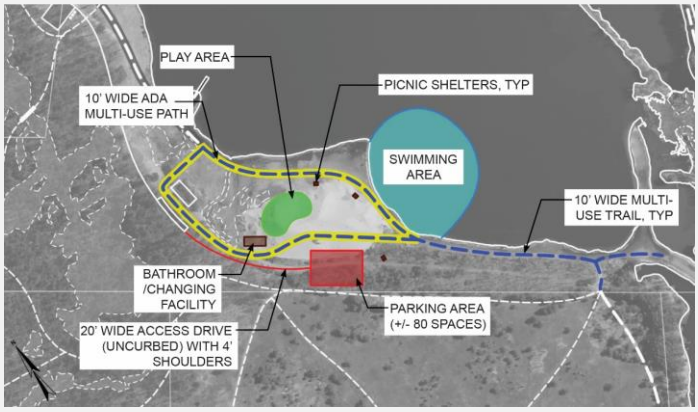
Improvement 8 includes constructing the swimming area on the south side of the pond. Restroom/changing facilities near the parking lot would be ideal to serve users of the implemented facilities. Installing a play area near the beach would not only enhance opportunities for play near the swimming area, but also service children

attending youth programs in the adjacent gathering center. This improvement also includes picnic shelters along the beach area. Further extending Sturgeon Lane to a large 80-space parking lot is also included.

This improvement requires implementation of Improvements 2 and 7 as prerequisites.

A placeholder cost of **$2,640,000** has been included for Improvement 8.

Figure 5-19 Improvement 8 – Swimming Area and Amenities



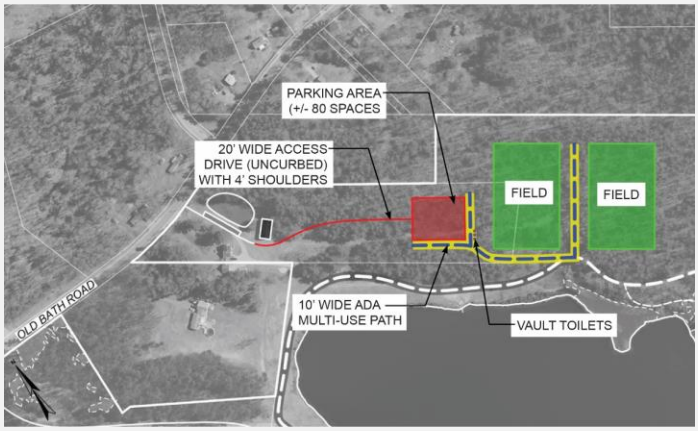
5.7.9 Improvement 9 – Playing Fields

Improvement 9 includes the construction of the playing fields along the north side of the Site. These fields will require a fair amount of clearing of existing vegetation as well as fine grading. Access would be provided from the 418 Old Bath Road access drive and extended further into the Site with a large 80-space parking lot.

This improvement requires implementation of Improvement 4 as a prerequisite.

A placeholder cost of **$2,295,000** has been included for Improvement 9.

Figure 5-20 Improvement 9 – Playing Fields



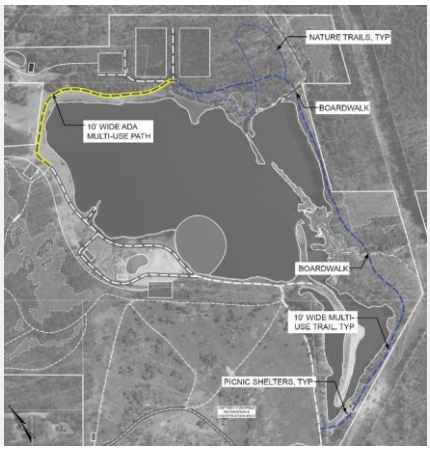
5.7.10 Improvement 10 – Perimeter Trails

Improvement 10 includes the construction of both ADA and non-ADA multi-use paths, as well as nature trails along the north and east side of the pond. The construction of these trails also includes two pedestrian bridges crossing Bonny Brook and an unnamed inlet stream located on the east side of the pond.

This improvement requires implementation of Improvement 2 as a prerequisite.

A placeholder cost of **$1,920,000** has been included for Improvement 10.

Figure 5-21 Improvement 10 – Perimeter Trails



Section 6 Monitoring and Evaluation

6.1 Annual Inspections and Reporting Requirements

It is recommended that properties be inspected by the Conservation Commission annually for indication of trespass, natural damage, safety hazards, environmental impacts, boundary infringements, and other issues. A written record of the inspection should be kept on file. If management problems are identified, the Department of Parks and Recreation should develop a plan for addressing these problems in a timely manner.

If public swimming is offered, the Pond should have its own regular year-round monitoring plan with increased testing during the swimming season. Samples are typically collected by the Town (or third-party) and submitted to a certified laboratory testing company for select metals and inorganics. The results of the testing will be made public both at the time of testing and in an annual report. The Conservation Commission should review the test results associated with the swimming area (and other critical locations) and look for any important trends related to water quality.

The Town should build on its existing StoryMap related to the Site and the Fitzgerald Recreation and Conservation Area and add annual reporting, community science information, and links to any nature trail applications or other information together in this easy-to-use format. As the sites are being developed, the phasing should be clearly outlined and the work which is authorized each year should be clearly described for the public to follow the development.

6.2 Boundary Marking

The boundaries of the property should be marked by the Town in order to establish clarity around the boundaries of the Former Maine Gravel Service Area. The boundary of the property should be monitored yearly by the Conservation Commission to check for violations and to make sure the boundary signs are intact. The boundary should be brushed and re-signed every five years as necessary.

6.3 Updating and Amending the Management Plan

The Management Plan is a living document that should be amended to ensure proper management of the lands over the long-term. The Department of Parks and Recreation with input from the Conservation and Recreation Commissions will be responsible for making recommendations for amendments to the plan. Amendments to the plan should be vetted through a public process with final approval of amendments to be made by the Town Council. The frequency of updates is at the Town's discretion.

Section 7 Costs and Funding

Wright-Pierce and Viewshed evaluated the proposed uses associated with the Site and developed recommended implementation phasing, with planning-level project opinions of cost, to be completed as funding is available. The opinions of cost have been prepared based on limited available project details at this preliminary planning stage, and subsequently, the expected accuracy of the estimated project costs may range from -30% to +50%. Current fluctuating economic conditions, supply chain issues, and long-term construction industry labor shortages also affect the accuracy of projecting these costs. The project cost information presented herein is in current dollars and is based on the Engineering News-Record (ENR) Index 13632 (October 2024). Many factors arise during the final design (e.g., the owner selected features and amenities, code issues, etc.) that cannot be definitively identified and estimated at this time. Standard planning-level multiplication factors have been applied to the cost estimates to account for additional construction project costs including field surveys, engineering, construction management, contingencies, and inflation.

The following sections describe the project costs, operational and maintenance costs, and potential funding opportunities.

7.1 Design, Permitting, and Construction Cost Estimates

The following uses are broken out for implementation purposes. Detailed cost breakdown for each improvement is included in **Appendix B.**

Table 7-1 Summary of Opinions of Cost

Improvement/Project Description	Estimated Project Cost
Improvement 1: Short-term Parking	$40,000
Improvement 2: Centralized Access & Parking	$842,000
Improvement 3: Pond Access	$295,000
Improvement 4: Neighborhood Playground	$419,000
Improvement 5: Fitzgerald Site Access	$1,877,000
Improvement 6: Fitzgerald Site Amenities	$823,000
Improvement 7: Gathering Center and Trail Expansion	$1,489,000
Improvement 8: Swimming Area and Amenities	$2,640,000

Improvement/Project Description	Estimated Project Cost
Improvement 9: Playing Fields	$2,295,000
Improvement 10: Perimeter Trails	$1,920,000
Total:	$12,640,000

7.2 Potential Funding Sources

Most of the grant applicable funding opportunities for development of trails and recreation at the Former Maine Gravel Service site are administered and funded by the state through the Maine Department of Transportation (Maine DOT) and the Maine Department of Agriculture, Conservation & Forestry (Maine DACF) Bureau of Parks and Lands. These state funded grants can fluctuate in project requirements, available funds, and deadlines each year. It will be important for the Town to understand project applicability, and submission requirements and deadlines for these funding opportunities as late or incomplete applications are generally not accepted. Additionally, a local funding match is generally a requirement under these grant opportunities. Local funding can be achieved through cash, or for some grants, through donations, labor, and materials.

Furthermore, additional funding for trails in Maine will likely become available over the coming years. In the November 5, 2024, election, voters approved of a $30 million bond for grants supporting the design, construction, and maintenance of trails across the state. Grant opportunities will be available to municipalities, organizations, and clubs within the state. The funding will be used over the course of 4 years administered by the Bureau of Parks and Lands with the following funding distribution:

- 25% towards motorized trails
- 25% to non-motorized trails
- 50% to multi-use trails

7.2.1 Maine DOT Funding

The Maine DOT Bicycle and Pedestrian Program, previously known as the Transportation Alternatives (TAP), Transportation Enhancements (TE), Quality Communities (QC), and Safe Routes to School (SRTS) funding programs, offers funding for municipality pedestrian, bicycle, and transportation improvement projects, including multi-use paths. The program prioritizes the following: safe routes to school for pedestrians, pedestrian and bicycle facilities, and transportation corridors for BikePed trails. Although the proposed natural trails on site do not fall within these priorities, the multi-use path will likely be a strong candidate for funding. All applications must demonstrate that safety conditions and access will be improved through the project.

Based on current grant information published in April 2024, eligibility for funding includes projects that will be ready to be constructed within 3 years and a non-federal matching fund of at least 20% of the project phase cost. The applicant must secure the 20% local match prior to submitting an application and provide documentation of the local match as part of the submission. The program has an open and rolling application process with a deadline

of July 15th for the following annual funding period. Applications submitted prior to July 15th will be reviewed, scored, and selected for funding that September and be announced the following January.

The program offers a second chance for projects that did not receive funding. Maine DOT will provide a scoring rubric so applicants can understand which sections of the submission are complete and which need additional information. Applicants can meet with the Maine DOT Program Manager to discuss the project and application to understand the improvements that can be made to the application. Applications can be updated and resubmitted for funding consideration in the next round of funding.

For more information: https://www.maine.gov/mdot/pga/funding/

7.2.2 Maine DCAF Funding

The Maine DCAF Bureau of Parks and Lands aims to protect and manage natural and culture resources through recreation, education, and environmental and economic benefits under land they manage. The Bureau of Parks and Lands has grant opportunities that support trail and outdoor recreational development throughout the state.

- **Recreational Trails Program**
  The Recreational Trails Program through Maine DCAF and the U.S. Department of Transportation's Federal Highway Administration provides funds for the development and maintenance of trails and trail-related facilities. To be eligible for funding, projects may include the following:

  - Maintenance and restoration of existing recreational trails
  - Development and rehabilitation for trail side and trail head facilities, and trail linkages
  - Construction of new recreational trails
  - Acquisition of easements or fee simple title to property for recreational trails for recreational trail corridors

  Applicants for funding may include municipalities, qualified sub-divisions of state government, and qualified non-profit organizations. Safety and environmental protection grants are available at $5,000 maximum. Development, Acquisition, and/or Combined grants are available at $50,000 maximum for regular grants and $120,000 maximum for large scale projects. The following are requirements for the local match:
  - Development and Safety/Environmental grants will be no more than 80% of the total project cost or the grant cap (whichever is less)
  - Acquisition grants will be no more than 50% of the total project cost or the grant cap (whichever is less)
  - This as a reimbursement program and the applicant must be able to pay for the project as costs are incurred.
  - Local match may include cash or volunteer labor, equipment, and materials

  For more information: https://www.maine.gov/dacf/parks/grants/recreational_trails_program.shtml

- **Land and Water Conservation Fund**
  The Land and Water Conservation Fund through Maine DCAF and the National Park Service provides funds to support the acquisition, development, and renovation of public outdoor recreational facilities. Eligible applicants include the State of Maine, counties, municipalities, school districts, and tribal nations. Grants allow for up to 50% reimbursement of project costs for a maximum of $1,000,000. Eligible projects include:

  - Acquisition projects for purchase and/or receipt of new land for a park
  - Development projects for new recreational amenities in an undeveloped area
  - Combination of acquisition and development projects
  - Renovation projects for existing parks

  To apply for funding, the applicant must request a project eligibility assessment through the Bureau of Parks and Lands as soon as possible to allow for ample time to complete the application. Based on current information on the Bureau of Parks and Lands website, applicants are due at 5:00PM on the last Friday in June each year. If awarded funding, the project site must display acknowledgment signs in prominent locations.

  For more information: https://www.maine.gov/dacf/parks/grants/land_water_conservation_fund.html

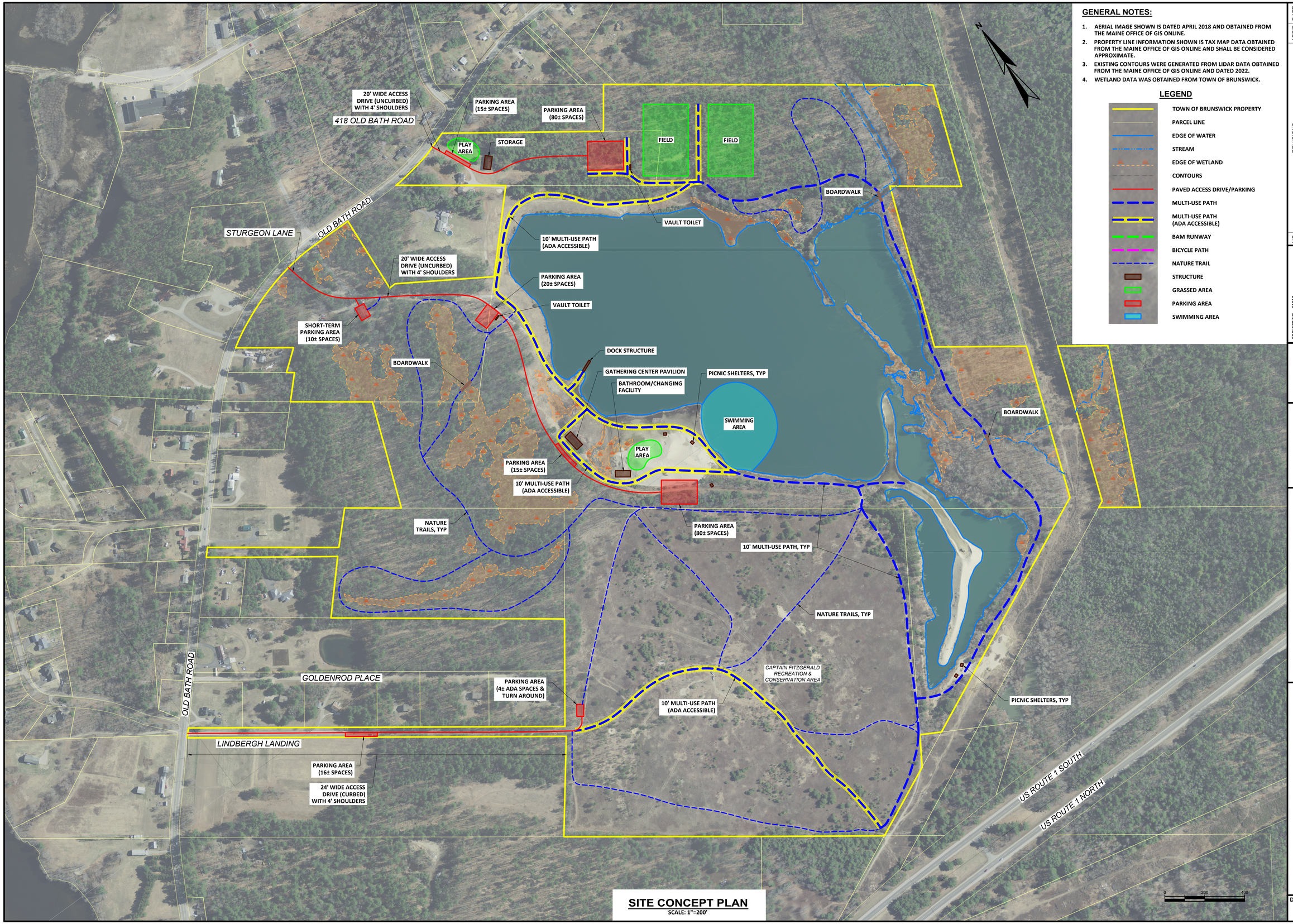
7.2.3 Other Funding Sources

Other funding sources worth investigating for potential applicability to portions of this project are USDA RD Community Facilities Grants and Community Development Block Grant program funds for public facilities and infrastructure.

Another possible funding source would be to provide the ability to name various paths, bridges, benches, etc. People or business could donate the funds to help build the facility and in return have their name or the name of someone they would like to honor places on a section of the park. This is a good way to both raise funds and create community involvement in the project.

It is recommended that subsurface investigations be conducted during the design process to determine if existing access drives and/or trails have adequate base materials to support proposed uses. This is a potential cost-saving opportunity that should be considered for each improvement.

Appendix A
Conceptual Site Plan



SITE CONCEPT PLAN
SCALE: 1"=200'

GENERAL NOTES:

1. AERIAL IMAGE SHOWN IS DATED APRIL 2018 AND OBTAINED FROM THE MAINE OFFICE OF GIS ONLINE.
2. PROPERTY LINE INFORMATION SHOWN IS TAX MAP DATA OBTAINED FROM THE MAINE OFFICE OF GIS ONLINE AND SHALL BE CONSIDERED APPROXIMATE.
3. EXISTING CONTOURS WERE GENERATED FROM LIDAR DATA OBTAINED FROM THE MAINE OFFICE OF GIS ONLINE AND DATED 2022.
4. WETLAND DATA WAS OBTAINED FROM TOWN OF BRUNSWICK.

LEGEND

- TOWN OF BRUNSWICK PROPERTY
- PARCEL LINE
- EDGE OF WATER
- STREAM
- EDGE OF WETLAND
- CONTOURS
- PAVED ACCESS DRIVE/PARKING
- MULTI-USE PATH
- MULTI-USE PATH (ADA ACCESSIBLE)
- BAM RUNWAY
- BICYCLE PATH
- NATURE TRAIL
- STRUCTURE
- GRASSED AREA
- PARKING AREA
- SWIMMING AREA

NO	REVISIONS	APP'D	DATE
1			
2			
3			
4			
5			

PROJECT NO: 21912
DESIGNED: B.SPRINGER
CAD COORD: R.BEISAW
CAD: R.BEISAW
CHECKED: B.SPRINGER
DATE: 12-2024
APPROVED: O.CHAPLIN
DATE: 12-2024
SUBMISSION: PRELIMINARY DESIGN

WRIGHT-PIERCE
207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

TOWN OF BRUNSWICK
FORMER MAINE GRAVEL SITE
RECREATION & CONSERVATION IMPROVEMENTS
BRUNSWICK, MAINE

SITE CONCEPT PLAN

DRAWING
101

Appendix B
Opinion of Probable Costs

WRIGHT-PIERCE
Engineering a Better Environment

PROJECT NAME: Former Maine Gravel Services Management Plan Upgrade
PROJECT NUMBER: 21912
CITY/TOWN: Brunswick, Maine
CLIENT: Town of Brunswick

MADE BY: OCC DATE: 5/2/2025
CHECKED BY: OCC DATE: 5/2/2025
SHEET: 1 OF 1

IMPROVEMENT 1 - SHORT-TERM PARKING LOT

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QTY	TOTAL PRICE
1	PARKING LOT CONSTRUCTION (ALLOWANCE)	LS	$ 40,000.00	1.00	$ 40,000.00
				ESTIMATED TOTAL SEGMENT COST:	$ 40,000.00

WRIGHT-PIERCE
Engineering a Better Environment

PROJECT NAME: Former Maine Gravel Services Management Plan Upgrade
PROJECT NUMBER: 21912
CITY/TOWN: Brunswick, Maine
CLIENT: Town of Brunswick

MADE BY: TPN DATE: 1/3/2025
CHECKED BY: OCC DATE: 4/21/2025
SHEET: 1 OF 1

IMPROVEMENT 2 - CENTRALIZED ACCESS & PARKING

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QTY	TOTAL PRICE
201.1	CLEARING AND GRUBBING	A	$ 10,000.00	0.25	$ 2,500.00
203.2	COMMON EXCAVATION	CY	$ 15.00	2508	$ 37,625.00
304.14	AGGREGATE BASE COURSE - TYPE A	CY	$ 45.00	350	$ 15,750.00
304.1	AGGREGATE SUBBASE COURSE - GRAVEL	CY	$ 40.00	1750	$ 70,000.00
403.208	HOT MIX ASPHALT, 12.5 MM NOMINAL MAXIMUM SIZE	TON	$ 175.00	473	$ 82,687.50
403.209	HOT MIX ASPHALT, 9.5 MM NOMINAL MAXIMUM SIZE (SIDEWALKS, DRIVES, ISLANDS & INCIDENTALS)	TON	$ 185.00	354	$ 65,559.38
615.07	LOAM	CY	$ 60.00	272	$ 16,296.30
618.13	SEEDING METHOD NUMBER 1	UN	$ 250.00	22	$ 5,500.00
627.733	4" WHITE OR YELLOW PAINTED PAVE MRK LINE	LF	$ 1.25	1378	$ 1,722.50
652.361	MAINTENANCE OF TRAFFIC CONTROL DEVICES	LS	$ 2,500.00	1	$ 2,500.00
	VAULT TOILET	EA	$ 45,000.00	2	$ 90,000.00
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LS	$ 5,000.00	1	$ 5,000.00
659.10	MOBILIZATION	LS	$ 42,014.07	1	$ 42,014.07
900.00	STORMWATER BMPS	LS	$ 25,000.00	1	$ 25,000.00
				CONSTRUCTION SUBTOTAL:	$ 462,154.74
				CONTINGENCY @ 30%	$ 138,646.42
				TOTAL OF CONSTRUCTION COSTS:	$ 600,801.16
				ENGINEERING DESIGN, CONSTRUCTION ADMINISTRATION, AND INSPECTION @ 40%	$ 240,400.00
				ESTIMATED TOTAL SEGMENT COST:	$ 842,000.00

WRIGHT-PIERCE
Engineering a Better Environment

PROJECT NAME: Former Maine Gravel Services Management Plan Upgrade
PROJECT NUMBER: 21912
CITY/TOWN: Brunswick, Maine
CLIENT: Town of Brunswick

MADE BY: TPN DATE: 1/3/2025
CHECKED BY: OCC DATE: 4/21/2025
SHEET: 1 OF 1

IMPROVEMENT 3 - POND ACCESS

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QTY	TOTAL PRICE
203.2	COMMON EXCAVATION	CY	$ 15.00	259	$ 3,888.89
304.14	AGGREGATE BASE COURSE - TYPE A	CY	$ 75.00	259	$ 19,444.44
403.209	HOT MIX ASPHALT, 9.5 MM NOMINAL MAXIMUM SIZE (SIDEWALKS, DRIVES, ISLANDS & INCIDENTALS)	TON	$ 300.00	131	$ 39,375.00
615.07	LOAM	CY	$ 60.00	52	$ 3,111.11
618.13	SEEDING METHOD NUMBER 1	UN	$ 250.00	4	$ 1,050.00
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LS	$ 5,000.00	1	$ 5,000.00
	DOCK STRUCTURE	LS	$ 50,000.00	1	$ 50,000.00
659.10	MOBILIZATION	LS	$ 14,686.94	1	$ 14,686.94
900.00	STORMWATER BMP	LS	$ 25,000.00	1	$ 25,000.00
			CONSTRUCTION SUBTOTAL:		$ 161,556.39
			CONTINGENCY @	30%	$ 48,466.92
			TOTAL OF CONSTRUCTION COSTS:		$ 210,023.31
			ENGINEERING DESIGN, CONSTRUCTION ADMINISTRATION, AND INSPECTION @	40%	$ 84,400.00
			ESTIMATED TOTAL SEGMENT COST:		$ 295,000.00

WRIGHT-PIERCE
Engineering a Better Environment

PROJECT NAME: Former Maine Gravel Services Management Plan Upgrade
PROJECT NUMBER: 21912
CITY/TOWN: Brunswick, Maine
CLIENT: Town of Brunswick

MADE BY: TPN DATE: 1/3/2025
CHECKED BY: OCC DATE: 4/21/2025
SHEET: 1 OF 1

IMPROVEMENT 4 - NEIGHBORHOOD PLAYGROUND

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QTY	TOTAL PRICE
201.1	CLEARING AND GRUBBING	A	$ 10,000.00	0.25	$ 2,500.00
203.2	COMMON EXCAVATION	CY	$ 15.00	664	$ 9,953.70
304.1	AGGREGATE SUBBASE COURSE - GRAVEL	CY	$ 40.00	463	$ 18,518.52
304.14	AGGREGATE BASE COURSE - TYPE A	CY	$ 45.00	93	$ 4,166.67
403.208	HOT MIX ASPHALT, 12.5 MM NOMINAL MAXIMUM SIZE	TON	$ 175.00	125	$ 21,875.00
403.209	HOT MIX ASPHALT, 9.5 MM NOMINAL MAXIMUM SIZE (SIDEWALKS, DRIVES, ISLANDS & INCIDENTALS)	TON	$ 185.00	94	$ 17,343.75
615.07	LOAM	CY	$ 60.00	37	$ 2,222.22
618.13	SEEDING METHOD NUMBER 1	UN	$ 250.00	5	$ 1,250.00
627.733	4" WHITE OR YELLOW PAINTED PAVE MRK LINE	LF	$ 1.25	788	$ 984.59
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LS	$ 5,000.00	1	$ 5,000.00
	PLAYGROUND	LS	$ 100,000.00	1	$ 100,000.00
659.10	MOBILIZATION	LS	$ 20,881.45	1	$ 20,881.45
900.00	STORMWATER BMP	LS	$ 25,000.00	1	$ 25,000.00
				CONSTRUCTION SUBTOTAL:	$ 229,695.90
				CONTINGENCY @ 30%	$ 68,908.77
				TOTAL OF CONSTRUCTION COSTS:	$ 298,604.66
				ENGINEERING DESIGN, CONSTRUCTION ADMINISTRATION, AND INSPECTION @ 40%	$ 119,600.00
				ESTIMATED TOTAL SEGMENT COST:	$ 419,000.00

WRIGHT-PIERCE
Engineering a Better Environment

PROJECT NAME: Former Maine Gravel Services Management Plan Upgrade
PROJECT NUMBER: 21912
CITY/TOWN: Brunswick, Maine
CLIENT: Town of Brunswick

MADE BY: TPN DATE: 1/3/2025
CHECKED BY: OCC DATE: 4/21/2025
SHEET: 1 OF 1

IMPROVEMENT 5 - FITZGERALD SITE ACCESS

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QTY	TOTAL PRICE
201.1	CLEARING AND GRUBBING	A	$ 10,000.00		$ -
203.2	COMMON EXCAVATION	CY	$ 15.00	2110	$ 31,650.00
304.14	AGGREGATE BASE COURSE - TYPE A	CY	$ 45.00	352	$ 15,825.00
304.1	AGGREGATE SUBBASE COURSE - GRAVEL	CY	$ 40.00	1758	$ 70,333.33
403.208	HOT MIX ASPHALT, 12.5 MM NOMINAL MAXIMUM SIZE	TON	$ 175.00	881	$ 154,131.25
403.209	HOT MIX ASPHALT, 9.5 MM NOMINAL MAXIMUM SIZE (SIDEWALKS, DRIVES, ISLANDS & INCIDENTALS)	TON	$ 185.00	661	$ 122,204.06
604.072	CATCH BASIN TYPE A1-C	EA	$ 6,500.00	20	$ 130,000.00
603.169	15 INCH CULVERT PIPE OPTION III	LF	$ 125.00	2400	$ 300,000.00
609.31	CURB TYPE 3	LF	$ 18.00	4060	$ 73,080.00
615.07	LOAM	CY	$ 60.00	301	$ 18,044.44
618.13	SEEDING METHOD NUMBER 1	UN	$ 250.00	24	$ 6,090.00
627.733	4" WHITE OR YELLOW PAINTED PAVE MRK LINE	LF	$ 1.25	625	$ 781.63
652.361	MAINTENANCE OF TRAFFIC CONTROL DEVICES	LS	$ 5,000.00	1	$ 5,000.00
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LS	$ 10,000.00	1	$ 10,000.00
659.10	MOBILIZATION	LS	$ 93,713.97	1	$ 93,713.97
				CONSTRUCTION SUBTOTAL:	$ 1,030,853.69
				CONTINGENCY @ 30%	$ 309,256.11
				TOTAL OF CONSTRUCTION COSTS:	$ 1,340,109.79
				ENGINEERING DESIGN, CONSTRUCTION ADMINISTRATION, AND INSPECTION @ 40%	$ 536,400.00
				ESTIMATED TOTAL SEGMENT COST:	$ 1,877,000.00

WRIGHT-PIERCE
Engineering a Better Environment

PROJECT NAME: Former Maine Gravel Services Management Plan Upgrade
PROJECT NUMBER: 21912
CITY/TOWN: Brunswick, Maine
CLIENT: Town of Brunswick

MADE BY: TPN DATE: 1/3/2025
CHECKED BY: OCC DATE: 4/21/2025
SHEET: 1 OF 1

IMPROVEMENT 6 - FITZGERALD SITE AMENITIES

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QTY	TOTAL PRICE
1	10' WIDE ADA MULTI-USE PATH (PAVED)	LF	$ 117.00	1950	$ 228,150.00
3	10' WIDE MULTI-USE PATH (STONE DUST)	LF	$ 45.00	1700	$ 76,500.00
4	5' WIDE NATURE TRAIL (STONE DUST)	LF	$ 22.00	6690	$ 147,180.00
			CONSTRUCTION SUBTOTAL:		$ 451,830.00
			CONTINGENCY @	30%	$ 135,549.00
			TOTAL OF CONSTRUCTION COSTS:		$ 587,379.00
			ENGINEERING DESIGN, CONSTRUCTION ADMINISTRATION, AND INSPECTION	40%	$ 235,200.00
			ESTIMATED TOTAL SEGMENT COST:		$ 823,000.00

WRIGHT-PIERCE
Engineering a Better Environment

PROJECT NAME: Former Maine Gravel Services Management Plan Upgrade
PROJECT NUMBER: 21912
CITY/TOWN: Brunswick, Maine
CLIENT: Town of Brunswick

MADE BY: TPN DATE: 1/3/2025
CHECKED BY: OCC DATE: 4/21/2025
SHEET: 1 OF 1

IMPROVEMENT 7 - GATHERING CENTER AND TRAIL EXPANSION

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QTY	TOTAL PRICE
201.1	CLEARING AND GRUBBING	A	$ 10,000.00	1.30	$ 13,000.00
203.2	COMMON EXCAVATION	CY	$ 15.00	1593	$ 23,888.89
304.14	AGGREGATE BASE COURSE - TYPE A	CY	$ 45.00	222	$ 10,000.00
304.1	AGGREGATE SUBBASE COURSE - GRAVEL	CY	$ 40.00	1111	$ 44,444.44
403.208	HOT MIX ASPHALT, 12.5 MM NOMINAL MAXIMUM SIZE	TON	$ 175.00	300	$ 52,500.00
403.209	HOT MIX ASPHALT, 9.5 MM NOMINAL MAXIMUM SIZE (SIDEWALKS, DRIVES, ISLANDS & INCIDENTALS)	TON	$ 185.00	225	$ 41,625.00
615.07	LOAM	CY	$ 60.00	185	$ 11,111.11
618.13	SEEDING METHOD NUMBER 1	UN	$ 250.00	15	$ 3,750.00
627.733	4" WHITE OR YELLOW PAINTED PAVE MRK LINE	LF	$ 1.25	1034	$ 1,291.88
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LS	$ 5,000.00	1	$ 5,000.00
	5' WIDE NATURE TRAIL	LF	$ 22.00	7000	$ 154,000.00
	BOARDWALK	LS	$ 5,000.00	1	$ 5,000.00
	EDUCATIONAL PAVILION	LS	$ 353,000.00	1	$ 353,000.00
659.10	MOBILIZATION	LS	$ 74,361.13	1	$ 74,361.13
900.00	STORMWATER BMPS	LS	$ 25,000.00	1	$ 25,000.00
				CONSTRUCTION SUBTOTAL:	$ 817,972.45
				CONTINGENCY @ 30%	$ 245,391.74
				TOTAL OF CONSTRUCTION COSTS:	$ 1,063,364.19
				ENGINEERING DESIGN, CONSTRUCTION ADMINISTRATION, AND INSPECTION @ 40%	$ 425,600.00
				ESTIMATED TOTAL SEGMENT COST:	$ 1,489,000.00

WRIGHT-PIERCE
Engineering a Better Environment

PROJECT NAME: Former Maine Gravel Services Management Plan Upgrade
PROJECT NUMBER: 21912
CITY/TOWN: Brunswick, Maine
CLIENT: Town of Brunswick

MADE BY: TPN DATE: 1/3/2025
CHECKED BY: OCC DATE: 4/21/2025
SHEET: 1 OF 1

IMPROVEMENT 8 - SWIMMING AREA AND AMENITIES

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QTY	TOTAL PRICE
201.1	CLEARING AND GRUBBING	A	$ 10,000.00	1.00	$ 10,000.00
203.2	COMMON EXCAVATION	CY	$ 15.00	2366	$ 35,494.91
304.14	AGGREGATE BASE COURSE - TYPE A	CY	$ 45.00	330	$ 14,858.33
304.1	AGGREGATE SUBBASE COURSE - GRAVEL	CY	$ 40.00	1651	$ 66,037.04
403.208	HOT MIX ASPHALT, 12.5 MM NOMINAL MAXIMUM SIZE	TON	$ 175.00	446	$ 78,006.25
403.209	HOT MIX ASPHALT, 9.5 MM NOMINAL MAXIMUM SIZE (SIDEWALKS, DRIVES, ISLANDS & INCIDENTALS)	TON	$ 185.00	334	$ 61,847.81
615.07	LOAM	CY	$ 60.00	116	$ 6,962.96
618.13	SEEDING METHOD NUMBER 1	UN	$ 250.00	9	$ 2,350.00
627.733	4" WHITE OR YELLOW PAINTED PAVE MRK LINE	LF	$ 1.25	5512	$ 6,890.00
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LS	$ 5,000.00	1	$ 5,000.00
	10' WIDE ADA MULTI-USE PATH (PAVED)	LF	$ 117.00	2150	$ 251,550.00
	10' WIDE MULTI-USE PATH (STONE DUST)	LF	$ 45.00	850	$ 38,250.00
	PICNIC SHELTERS	EA	$ 5,000.00	5	$ 25,000.00
	BATHROOM/CHANGING FACILITY	LS	$ 501,000.00	1	$ 501,000.00
	SWIMMING AREA	LS	$ 170,000.00	1	$ 170,000.00
	PLAYGROUND	LS	$ 20,000.00	1	$ 20,000.00
659.10	MOBILIZATION	LS	$ 131,824.73	1	$ 131,824.73
900.00	STORMWATER BMPS	LS	$ 25,000.00	1	$ 25,000.00
				CONSTRUCTION SUBTOTAL:	$ 1,450,072.03
				CONTINGENCY @ 30%	$ 435,021.61
				TOTAL OF CONSTRUCTION COSTS:	$ 1,885,093.64
				ENGINEERING DESIGN, CONSTRUCTION ADMINISTRATION, AND INSPECTION @ 40%	$ 754,400.00
				ESTIMATED TOTAL SEGMENT COST:	$ 2,640,000.00

WRIGHT-PIERCE
Engineering a Better Environment

PROJECT NAME: Former Maine Gravel Services Management Plan Upgrade
PROJECT NUMBER: 21912
CITY/TOWN: Brunswick, Maine
CLIENT: Town of Brunswick

MADE BY: TPN DATE: 1/3/2025
CHECKED BY: OCC DATE: 4/21/2025
SHEET: 1 OF 1

IMPROVEMENT 9 - PLAYING FIELDS

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QTY	TOTAL PRICE
201.1	CLEARING AND GRUBBING	A	$ 10,000.00	9.50	$ 95,000.00
203.2	COMMON EXCAVATION	CY	$ 15.00	9877	$ 148,159.26
203.25	GRANULAR BORROW	CY	$ 20.00	7056	$ 141,111.11
304.1	AGGREGATE SUBBASE COURSE - GRAVEL	CY	$ 40.00	2007	$ 80,296.30
304.14	AGGREGATE BASE COURSE - TYPE A	CY	$ 45.00	401	$ 18,066.67
403.208	HOT MIX ASPHALT, 12.5 MM NOMINAL MAXIMUM SIZE	TON	$ 175.00	542	$ 94,850.00
403.209	HOT MIX ASPHALT, 9.5 MM NOMINAL MAXIMUM SIZE (SIDEWALKS, DRIVES, ISLANDS & INCIDENTALS)	TON	$ 185.00	407	$ 75,202.50
607.16	CHAIN LINK FENCE - 4 FOOT	LF	$ 25.00	2500	$ 62,500.00
615.07	LOAM	CY	$ 60.00	3629	$ 217,733.33
618.13	SEEDING METHOD NUMBER 1	UN	$ 250.00	203	$ 50,725.00
627.733	4" WHITE OR YELLOW PAINTED PAVE MRK LINE	LF	$ 1.25	4201	$ 5,251.14
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LS	$ 10,000.00	1	$ 10,000.00
	10' WIDE MULTI-USE PATH	LF	$ 122.00	1100	$ 134,200.00
659.10	MOBILIZATION	LS	$ 102,389.53	1	$ 102,389.53
900.00	STORMWATER BMP	LS	$ 25,000.00	1	$ 25,000.00
				CONSTRUCTION SUBTOTAL:	$ 1,260,484.84
				CONTINGENCY @ 30%	$ 378,145.45
				TOTAL OF CONSTRUCTION COSTS:	$ 1,638,630.29
				ENGINEERING DESIGN, CONSTRUCTION ADMINISTRATION, AND INSPECTION @ 40%	$ 655,600.00
				ESTIMATED TOTAL SEGMENT COST:	$ 2,295,000.00

WRIGHT-PIERCE
Engineering a Better Environment

PROJECT NAME: Former Maine Gravel Services Management Plan Upgrade
PROJECT NUMBER: 21912
CITY/TOWN: Brunswick, Maine
CLIENT: Town of Brunswick

MADE BY: TPN DATE: 1/3/2025
CHECKED BY: OCC DATE: 4/21/2025
SHEET: 1 OF 1

IMPROVEMENT 10 - PERIMETER TRAILS

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QTY	TOTAL PRICE
	10' WIDE ADA MULTI-USE PATH (PAVED)	LF	$ 117.00	1500	$ 175,500.00
	10' WIDE MULTI-USE PATH (STONE DUST)	LF	$ 45.00	3970	$ 178,650.00
	5' WIDE NATURE TRAIL (STONE DUST)	LF	$ 22.00	1760	$ 38,720.00
	PICNIC SHELTERS	EA	$ 5,000.00	2	$ 10,000.00
615.07	LOAM	CY	$ 60.00	459	$ 27,555.56
	PEDESTRIAN BRIDGE @ BONNY BROOK	LS	$ 480,000.00	1	$ 480,000.00
	PEDESTRIAN BRIDGE @ UNNAMED STREAM EAST OF POND	LS	$ 144,000.00	1	$ 144,000.00
				CONSTRUCTION SUBTOTAL:	$ 1,054,425.56
				CONTINGENCY @ 30%	$ 316,327.67
				TOTAL OF CONSTRUCTION COSTS:	$ 1,370,753.22
				ENGINEERING DESIGN, CONSTRUCTION ADMINISTRATION, AND INSPECTION @ 40%	$ 548,400.00
				ESTIMATED TOTAL SEGMENT COST:	$ 1,920,000.00

Appendix C
Hydrogeologic Study

WRIGHT-PIERCE
Engineering a Better Environment

11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
207.725.8721 | wright-pierce.com

December 9, 2024

Thomas Farrell, Director of Parks and Recreation Department
Town of Brunswick
220 Neptune Drive
Brunswick, ME 04011

SUBJECT: Hydrogeologic Investigation at the Former Maine Gravel Services Pond Site

Dear Mr. Farrell,

The Parks and Recreation Department of the Town of Brunswick, ME (Town) is looking to develop a public recreational facility between Old Bath Road and State Route 1 (the Site) and is shown on Figure 1, Attachment A. The Town acquired the Site in 2019 when Maine Gravel Services Inc. donated 163.4 acres with the vision of using the land for recreational purposes that include swimming, fishing, and/or non-motorized boating. Wright-Pierce is currently developing concept plans and management plan for the Site.

During recent committee meetings, the Town received comments from abutters who are concerned with recreational use of this area and the potential impacts to water quality and quantity for nearby private bedrock wells. The primary concern was received by the property owner of 310 Old Bath Road, whose parcel is shown in Figure 2, Attachment A. This document provides results of the hydrogeologic investigation regarding potential impacts to surrounding domestic wells and community wells. This document also provides a list of recommended activities that pose minimal risk to groundwater quality and quantity, and a list of activities that the Town should consider prohibiting at the Site due to elevated risks for groundwater contamination.

1 Site Description

1.1 Site Location

The Former Maine Gravel Services Pit Site (the Site) was donated to the Town of Brunswick under the condition that it will be used as a public recreational area. The Site consists of an abandoned gravel pit that has filled with water, creating a large pond that is approximately 53.5 acres (Photo 1). The water in the pond was notably clear during a site visit completed on October 25, 2024. The Maine Department of Inland Fisheries and Wildlife (ME IFW) reports the pond as having a maximum depth of 20.3 feet. The area surrounding the west side of the pond is dominated by open areas with shrubbery and grasses (Photo 2), and a large sand

Photo 1 – Sandy bottom of pond. Water clarity of the pond was notably clear during site visit.

pile with a wide access road (Photo 3). The area surrounding the northeast and east side of the pond is mostly undeveloped forest and forested wetlands with an outlet channel located on the east side of the pond that flows toward the north. There are a few houses located near the north side of the pond located no closer than 300 feet to the waterline.

Photo 2 – An area dominated by shrubbery growth on the western side of pond.

Photo 3 – Large sand pile on western side of pond.

1.2 Site Geology

Surficial geology at the Site is shown in Figure 3, Attachment A. Soils at the Site are mapped as fine-grained glaciomarine material with coarse-grained glaciomarine materials mapped to the south of the Site. According to the Maine Geological Survey's Surficial Geology of the Brunswick Quadrangle, Maine 1:24,000 (Open File 01-484), the Site is characterized as braided stream alluvium with regions of regressive marine delta to the west and southwest. Maine aquifer data is also shown in Figure 3 and classifies the Site area as a 10-50 gallons per minute (gpm) sand and gravel aquifer.

1.2.1 NRCS Soils

According to soil data obtained from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), the Site mostly consists of Windsor loamy fine sand with some smaller areas of Au Gres loamy sand which have a moderately high to high transmissivity. The soil surrounding the pond is categorized as gravel pits. A map of NRCS soils is shown in Figure 4 in Attachment A and a full description of each soil type is included in Attachment B.

1.2.2 Bedrock Geology

Soil thickness data points were obtained from the Maine Well Database and is shown on Figure 5, Attachment A. These data are derived from known public and private supply wells. The data indicates a bedrock trough between the pond and the Androscoggin River which may encourage groundwater flow to the north across

the Site (Figure 5). According to the Maine Geological Survey 1:24,000 Bedrock geology of the Brunswick quadrangle, Maine map (Open File 18-4, 2018), the Site is underlain by the Sebascodegan Formation (SOs) with the Bethel Point Formation (SObp) and an amphibolite subgroup of the Sebascodegan Formation (SOsa) mapped just south and west of the Site, respectively (Figure 5). The Boothbay Thrust Fault is located directly west of the amphibolite subgroup and is located between the Site and the 310 Old Bath Road property. Domestic bedrock wells in the area likely target fracture networks focused near major tectonic features, such as the Boothbay Thrust Fault. Data from this bedrock map is shown in Figure 5 and full descriptions of the bedrock formations can be found on Maine Geological Survey Open File 18-4.

1.3 Conceptual Model for Groundwater Flow

1.3.1 Groundwater Aquifers

This investigation discusses two distinct types of aquifers surrounding the Site: (1) sand and gravel aquifers and (2) bedrock aquifers. The Maine Geological Survey defines sand and gravel aquifers as unconsolidated sand and gravel deposits, which have excellent porosity (spaces between grains where groundwater is stored) and permeability (connection of spaces that allows groundwater to flow). Sand and gravel aquifers also provide natural filtration as groundwater flows through pore space.

Bedrock aquifers consist of groundwater that is stored within fractured bedrock underlying overburden soils. Overlying sand and gravel aquifers provide filtration and typically show minimal hydraulic connection with the underlying bedrock aquifer, except under significant head changes such as pumping a high yield well. Even in these cases, the influence of drawdown in the bedrock wells is typically a fraction of the head change in the overlying sand and gravel aquifer as the two aquifer types are typically isolated and bedrock fractured aquifers are supplied by recharge in upland areas. An example of this is a flowing artesian well where water levels in the well are above ground surface.

1.3.2 Drainage Basin

The U.S. Geological Survey's StreamStats application is a powerful tool that delineates drainage basins from a selected stream point. This application was used to generate a drainage basin for the outlet stream of the pond. This delineated basin and selected drainage point are shown in Figure 6, Attachment A and indicates the presence of a drainage divide between the Site and the 310 Old Bath Road property. In addition, most domestic wells surrounding the Site, including 310 Old Bath Road, are located outside of the delineated contribution area. The drainage basin of this Site is approximately 0.7 square miles. Precipitation that falls at the Site generally flows north through the outlet channel and into a small stream that eventually flows into the Androscoggin River to the north of the Site. No precipitation runoff will flow from the Site towards 310 Old Bath Road according to this model.

This data suggests that the contributing area to the pond is limited. While it is possible that groundwater flow can pass through topographic boundaries in a continuous aquifer, this data indicates that the primary area of recharge to the pond is limited by the topographic boundaries of the basin. This is based on the consistent hydrogeologic water budget established for the northeast (USGS WRI, Cirvone 1972). Approximately half of

water recharging a basin in a sand and gravel aquifer is from direct infiltration, with the remainder being runoff based on topography. This indicates that the boundary basin plays a significant role in groundwater flow under average conditions.

1.3.3 Regional Groundwater Flux

The aquifer is bound by the Androscoggin River to the west and mapped till overlying a bedrock ridge to the east (Figure 3). These features act as "Boundary Conditions" which control water movement within the aquifer. Generally, groundwater would flow to the northwest away from the bedrock ridge and sub-parallel to the river (Figure 7, Attachment A). However, the Androscoggin River water levels are in constant flux and a reversal of the groundwater flow direction would occur at above normal conditions (Figure 8, Attachment A). In the region of the pond, this would occur parallel to the bedrock trough. This data suggests that the limited aquifer is subject to change due to fluctuations in the Androscoggin River.

1.3.4 Pond Characteristics

The Maine Department of Inland Fisheries and Wildlife (ME IFW) completed an investigation at the pond in 2021 to assess the pond's suitability to support trout species. That investigation concluded that the pond was "homothermous," meaning temperatures were generally the same at different depths and was oxygen deficient below 10 feet. This suggests that current pond conditions are not well suited to support trout species in the long term. There have been some claims by a local neighbor that the pond is spring-fed, however, no springs or inlet streams were observed around the pond during the site walk. Generally, the pond is indicative of the natural groundwater level for the aquifer. A spring fed pond would have a significant thermal gradient due to the influx of groundwater.

1.4 Conceptual Model of Pond-Aquifer Interactions using Kettle Hole Pond Example

There are several similarities between kettle hole ponds and the excavated pond at the Site of this investigation. As such, a study published by the USGS involving kettle hole ponds in western Cape Cod was reviewed to guide a conceptual model of the interaction between the groundwater in the sand and gravel aquifer and the surface water in the pond (Water-Resources Investigations Report 99-4174). Kettle holes are depressions in glacial outwash sediments that formed from the burial and melting of a detached mass of glacial ice. These "holes" tend to fill with water once the ice melts forming kettle hole ponds. Many kettle hole ponds do not have inlet or outlet streams and rely on the inflow of groundwater to the pond and precipitation that falls within the pond's drainage basin for recharge. Outflow from the pond consists of recharge into the aquifer and evaporation. As long as precipitation exceeds evaporation rates, these ponds provide net recharge to the aquifer.

The gravel pit pond at the Site of this investigation has many similarities to kettle hole ponds, including minimal inlet and outlet streams and the presence of surrounding sandy soils with high transmissivity. Based on observations made during the site walk on October 25, 2024, it appeared that minimal outflow was occurring in the man-made outlet channel to the east. As such, it is assumed that the general interaction

between groundwater and the pond at the Site is similar to what is seen in kettle hole ponds as described above.

Given these conditions, the pond-aquifer interaction at the Site is characterized by a flow-through condition in which groundwater discharges into the pond in upgradient areas and surface water in the pond recharges the sand and gravel aquifer in downgradient areas, as illustrated in the diagram in Photo 4.

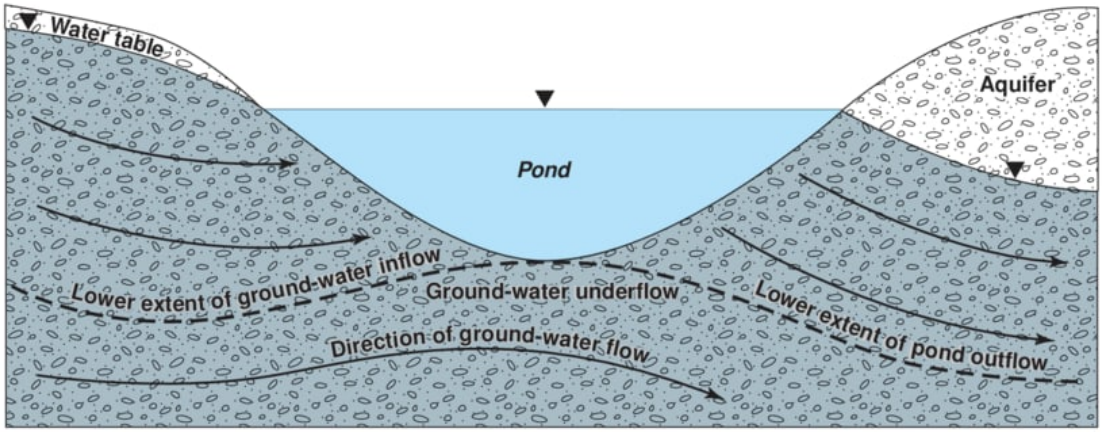


Photo 4 – Interactions between groundwater flow through a pond and the surrounding aquifer in an unconfined hydrogeologic environment. Source: WRI Report 99-4174.

2 Water Resources

Three bedrock community wells that source Bay Bridges Estate, LLC are identified just over 1,500 feet north of the Site boundary. The location of the community wells and associated wellhead radii are shown on Figure 3, Attachment A. The standard 1,000-foot radii does not overlap with the Site; however, the population-based wellhead protection radius of 2,300 feet does overlap onto the northern portion of the Site. Table 2-1 shows reported data for these three community wells:

Table 2-1 Summary of Nearby Community Wells

System	Well	Facility ID	Construction Date	Well Type	Well Depth	Well Yield
Bay Bridge Estates, LLC (System ID: ME0002175)	Well 1	2175103	1991	Bedrock	469 feet	120 gpm
	Well 2	2175104	2003	Bedrock	605 feet	60 gpm
	Well 3	2175102	2000	Bedrock	215 feet	60 gpm

Several domestic wells withdraw groundwater from the sand and gravel or bedrock aquifer, including the well at 310 Old Bath Road (Figure 3). The closest downgradient well is over 750 feet downgradient (north) of the Site and is reported to be in a portion of the aquifer that is over 100 feet deep. Given that natural groundwater flow is typically on the order of feet per day and the increasing thickness of the aquifer to the

north, there should be ample filtration and residence time for natural attenuation of surface derived bacteria to reach the wells. The rule for septic system setbacks from private wells in Maine is 100 feet indicating that any 'contamination' associated with non-motorized use of the pond would be naturally attenuated.

3 Potential Impacts to Groundwater

The following is a summary of the findings for potential impacts to groundwater levels at the Site.

- Surface water or groundwater withdrawals from the Site are not proposed per the proposed project description. Groundwater levels are unlikely to be impacted from proposed activities at the Site.

- Beaver dam activity was observed on the outflow stream during the site walk on October 25, 2024. The beaver dam is shown in Photo 5 and was observed to partially block the man-made outflow channel. This is a non-permanent structure and cannot be relied upon as a long-term means to stabilize water levels within the pond. It should be noted that beavers are known to cause giardia blooms, also known as "Beaver Fever". This can cause severe illness if water is ingested due to a parasitic infection. It would be advisable for the beaver to be removed. The beaver dam did not appear to result in any change in water level as water flows preferentially through the aquifer as noted in Section 1.6. It was also noted during the site walk that the water within the man-made drainage channel was stagnant, murky, and dark in color with organics in comparison with the clear water observed in the pond (Photo 6). This observation suggests that there is minimal flow occurring through the drainage channel under normal conditions.

Photo 5 – Beaver dam in man-made drainage channel partially blocks outlet and helps to stabilize water levels.

Photo 6 – Man-made drainage outlet channel (foreground) is stagnant and murky, unlike in the pond (background).

Natural fluctuations in the Androscoggin River are more likely to impact water levels in the 310 Old Bath Road well since it is located roughly 1,350 feet from the river's edge and upgradient of the Site. The Androscoggin River is tidally influenced in this area and upstream flow is controlled by several dams. Tide charts indicate a difference of about 6 feet between low tide and high tide. Additionally, the USGS stream gaging station in Auburn, Maine (No. 01059000) indicates fluctuations of 15 or more feet over the past year. Fluctuations in flow in the Androscoggin River likely play the largest role in water levels in the sand and gravel aquifer and surface water bodies.

- An ongoing hydrogeologic study at the Jordan Avenue Wellfield for the Brunswick and Topsham Water District indicates the surrounding groundwater next to the river fluctuates with each tidal cycle, as well as with any low flow event or high flow flooding event. The Jordan Avenue Well Site is located approximately 1.1 miles upstream from the area of the Site discussed in this investigation and is similar in geologic conditions.

- Tree and vegetation removal should be minimized wherever possible. Established vegetation stabilizes the ground surface and inhibits erosion and siltation. Maintaining as much existing vegetation cover as possible at the Site will help protect long term water quality of the pond.

- A public swimming area in the pond poses minimal risk to water quality of the overall aquifer since the surrounding sand and gravel material naturally filters the surface water as it recharges into the aquifer. Impacts to the pond's water quality are anticipated to be minimal. Microbiological contamination of surface water may occur through direct fecal input from man or animal, sewage overflow, surface runoff, or overgrowth of naturally occurring microorganisms (WHO, 2003). Other concerns to water quality may include litter associated with public facilities and undisposed pet waste. The Town should enforce "leave no trace" policies to minimize these impacts.

4 Conclusions and Response to Letter

The Town of Brunswick is proposing to repurpose the former Maine Gravel Services Site into land used for recreational purposes that include recreational playing fields, swimming, fishing, and/or non-motorized boating. Abutting property owners have raised concerns regarding the potential for Site activities to negatively impact water quality and quantity in nearby bedrock wells. In particular, a letter received from the property owner of 310 Old Bath Road, dated November 8, 2024 (the Letter), outlines specific concerns and the need for a hydrologic study to evaluate potential impacts as a result of the proposed project. This report provides the results of the hydrogeologic investigation conducted by Wright-Pierce. The following is a summary of significant findings and responses to concerns raised in the Letter.

- There are two distinct types of aquifers that surround the Site: (1) sand and gravel aquifers and (2) bedrock aquifers. The sand and gravel aquifer consists of glaciomarine sediments that are recharged by direct infiltration of precipitation and indirect runoff. The bedrock aquifer at the Site consists of groundwater stored within fractured bedrock underlying overburden soils. These two aquifer types

are typically isolated systems with minimal hydraulic connectivity, except under extreme pumping conditions. Because domestic bedrock wells in the area withdraw groundwater from the bedrock aquifer and not the sand and gravel aquifer, surficial activities at the Site are unlikely to have any impact to water quality or quantity of nearby bedrock wells.

- Drainage basin modeling of the Site indicates the basin is approximately 0.7 square miles in area with a contribution area that is limited by topographic basin boundaries (Figure 6). Most domestic bedrock wells surrounding the Site, including 310 Old Bath Road, are located outside of the delineated drainage area.

- According to the Letter, the Site is described as an open groundwater aquifer that is contained and small, with most of the aquifer's volume in the top 20-24 inches, when fully charged. It is unclear where these statistics were sourced from, but they do not accurately reflect the properties of the sand and gravel aquifer in this region. Figure 3 shows that the sand and gravel aquifer in this region is both horizontally and vertically extensive with transmissivity values that range from 10 to 50 gpm. Soil thickness data points from around the Site indicate thickness depths that reach up to approximately 95 feet to the west, 67 feet to the south, and 158 feet to the north (Figure 3). And the aquifer is characterized by a bedrock trough connected to the Androscoggin River. Although a well is potentially needed to serve the proposed restroom facility at the swimming area, the use will be limited to seasonal, and adverse effects to the aquifer are not anticipated.

- Historical aerial photographs of the Site ranging from 1940 to 2012 were obtained from the United States Geological Survey Earth Explorer database and are included in Attachment C. The 1940 aerial photograph shows that the Site consisted of undeveloped forest and grasslands, and that a private pond was not present on the 310 Old Bath Road property. Excavation at the Site appears to have initiated circa 1960; however, the exact date is unknown based on available information. The private pond at 310 Old Bath Road is not present on the 1960 aerial photograph. The 1972 photograph shows that excavations at the Site are filled with water and that a small, irregular-shaped pond is present at 310 Old Bath Road. The private pond on the 310 Old Bath Road property was expanded to its current shape and size by 1990. No major changes to the Site are noted in subsequent photos, other than the addition of a sand spit along the southeastern portion of the Site by 2009. The private pond on 310 Old Bath Road was reportedly deeded by the previous property owner and is now considered a wetland waterbody.

- The Letter describes multiple past activities at the Site that may have posed an impact to groundwater, including excavation at the Site, trenching of a ditch (Bonney Brook), the Site's use as a police firing range and potential lead contamination, and removal of a beaver dam. Unlike prior excavation and trenching activities, the physical altering of the pond's footprint is not proposed as part of this project. The Town of Brunswick Police Department (BPD) issued a letter summarizing firing range activity at the Site. The letter is included in Attachment D. Based on information provided in the

letter and correspondence with the BPD, a bermed area on the southeastern portion of the Site was used a police firing range between November 2021 and October 2024. The location of the firing range is shown on Figure 2. According to the BPD, the firing range was used approximately twice a year by 35 officers to satisfy the Maine Criminal Justice Academy (MCJA) qualifications. The MCJA requires each sworn officer to fire a minimum of 100 pistol rounds and 72 rifle rounds annually. Firing rounds consisted of full metal jacket and total metal jacket training rounds that are designed to encapsulate the lead core and limit lead contamination. All training rounds were reportedly fired at the constructed berm to reduce noise levels and contain detritus. Given the use of environmentally friendly rounds, the bermed area constructed for the firing range, and its limited use to approximately six times over the course of four years, there is little to no concern for lead contamination impacts to the aquifer. Should the Town wish to investigate the potential for lead contamination, water quality testing of the pond surface water at three locations are recommended to confirm water quality. Two of these samples should be located in water bodies adjacent to the shooting range and a third located at the proposed recreational swimming area. Water quality samples should be collected and field filtered using a 0.45 micron filter and analyzed for dissolved lead. If water quality results indicate lead concentrations above state regulatory thresholds, then a more comprehensive investigation (Phase II Environmental Site Assessment) should be implemented to determine the extent of contamination and applicable remediation methods. The town may consider removing and properly disposing of the soils at the shooting range. Ammunition typically will not penetrate more than 2 feet into sand, indicating that a limited volume of soil would be needed to be removed if this course of action is taken.

- Based on the findings of this study, the observed beaver dam has little to no effect on stabilizing pond water levels. Water in the pond will preferentially flow through the sand and gravel aquifer and bypass the beaver dam. Water levels observed during a site walk were noted to be similar both upstream and downstream of the beaver dam. Unfortunately, beavers are known to cause giardia blooms, also known as 'Beaver Fever" that can cause severe illness if water is ingested due to a parasitic infection. As such, it would be advisable to remove beaver activity prior to permitting recreational swimming in the pond.

- The primary concerns raised in the Letter are regarding the maintenance of groundwater retention and groundwater quality at the Site. This study shows that the gravel pit pond at the Site has similar physical and hydraulic properties as glacial-derived kettle hole ponds. This includes minimal inlet and outlet streams and the presence of surrounding sand and gravel aquifers with high transmissivity. The pond-aquifer interaction at the Site is characterized by a flow-through condition in which groundwater flows into the pond in upgradient areas and surface water in the pond recharges the sand and gravel aquifer in downgradient areas (Photo 4). Fluctuations in flow in the nearby Androscoggin River likely play the largest role in water levels in the sand and gravel aquifer and surface water bodies. The repurposing of the Site for recreational use is not expected to have an adverse impact on any of these factors controlling groundwater levels.

- The potential for large-scale tree and vegetation removal or the application of fertilizer or pesticides pose the highest risks to water quality at the Site. Maintaining as much existing vegetation cover as possible at the Site will help protect long term water quality and clarity of the pond. It is also recommended that limited fertilizer or pesticide products be applied to any proposed recreational fields. Artificial turf is not proposed at this Site. A public swimming area is considered low-risk to groundwater quality since the surrounding sand and gravel material naturally filters the surface water as it recharges back into the aquifer. The presence of Beavers pose a greater risk to water quality and human health.

5 Recommendations

The following is a summary list of recommendations that the town shall consider in the future phases of planning for this Site to minimize risk to the surrounding aquifer:

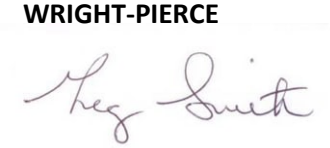
- Activities that pose minimal risk to the aquifer:
  - Hiking and biking trails
  - Non-motorized boating and vehicles
  - Recreational fishing; the Town will likely want to request recommendations from IFW on sustainable practices and schedules for fishing activities based on species.
  - Public swimming area
  - Restrooms with a properly designed septic system. If used, these facilities would ideally be located as far from the pond as is reasonable to allow for natural attenuation of grey water by naturally occurring microbes in overlying soils and within the aquifer. Given the short seasonal use of the pond for swimming, it is anticipated that the loading from a septic system would be de minimis in the aquifer.

- Other items for the town to consider:
  - Prohibit any motorized boats to minimize pollution risk from fuel.
  - Remove beavers to improve water quality and limit potential health issues due to giardia.
  - Enforce “leave no trace” principles to manage potential litter and pet waste.
  - Consider using best management practices to limit erosion and siltation migration.
  - Minimize tree and vegetation removal where possible to stabilize soils and protect water quality. However management of vegetation is recommended by minimizing the possibility for organics such as leaves to enter the water, resulting in anoxic conditions and degrading water quality, as observed in the outlet beyond the beaver dam.
  - If any recreational fields are to be constructed, application of fertilizers, pesticides, or herbicides shall not be permitted.

We appreciate the opportunity to provide this hydrogeologic investigation regarding water quality and quantity impacts from the proposed recreational activities at the Former Maine Gravel Services Site in

Brunswick. Please do not hesitate to reach out to me at 603-748-6390 with any further questions regarding this desktop investigation.

Sincerely,
WRIGHT-PIERCE



Greg J. Smith, PG, CG
Senior Hydrogeologist
greg.smith@wright-pierce.com

Attachments

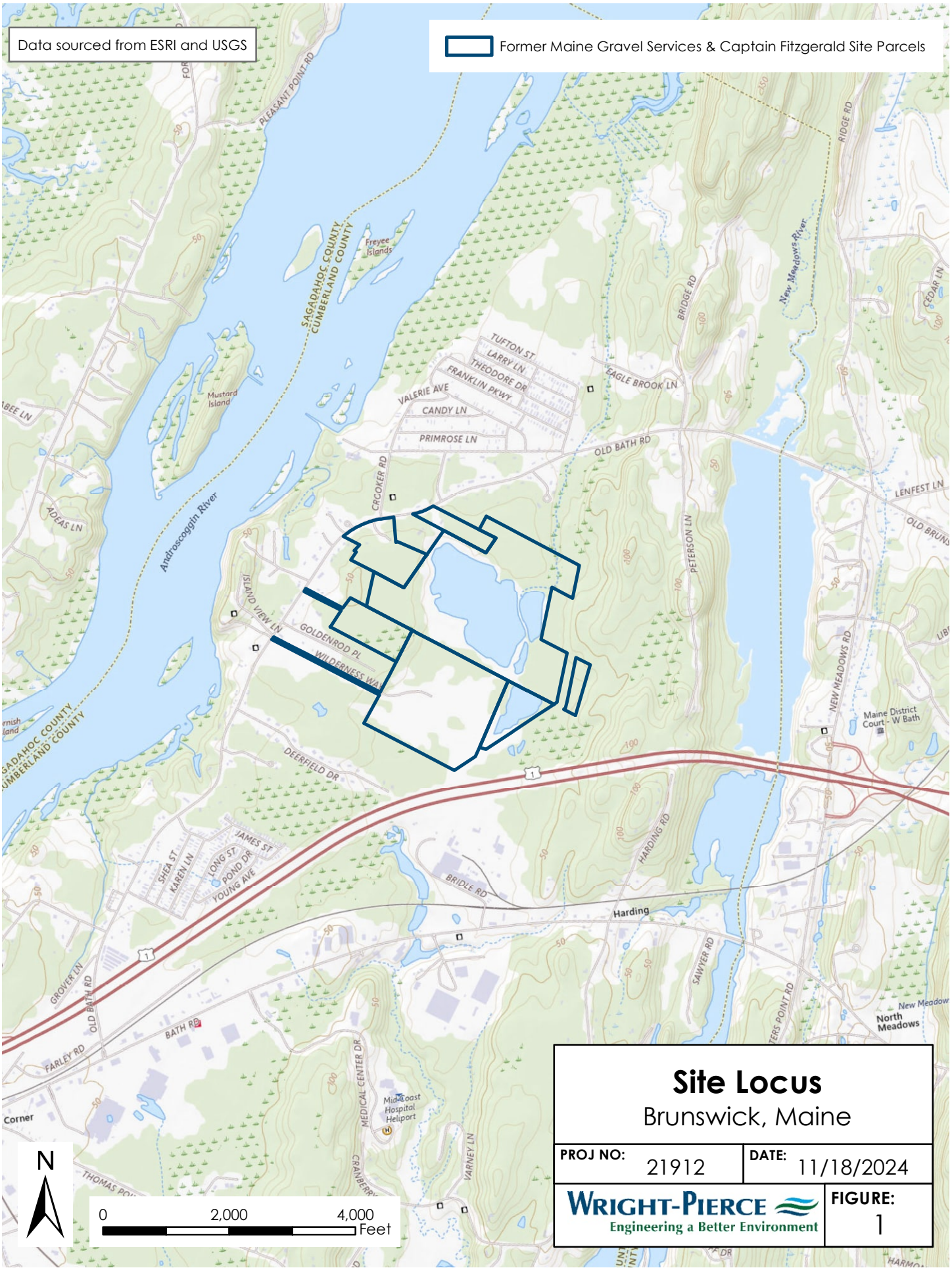
- Attachment A – Figures
  - Figure 1 – Site Locus
  - Figure 2 – Site Plan
  - Figure 3 – Surficial Geology
  - Figure 4 – Soil Map
  - Figure 5 – Bedrock Geology
  - Figure 6 – Drainage Basin
  - Figure 7 – Groundwater Flow Direction
  - Figure 8 – Reversal Groundwater Flow Direction
- Attachment B – Soil Descriptions
- Attachment C – Historical Aerial Photographs
- Attachment D – Brunswick Police Department Letter

Resources:

WALTER, DONALD & Masterson, John & LeBlanc, Denis. 2002. Simulated Pond-Aquifer Interactions under Natural and Stressed Conditions near Snake Pond, Cape Cod, Massachusetts. Water-Resources Investigations Report 99-4174.

World Health Organization (WHO), 2003. Guidelines for safe recreational water environments - Volume 1: Coastal and fresh waters.

Attachment A
Figures



Site Locus

Brunswick, Maine

PROJ NO:	DATE:
21912	11/18/2024

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 1

NGN W:\GIS_Development\Projects\ME\Brunswick\21912_FormerMEGravel\MXDs\hydrogeo\1. Site Locus (adjusted scale).mxd

Data sourced from ME Geological Survey

- Maine Elevation Contours -10 Feet
- Maine DOT Public Roads
- Site Parcels
- 310 Old Bath Road Parcel
- Delineated Wetland
- Delineated Waterbody

Maine Well Database - Well Yield

- 0 -1
- 1.1 - 2
- 2.1 - 4
- 4.1 - 6
- 8.1 - 10
- 10.1 - 15
- 15.1 - 20
- 25.1 - 50
- 100+

RD INV 05 10254

RD INV 05 10336

RD INV 05 10256

RD INV 3210195

US 1 SB

US 1

Former Brunswick Police Firing Range (Nov. 2021 - Oct. 2024)

N

0 500 1,000 Feet

Site Plan

Brunswick, Maine

PROJ NO:	DATE:
21912	11/21/2024

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 2

NGN W:\GIS_Development\Projects\ME\Brunswick\21912_FormerMEGravel\MXDs\hydrogeo\2_Site Plan (with contours).mxd

Data sourced from ME Geological Survey

RD INV 23 00382

RD INV 23 00365

RD INV 05 10253

RD INV 05 10254

RD INV 05 10336

RD INV 05 10255

RD INV 05 10252

RD INV 05 10256

US 1 SB

US 1

RD INV 32 10196

RD INV 32 10195

RD INV 05 10261

RD INV 05 10260

RD INV 23 00536

RD INV 23 00422

RD INV 23 00763

RD INV 23 A1061

Maine Well Database (Overburden Thickness (ft))

- No Overburden Thickness Provided
- 0 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 25
- 25 - 30
- 30 - 40
- 40 - 50
- 50 - 75
- 75 - 100
- 100 - 200

MaineDOT Public Roads

Site Parcels

310 Old Bath Road Parcel

1,000-foot Community Well Buffer

Population-Based Community Wellhead Buffer (2,300 ft)

Aquifer Transmissivity

<all other values>

10-50 GPM

Surficial Geology Type

Glaciomoraine deposits (coarse-grained facies)

Glaciomoraine deposits (fine-grained facies)

Swamp, marsh, and bog deposits

Till

N

0 1,000 2,000 Feet

Surficial Geology

Brunswick, Maine

PROJ NO:	DATE:
21912	11/18/2024

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 3

NGN W:\GIS_Development\Projects\ME\Brunswick\21912_FormerMEGravel\MXDs\hydrogeo\3. Surficial Geology (adjusted layers).mxd

Data sourced from ME Geological Survey

RD INV 05 10254

RD INV 05 10255

RD INV 05 10336

RD INV 05 10256

US 1 SB

Site Parcels

310 Old Bath Road Parcel

Maine DOT Public Roads

Soil Type

- Au Gres loamy sand
- Nicholville very fine sandy loam
- Lamoine silt loam
- Buxton silt loam
- Gravel pits
- Lyman-Tunbridge complex
- Limerick-Saco silt loam
- Scantic silt loam
- Swanton fine sandy loam
- Whately fine sandy loam
- Windsor loamy sand
- Woodbridge fine sandy loam

Maine Well Database - Overburden Thickness

- No Overburden Thickness Provided
- 0 - 5
- 5 - 10
- 15 - 20
- 40 - 50
- 50 - 75
- 75 - 100
- 100 - 200

N

0 500 1,000 Feet

NRCS Soils

Brunswick, Maine

PROJ NO:	DATE:
21912	11/18/2024

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 4

NGN W:\GIS_Development\Projects\ME\Brunswick\21912_FormerMEGravel\MXDs\hydrogeo\4. Soil Map.mxd

Data sourced from ME Geological Survey

Oca: Cushing Formation; Amphibolite Member

SOsa: Sebascodegan Formation Amphibolite Member

SOs: Sebascodegan Formation

Oce: Cape Elizabeth Formation

DSbH: Butler Head Granite Gness

SOsa: Sebascodegan Formatio; Amphibolite Member

SOsr: Sebascodegan Formation (Rusty-weathering granofels and schist)

SObp: Bethel Point Formation

Dg: Granite and Pegmatite

RD INV 23 00365

RD INV 23 20006

RD INV 05 10253

RD INV 05 10254

RD INV 05 10255

RD INV 05 10336

RD INV 05 10256

RD INV 05 10252

RD INV 32 10196

RD INV 32 10195

RD INV 05 10261

RD INV 05 10260

RD INV 05 10143

RD INV 05 10247

RD INV 23 01062

RD INV 23 00422

RD INV 23 D1061

RD INV 23 C1061

RD INV 23 00763

RD INV 23 A1061

RD INV 23 B1061

RD INV 32 10197

US 1 SB

US 1

Maine Well Database - Overburden Thickness

- No Overburden Thickness Provided
- 0 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 25
- 25 - 30
- 30 - 40
- 40 - 50
- 50 - 75
- 75 - 100
- 100 - 200
- Bedrock_Trough
- Site Parcels
- 310 Old Bath Road Parcel
- Maine DOT Public Roads

N

0 1,000 2,000 3,000 Feet

Bedrock Geology

Brunswick, Maine

PROJ NO:	DATE:
21912	11/20/2024

WRIGHT-PIERCE Engineering a Better Environment

FIGURE: 5

NGN W:\GIS_Development\Projects\ME\Brunswick\21912_FormerMEGravel\MXDs\hydrogeo\5. Bedrock Geology.mxd

Data sourced from ME Geological Survey

RD INV 05 10253
RD INV 05 10254
RD INV 05 10255
RD INV 05 10336
RD INV 05 10252
RD INV 05 10256
US 1 SB
US 1
RD INV 3210196
RD INV 3210195
RD INV 23 00536
RD INV 23 D1061
RD INV 23 C1061
RD INV 23 00763
RD INV 23 A1061
RD INV 23 B1061
RD INV 05 10261
RD INV 05 10260

Maine Geologic Survey Wells
- No Overburden Thickness Provided
- 0 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 25
- 25 - 30
- 40 - 50
- 50 - 75
- 75 - 100
- 100 - 200
- Basin Drainage Point
- StreamStats Drainage Basin
- Site Parcels
- 310 Old Bath Road Parcel
- Maine DOT Public Roads
- Delineated Wetland

N

0 750 1,500 Feet

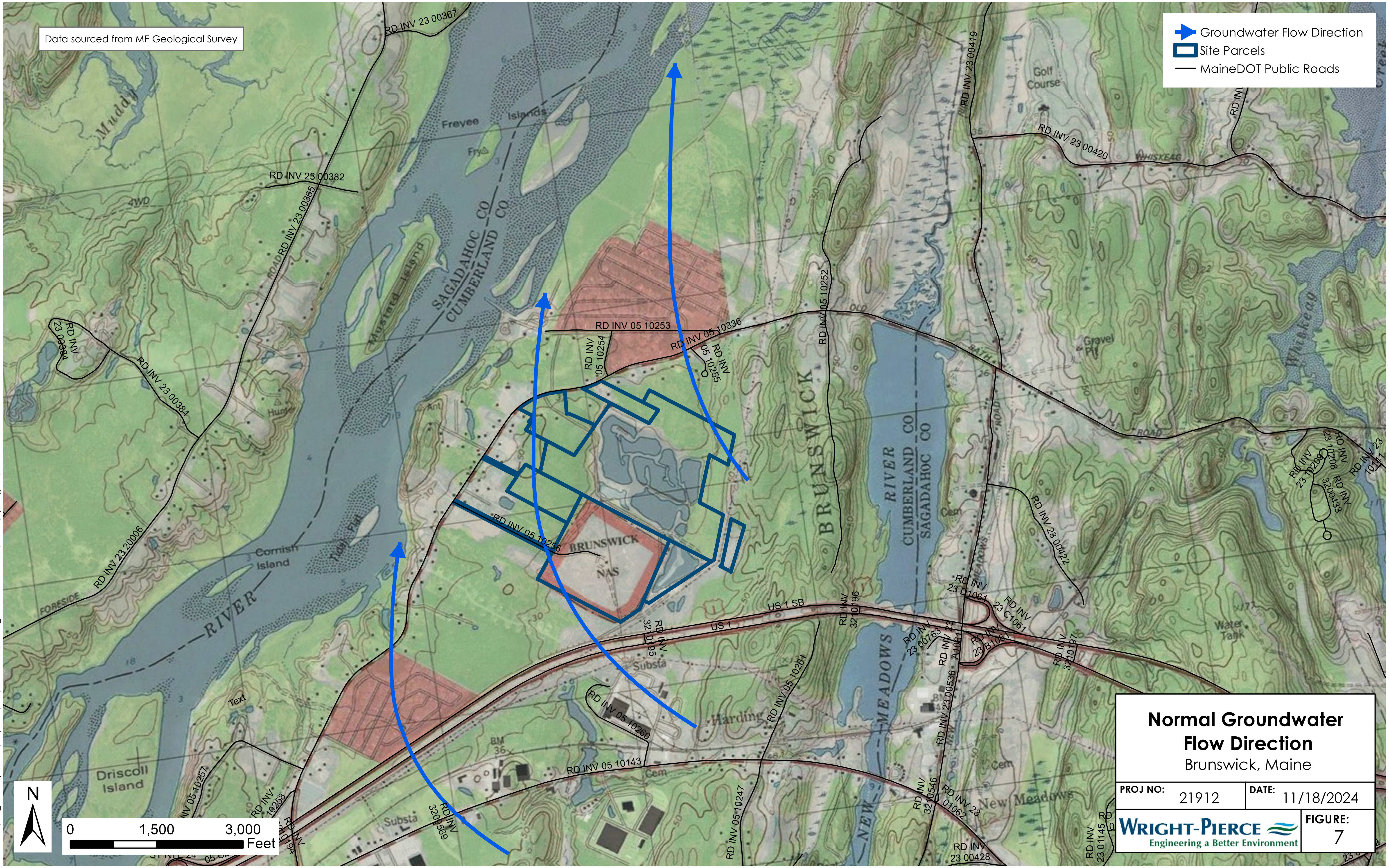
Drainage Basin
Brunswick, Maine

PROJ NO:	DATE:
21912	11/19/2024

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 6

NGN W:\GIS_Development\Projects\ME\Brunswick\21912_FormerMEGravel\MXDs\hydrogeo\6. Drainage Basin.mxd


Data sourced from ME Geological Survey
Groundwater Flow Direction
Site Parcels
MaineDOT Public Roads
Normal Groundwater Flow Direction
Brunswick, Maine
PROJ NO: 21912
DATE: 11/18/2024
FIGURE: 7
WRIGHT-PIERCE
Engineering a Better Environment
N
0
1,500
3,000
Feet
BRUNSWICK NAS
RD INV 05 10253
RD INV 05 10336
RD INV 05 10256
RD INV 05 10260
RD INV 05 10143
RD INV 23 00367
RD INV 23 00382
RD INV 23 00384
RD INV 23 00420
RD INV 23 00422
US 1 SB
US 1
SAGADAHOC CO
CUMBERLAND CO
RIVER
Cornish Island
Driscoll Island
Freyee Islands
Mustard Island
New Meadows
Harding
Golf Course
Gravel Pit
Water Tank

NGN W:\GIS_Development\Projects\ME\Brunswick\21912_FormerMEGravel\MXDs\hydrogeo\7. Groundwater flow.mxd

Data sourced from ME Geological Survey

High Surface Water - Groundwater Flow Direction
Bedrock Trough
Site Parcels
MaineDOT Public Roads

RD INV 23 00367
RD INV 28 00382
RD INV 23 00365
RD INV 23 00384
RD INV 23 00419
RD INV 23 00420
RD INV 05 10253
RD INV 05 10254
RD INV 05 10255
RD INV 05 10336
RD INV 05 10252
RD INV 05 10256
RD INV 23 20006
RD INV 32 01195
RD INV 32 01196
RD INV 32 01197
RD INV 05 10260
RD INV 05 10143
RD INV 05 10257
RD INV 05 10258
RD INV 32 00569
RD INV 05 10247
RD INV 23 00422
RD INV 23 C1061
RD INV 23 00763
RD INV 23 A1061
RD INV 23 00536
RD INV 32 00546
RD INV 23 01062
RD INV 23 00428
RD INV 23 01145
RD INV 23 10208
RD INV 32 00433
RD INV 23 10209

Muddy
Freyee Islands
Fry
Mustard Island
SAGADAHOC CO
CUMBERLAND CO
4WD
ROAD
Hunter
Ant
Cornish Island
Tidal Falls
FORESIDE
RIVER
BRUNSWICK NAS
Substa
Harding
Text
Driscoll Island
BM 36
Cem
BRUNSWICK
CUMBERLAND CO
SAGADAHOC CO
RIVER
MEADOWS
NEW
Gravel Pit
BATH ROAD
WHISKEAG
Water Tank
New Meadows
US 1
US 1 SB

N

0 1,500 3,000 Feet

High Surface Water Groundwater Flow Direction

Brunswick, Maine

PROJ NO:	DATE:
21912	11/18/2024

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 8

NGN W:\GIS_Development\Projects\ME\Brunswick\21912_FormerMEGravel\MXDs\hydrogeo\8. High_Water_GW.mxd

Attachment B
Soil Descriptions

Cumberland County and Part of Oxford County, Maine

Au—Au Gres loamy sand

Map Unit Setting

National map unit symbol: blgr
Elevation: 10 to 1,800 feet
Mean annual precipitation: 29 to 50 inches
Mean annual air temperature: 41 to 46 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Au gres and similar soils: 85 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Au Gres

Setting

Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits derived from granite and gneiss

Typical profile

H1 - 0 to 10 inches: loamy sand
H2 - 10 to 32 inches: loamy sand
H3 - 32 to 65 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Saugatuck

Percent of map unit: 6 percent
Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Walpole

Percent of map unit: 2 percent
Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Scantic

Percent of map unit: 2 percent
Landform: Coastal plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Androscoggin and Sagadahoc Counties, Maine
Survey Area Data: Version 25, Aug 26, 2024

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 21, Aug 26, 2024

Cumberland County and Part of Oxford County, Maine

Gp—Gravel pits

Map Unit Composition

Gravel pits: 92 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gravel Pits

Typical profile

H1 - 0 to 6 inches: extremely gravelly sand
H2 - 6 to 60 inches: extremely gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Data Source Information

Soil Survey Area: Androscoggin and Sagadahoc Counties, Maine
Survey Area Data: Version 25, Aug 26, 2024

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 21, Aug 26, 2024

Cumberland County and Part of Oxford County, Maine

WmB—Windsor loamy sand, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w2x2
Elevation: 0 to 1,410 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Windsor and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor

Setting

Landform: Outwash terraces, deltas, outwash plains, dunes
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loamy sand
Bw - 3 to 25 inches: loamy sand
C - 25 to 65 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A

Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Data Source Information

Soil Survey Area: Androscoggin and Sagadahoc Counties, Maine
Survey Area Data: Version 25, Aug 26, 2024

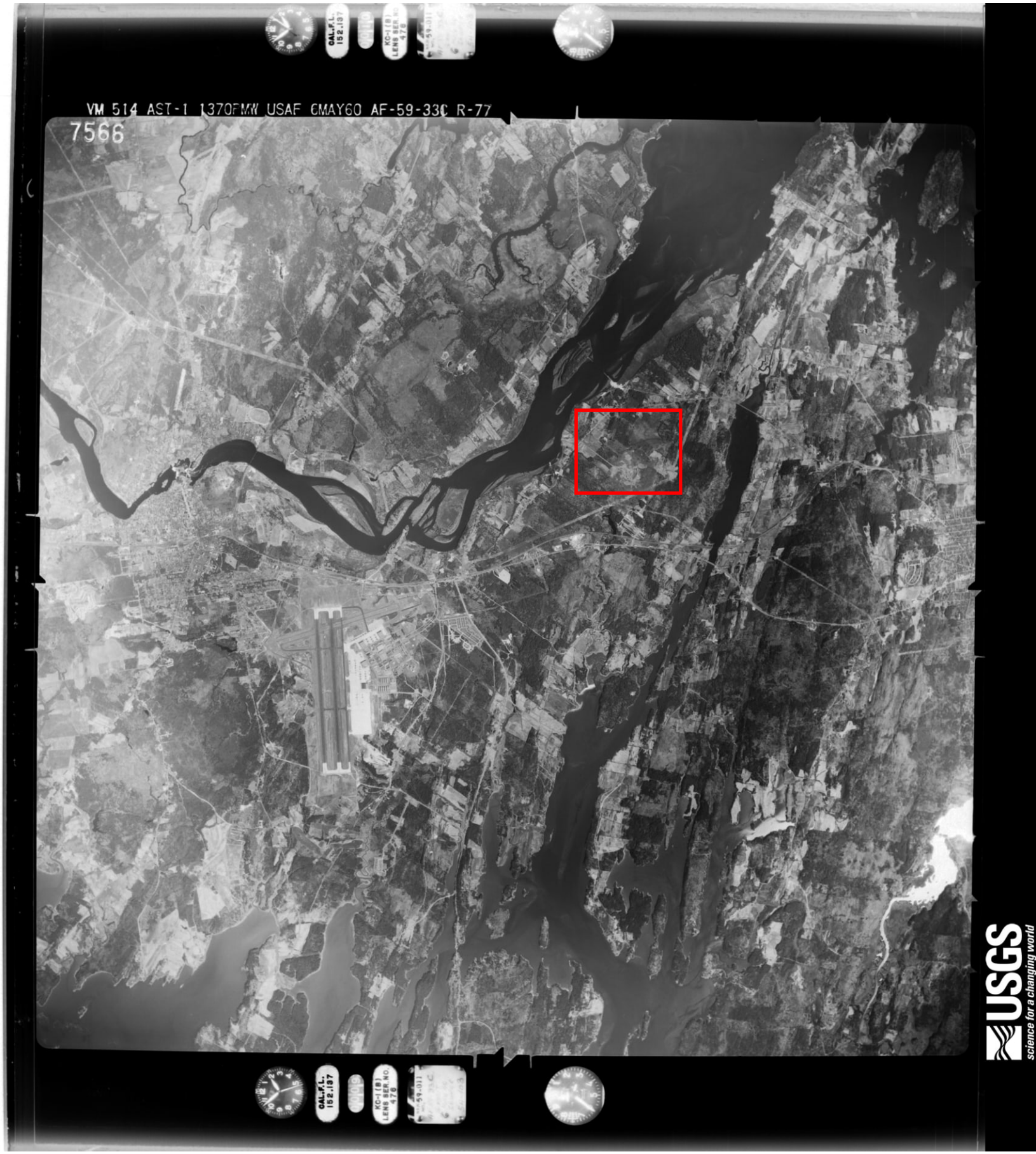
Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 21, Aug 26, 2024

Attachment C
Historical Aerial Photographs

Aerial Photograph: 1940

Aerial Photograph: 1940

Aerial Photograph: 1960



Aerial Photograph: 1960

Aerial Photograph: 1972

Aerial Photograph: 1972

Aerial Photograph: 1990

Aerial Photograph: 1990

Aerial Photograph: 2003

Aerial Photograph: 2003

Aerial Photograph: 2006-A

Aerial Photograph: 2006-A

Aerial Photograph: 2006-B

Aerial Photograph: 2006-B

Aerial Photograph: 2009

Aerial Photograph: 2009

Aerial Photograph: 2012-A

Aerial Photograph: 2012-A

Aerial Photograph: 2012-B

Aerial Photograph: 2012-B

Attachment D
Brunswick Police Department Letter

Town of Brunswick, Maine
INCORPORATED 1739

Police Department

85 PLEASANT STREET BRUNSWICK, MAINE 04011

TELEPHONE (207) 725-5521 FAX (207) 725-6627

www.brunswickpd.org
email: info@brunswickpd.org

SCOTT J. STEWART
Chief of Police

MARTIN S. RINALDI
Commander, Support Services

PAUL R. HANSEN
Commander, Patrol Division

Estimate of PD Use of Sturgeon Ln Range

The Maine Criminal Justice Academy (MCJA) requires law enforcement officers to qualify on both pistol and rifle qualification courses annually to prove efficiency. The MCJA standard pistol course is a 50 round course that officers are required to obtain a passing score in back to back rounds. The MCJA standard rifle course is a 36 round course that officers are required to obtain a passing score in back to back rounds. At a minimum, each sworn officer will fire 100 pistol rounds and 72 rifle rounds annually to maintain MCJA standards.

The Brunswick Police Department recognizes the importance of officers' efficiency with these weapons systems and understands that the highest risk situations an officer can find themselves in is when they are required to use deadly force. With these factors in mind the Brunswick Police Department holds its officers to a higher standard and requires weapons qualifications twice annually.

With that in mind below is a rough estimate of the approved time the Brunswick Police Department spent at the Sturgeon Ln firing range from 2021-2024 based off of the current 35 sworn officers (SWAT members included.)

2021 – (only qualified once) 35 officers

- Pistol qualifications – 3500 rounds
- Rifle qualifications – 2,520 rounds

2022 – Two qualifications – 35 officers

- Pistol qualifications – 7,000 rounds
- Rifle qualifications – 5,040 rounds

2023 - Two qualifications – 35 officers

- Pistol qualifications – 7,000 rounds
- Rifle qualifications – 5,040 rounds

2024 - (only qualified once) 35 officers

- Pistol qualifications – 3500 rounds
- Rifle qualifications – 2,520 rounds

The aforenoted rounds were fired annually between a 2-3-day training period depending on scheduling/officer availability.

It should also be noted that the Brunswick Police Department only uses Total Metal Jacket (TMJ) and Full Metal Jacket (FMJ) rounds for practice ammunition. This is significant because TMJ rounds have a completely enclosed base meaning any lead is contained within a metal jacket (usually copper) and does not leave any lead behind when the round is fired. FMJ rounds have an exposed lead base, however during the firing process any exposed lead is vaporized and has only been an issue at indoor shooting ranges as these vapors are dissipated by the atmosphere when shooting outdoors. In both cases of the FMJ and TMJ rounds, the projectile that is left behind is a metal jacket with no exposed lead.

All numbers contained in this memorandum are an estimate and should not be considered exact totals.

Respectfully submitted,

Detective Sergeant Chris Balestra

Appendix D
Natural Resource Survey Report

WETLAND, WATERCOURSE & WATERBODY DELINEATION AND POTENTIAL VERNAL POOL SURVEY REPORT

Brunswick Gravel Site

Brunswick, Cumberland County, Maine

Prepared for:
Town of Brunswick
Parks and Recreation Department
220 Neptune Drive
Brunswick, ME 04011
https://www.brunswickme.gov/

Prepared by:
Flycatcher LLC
106 Lafayette St., Suite 2A
Yarmouth, ME 04096
http://www.flycatcherllc.com

July 2024

Contents

Figures

Tables

Appendices

1.0 Introduction

In May 2024, the Former Maine Gravel Services & Captain William Fitzgerald Recreation & Conservation Area Master Development & Management Plan Committee of the Town of Brunswick (Committee) released an RFP seeking consulting assistance to conduct comprehensive wetland delineation services that will be used to inform where upon the 163.4-acre property the committee might recommend facilities for active and passive recreation uses be developed.

In June 2024, the Town of Brunswick (Town) awarded Flycatcher LLC (Flycatcher) the work and in June and July of 2024 Flycatcher conducted an environmental field survey of the approximately 163-acre site. The purpose of the field survey was to identify and map wetlands, watercourses, waterbodies, and potential vernal pools to inform avoidance and minimization of natural resource impacts, and aid in the planning for potential use or development on the property while protecting natural resources.

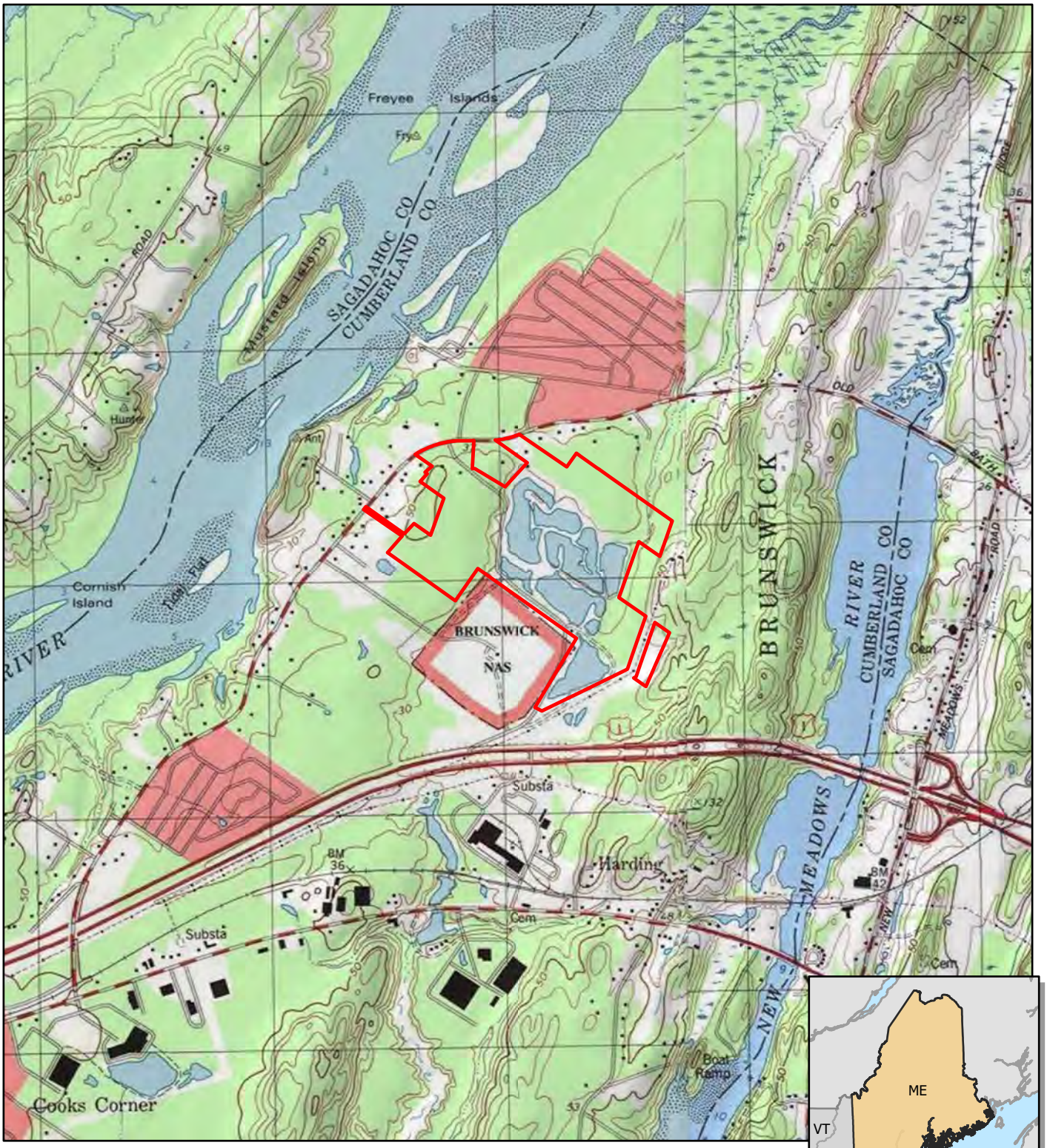
This report provides a description of the methods used and the findings from the field survey effort. Definitions and methodologies used follow those prescribed by the Maine Department of Environmental Protection (MDEP) and the US Army Corps of Engineers (USACE), the two leading agencies that oversee wetland protection and permitting in Maine. The extent of the field survey is depicted on Figures 1 and 2, outlined in yellow (Survey Area).

2.0 Survey Area

General Description: As depicted on Figure 1, the Survey Area encompasses five parcels located off Old Bath Road and Sturgeon Lane in Brunswick, identified on the municipal Tax Map 48 - Lots 22, 25, 28, 29 and 31. The Survey Area totals approximately 163-acres. The parcels surveyed were the previous location of a Maine Gravel Services, Inc. aggregate extraction operation (gravel pit). Previous to the gravel pit this area was in agricultural use. As a result, the site has a large amount of historic disturbance from excavations and ditching. The center of the Survey Area is now a large waterbody (pond) created by excavating for aggregate materials. The area surrounding the manmade waterbody is primarily forested with trails throughout. A large sand pile is located on the western side of the waterbody. An electric transmission-line corridor in the southeast corner separates a portion of parcel 48-28 from the larger Survey Area.

Topography/Drainage: The Survey Area is nearly level to gently sloping with some interspersed small knolls throughout. The elevation ranges from a high of approximately 82-feet in the former sand extraction area in the south central portion of the Survey Area, with the lowest lying area of approximately 14-feet in the southeastern Survey Area corner along the transmission line. There is a large, flat sandplain directly adjacent to the Survey Area to the southwest. Wetlands occur in low lying areas, including manmade depressions, and generally drain into the large waterbody before draining off-site to the north and east.

Vegetation: Forested uplands are dominated by red maple (*Acer rubrum*), eastern hemlock *(Tsuga canadensis),* eastern white pine *(Pinus strobus),* and balsam fir *(Abies balsamea)* with wild sarsaparilla *(Aralia nudicaulis),* maystar *(Trientalis borealis)* and lowbush blueberry *(Vaccinium angustifolium)* in the understory. Forested wetlands are dominated by eastern hemlock and red maple in the overstory with speckled alder *(Alnus incana)*, common winterberry *(Ilex verticillata)* and steeplebush *(Spiraea tomentosa)* in the shrub layer and shrub habitats. Emergent wetlands and forested wetland understories are dominated by ferns and sedges such as cinnamon fern *(Osmundastrum cinnamomeum),* sensitive fern *(Onoclea sensibilis),* bristly dewberry *(Rubus hispidus),* and sedges *Carex spp.* The Survey Area borders a Sandplain Grassland to the southwest which contains little bluestem *(Schizachyrium scoparium)* and lowbush blueberry.



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

1" = 2,000'
1:24,000

0 2,000 4,000 FEET

Flycatcher
LAND + SCIENCE + PEOPLE

PROJECT:

BRUNSWICK
GRAVEL SITE PROJECT
BRUNSWICK, CUMBERLAND COUNTY, MAINE

LEGEND:

SURVEY AREA

DRAWN BY:	G. BOZEK
CHECKED BY:	R. KELSHAW
MONTH:	JULY
YEAR:	2024
PROJ. NO.:	22B-002
CLIENT:	BRUNSWICK, ME

FIGURE 1 - USGS LOCATION MAP

Path: C:\Flycatcher\Projects\BrunswickGravel\22B-002_BRUNSWICK_GRAVEL\5_PRO\22B-002_BRUNSWICK_GRAVEL.aprx

3.0 Methods

3.1 Desktop Review

Prior to visiting the site, Flycatcher reviewed existing data sources including:

- United States Geological Survey (USGS) topographic mapping;
- United States Fish and Wildlife Service (USFWS) national wetland inventory (NWI) mapping;
- Natural Resources Conservation Service (NRCS) medium-intensity soil survey mapping;
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs);
- USGS National Hydrography Dataset (NHD); and
- Recent and historic aerial photography (via Google Earth).

This information assisted in identifying locations with the highest potential for containing wetlands or watercourses in the Survey Area, which typically increase the efficiency of detecting protected natural resources during field surveys.

3.2 Agency Outreach

Flycatcher conducted outreach to the Maine Department of Inland Fisheries and Wildlife (MDIFW) and the Maine Natural Areas Program (MNAP) for information on known or potential state-listed rare/threatened/endangered or special concern species, essential habitats, or natural communities within or proximal to the Survey Area. Flycatcher also requested an Official Species List from the US Fish and Wildlife Service's (USFWS) Information for Planning and Consultation System (IPaC System) to determine whether there are known occurrences of species or critical habitats listed under the Federal Endangered Species Act (ESA) within the Survey Area. Results of the outreach are discussed in Section 4.2.

3.3 GPS Location

Features (*e.g., wetland boundaries or watercourses*) located during the on-site investigations were geolocated using a mapping grade global positioning system (GPS) unit (Juniper Systems' Geode GPS Antenna and ESRI's ArcGIS Collector software). The data were collected using real-time correction and standards specified by the manufacturer to achieve sub-meter accuracy.

3.4 Wetland Delineation

Wetlands are defined by the federal government 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*" (Federal Register, 1982).

Wetland delineations were conducted in accordance with the USACE Wetland Delineation Manual[1] and the Northcentral and Northeast Regional Supplement (Version 2.0)[2]. The manual and supplement provide a repeatable methodology to identify wetland areas and are the accepted wetland delineation methodology of the MDEP and the USACE. The USACE, as part of an interagency effort with the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (USFWS) and the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS), developed the 2016 National Wetland Plant List (NWPL). The NWPL is used to determine whether the hydrophytic vegetation parameter is met when conducting wetland determinations under

[1] Environmental Laboratory. (1987). "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

[2] U.S. Army Corps of Engineers. 2011. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

the Clean Water Act. Plants names and hydrophytic determinations are based on the 2022 update to the NWPL[3]. *Hydric soil determinations are based on the Field Indicators for Identifying Hydric Soils in New England, Version 4*[4]; the *Field Indicators of Hydric Soils in the United States, Version 8.2*[5], and the Maine Association of Professional Soil Scientist (MAPSS) Key for the Identification of Soil Drainage Class, Revised 2013.

The Survey Area was investigated by wetland scientists and when a location appeared to have the requisite three factors that constitute a wetland (i.e., predominance of hydrophytic vegetation, indicators of hydrology, and the presence of hydric soils) the boundaries of the wetlands were marked with glo-pink flagging and numbered in sequential order. Each flag was geo-located as described in Section 3.3.

3.4.1 Wetlands of Special Significance

Wetland value is the importance of a wetland with respect to the individual or collective functions it provides. A wetland may have different values for different functions. In recognition of this, Chapter 310 of the Maine Natural Resources Protection Act (NRPA) defines a subset of wetlands that provide a high level of functions and/or values to the surrounding and regional environment as Wetlands of Special Significance (WoSS). These wetlands are afforded additional protections and generally more rigorous permitting oversight if a permittee's project will result in unavoidable impacts to WoSS. Flycatcher made WoSS determinations based on on-site physical features observed during the delineation and the results of the agency outreach.

3.5 Stream Identification

Watercourse identification followed the Maine NRPA definition in Section 480(B)(9) of a "river, stream or brook" which *"means a channel between defined banks. A channel created by the action of surface water and has 2 or more of the following characteristics.*

A. It is depicted as a solid or broken blue line on the most recent edition of the U.S. Geological Survey 7.5-minute series topographic map or, if that is not available, a 15-minute series topographic map.
B. It contains or is known to contain flowing water continuously for a period of at least 6 months of the year in most years.
C. The channel bed is primarily composed of mineral material such as sand and gravel, parent material or bedrock that has been deposited or scoured by water.
D. The channel contains aquatic animals such as fish, aquatic insects, or mollusks in the water or, if no surface water is present, within the stream bed.
E. The channel contains aquatic vegetation and is essentially devoid of upland vegetation.

'River, stream or brook' does not mean a ditch or other drainage way constructed, or constructed and maintained, solely for the purpose of draining storm water or a grassy swale." Watercourse identification was also consistent with the methods outlined in the MDEP *NRPA Identification Guide for Rivers, Streams, and Brooks*[6].

If a watercourse meeting the above definition was observed, blue survey flagging was hung along the centerline (for streams less than six feet in width) or along the top of the bank (for streams six feet or wider). The locations of each flag were geolocated as described in Section 3.3.

[3] U.S. Army Corps of Engineers 2022. National Wetland Plant List, version 3.4 http://wetland-plants.usace.army.mil/U.S. Army Corps of Engineers Engineer Research and Development Center Cold Regions Research and Engineering Laboratory, Hanover, NH

[4] New England Hydric Soils Technical Committee. 2018 Version 4, *Field Indicators for Identifying Hydric Soils in New England.* New England Interstate Water Pollution Control Commission, Lowell, MA.

[5] United States Department of Agriculture, Natural Resources Conservation Service. 2018. *Field Indicators of Hydric Soils in the United States,* Version 8.2. L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

[6] Danielson, T. J. 2018. Natural Resource Protection Act (NRPA) Streams, Rivers, and Brooks. Maine Department of Environmental Protection, Augusta, ME.

3.6 Waterbody Delineation

The boundary of a waterbody is identified by an "Ordinary High-Water Mark", defined by the USACE as "*that line on the shore established by the fluctuations of water and indicated by physical characteristics such as:*

A. a clear, natural line impressed on the bank;
B. shelving;
C. changes in the character of soil;
D. destruction of terrestrial vegetation;
E. the presence of litter and debris; or
F. other appropriate means that consider the characteristics of the surrounding areas".

3.7 Potential Vernal Pool Survey

The definitions provided in Chapter 335 of the NRPA[7] and the USACE Maine General Permit[8] were consulted to identify and survey for vernal pools. Vernal pools are temporarily/seasonally flooded wetlands that provide the primary breeding habitat for vernal pool indicator species, and a host of secondary faunal species. Wood frogs (*Lithobates sylvaticus*), spotted salamanders (*Ambystoma maculatum*), blue spotted salamanders (*Ambystoma laterale*), and fairy shrimp (*Eubranchipus spp.*) are vernal pool indicator species that depend on vernal pools to complete their life cycle. Productivity of breeding vernal pool species is the primary metric used by regulatory authorities to assess vernal pool quality; thus, vernal pools must be assessed during the breeding season (generally mid-April to late-May).

Since the on-site mapping was conducted outside the vernal pool breeding season, the Maine Association of Wetland Scientists (MAWS) Vernal Pool Technical Committee Vernal Pool Survey Protocol for performing non-breeding season potential vernal pool (PVP) surveys was followed (April 2014)[9]. Using this method, the wetland scientist relies on topography, best professional judgement, evidence of inundation (e.g., water-stained leaves, sparsely vegetated concave surfaces, moss trim lines, etc.) and signs of certain invertebrates, such as: caddisfly larvae cases (Order Trichoptera), shells of freshwater clams (Family Sphaeriidae or Pisidiidae) or shed exoskeletons of dragonfly or damselfly larvae. In addition, wetland scientists carefully reviewed each potential habitat to determine if the pool origin is natural or manmade. The approximate center point of each identified potential vernal pool was marked with blue survey flagging and collected via GPS. The intent was to flag and GPS the boundary of each potential vernal pool during this delineation effort, however some features were large and did not contain surface water. So accurate boundary mapping was not possible during the delineation.

4.0 Findings

4.1 Desktop Review

The results of the desktop analysis are depicted on Figure 2. There are two areas of forested freshwater wetlands, several freshwater ponds and lakes, and one riverine feature mapped in the NWI data. The USGS NHD watercourse data set depicts one perennial watercourse flowing from the pond in the Survey Area to the north within an NWI forested wetland; in the same general location as the NWI riverine mapped wetland. FEMA's FIRM for the Survey Area does not depict Special Flood Hazard Areas within the Survey Area. The entire area is depicted as Zone X, which indicates an area of minimal flood hazard and is determined to be outside the 500-year flood.

Table 1 provides the NRCS medium intensity soil survey for Cumberland County mapping results within the Survey Area.

[7] MEDEP. *Significant Wildlife Habitat.* Chapter 335, Section 9.
[8] USACE (2020). *Department of the Army General Permits for the State of Maine*. Section IV. 20.
[9] MAWS (2014). *Vernal Pool Technical Committee Vernal Pool Survey Protocol.* Section 3.4.4. April 2014.

Table 1 NRCS Soils

Symbol	*Map Unit Name*	*Farmland Class*	*Hydric Soil*
Au	Au Gres loamy sand	Not prime farmland	Yes
Gp	Gravel pits	Not prime farmland	No
HrB	Lyman-Tunbridge complex, 0 to 8 percent slopes, rocky	Farmland of Statewide Importance	No
Sn	Scantic silt loam, 0 to 3 percent slopes	Not prime farmland	Yes
Sz	Swanton fine sandy loam	Not prime farmland	Yes
WmB	Windsor loamy sand, 0 to 8 percent slopes	Farmland of Statewide Importance	No

Of the soils occurring within the Survey Area, Au Gres loamy sand, Scantic silt loam and Swanton fine sandy loam are considered hydric soils and commonly associated with wetlands. Thus, these areas were specifically reviewed during field surveys (although scientists investigated the entire Survey Area). Lyman-Tunbridge complex and Windsor loamy sand are mapped as farmland of statewide importance.

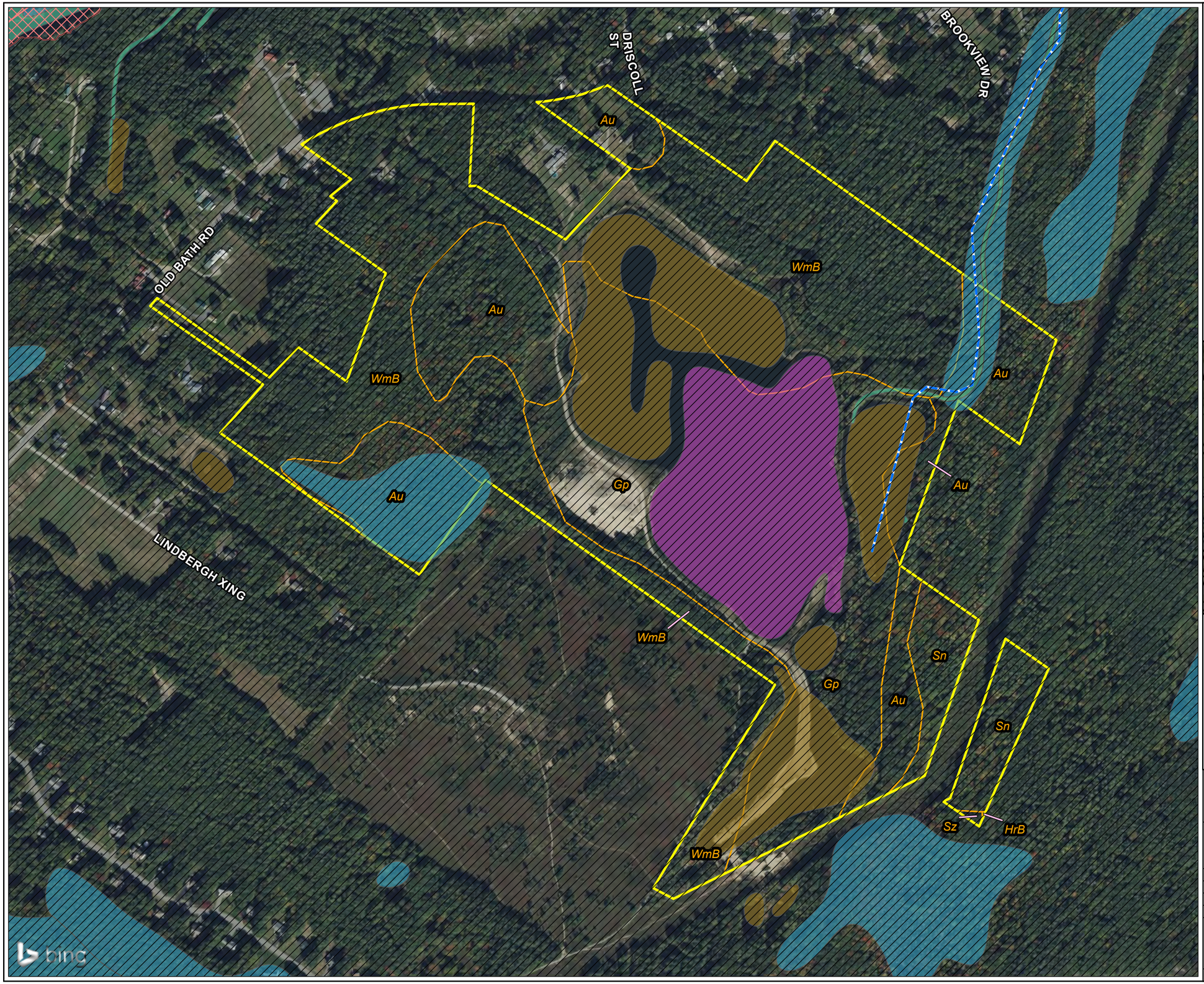
4.2 Agency Outreach

In June of 2024, Flycatcher sent agency information requests for known occurrences of rare flora, fauna, exemplary natural communities and significant wildlife habitats.

The response from MNAP indicated that, according to the information in their files, the Survey Area is adjacent to a Sandplain Grassland to the west and recommends maintaining at least a 100-foot buffer of this natural community type. Additionally, there are two rare sedges associated with Sandplain Grasslands within the adjacent natural community. Based on the soil types and proximity to the Sandplain Grasslands, there may be habitat for these species within the Survey Area. MNAP recommends the entire Project Area be surveyed for clothed sedge *(Carex vestita)* and dry land sedge *(Carex siccata).* If any individuals of these species or any additional rare species are identified during surveys, MNAP requests locations and a report of these species. During the delineation scientists were aware that these species could be present and were on the lookout for them, however, it was late in the season to identify these Carex species so no formal survey was performed.

Flycatcher has not yet received a response from MDIFW.

Flycatcher requested an Official Species List from the USFWS in an effort to understand the potential for wildlife listed under the Federal Endangered Species Act (ESA) to occur in the Survey Area vicinity. The USFWS noted the following protected wildlife may occur in the area: a) Northern Long-eared Bat *(Myotis septentrionalis)*, which is listed as an endangered species; b) tri-colored bat *(Perimyotis subflavus)*, a proposed endangered species; c) Atlantic salmon *(Salmo salar),* which is listed as an endangered species; and monarch butterfly *(Danaus Plexippus),* which is a candidate for listing. The Survey Area overlaps the critical habitat for Atlantic salmon. Specific to northern long-eared bat, the determination keys (Dkey) were utilized, and a determination of no effect was found for this species. However, an up to date Dkey consultation will need to be performed when a project is planned.



Coordinate System: NAD 1983 StatePlane Maine West FIPS 1802 Feet

LEGEND

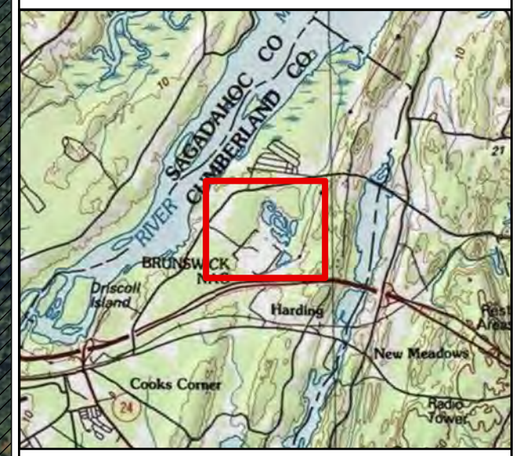
- SURVEY AREA
- NHD WATERCOURSE
- NRCS SOIL UNIT

FEMA FLOOD ZONE

- AE
- X

NATIONAL WETLANDS INVENTORY (NWI)

- FRESHWATER FORESTED/SHRUB WETLAND
- FRESHWATER POND
- LAKE
- RIVERINE



0 450 900
Feet

1" = 450'
1:5,400

PROJECT:

BRUNSWICK
GRAVEL SITE PROJECT
BRUNSWICK, CUMBERLAND COUNTY, MAINE

TITLE:

DESKTOP ANALYSIS

DRAWN BY:	G. BOZEK	PROJ NO.:	22B-002
CHECKED BY:	R. KELSHAW		
MONTH:	JULY		
YEAR:	2024		

FIGURE 2

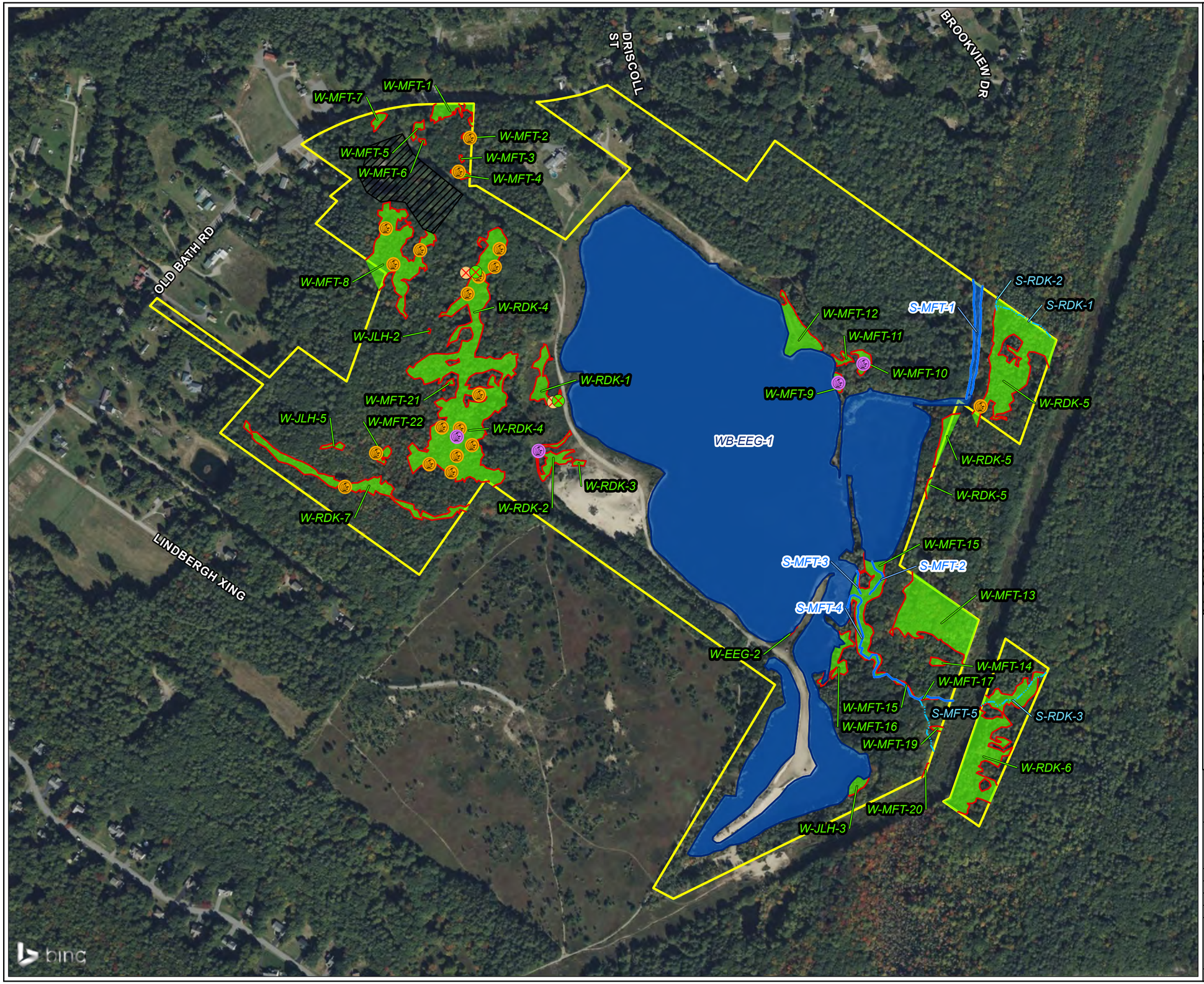
Flycatcher
LAND + SCIENCE + PEOPLE

FILE NO.: 22B-002_BRUNSWICK_GRAVEL

Path: C:\Flycatcher\Projects\BrunswickGravel\22B-002_BRUNSWICK_GRAVEL\5_PRO\22B-002_BRUNSWICK_GRAVEL.aprx

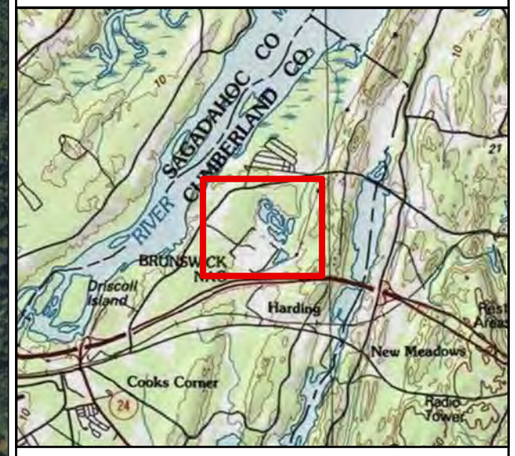
4.3 Wetlands

Wetland delineations were conducted in June and July of 2024. As depicted in Figure 3, a total of 32 wetlands were delineated within the Survey Area. Descriptions of each wetland along with WoSS determinations, and identification of principal functions are included in Table 2. Representative photographs are included in Appendix A. Paired data plots were completed at representative locations within the Survey Area, supporting the wetland boundary determinations across the site and to characterize the wetland cover types identified within the Survey Area. USACE Wetland Determination Data Forms describing the paired data plots and characterizing the wetlands are included in Appendix B.



LEGEND

- SURVEY AREA
- AREA NOT SURVEYED
- DELINEATED BANK
- DELINEATED INTERMITTENT STREAM
- DELINEATED PERENNIAL STREAM
- DELINEATED WETLAND BOUNDARY
- DELINEATED WATERBODY
- DELINEATED WETLAND
- POTENTIAL SIGNIFICANT VERNAL POOL
- POTENTIAL VERNAL POOL
- UPLAND USACE PLOT
- WETLAND USACE PLOT



0 450 900
Feet

1" = 450'
1:5,400

PROJECT:
BRUNSWICK
GRAVEL SITE PROJECT
BRUNSWICK, CUMBERLAND COUNTY, MAINE

TITLE:
NATURAL RESOURCES MAP

DRAWN BY:	G. BOZEK	PROJ NO.:	22B-002
CHECKED BY:	R. KELSHAW		
MONTH:	JULY		**FIGURE 3**
YEAR:	2024		

Flycatcher
LAND + SCIENCE + PEOPLE

FILE NO.: 22B-002_BRUNSWICK_GRAVEL

Coordinate System: NAD 1983 StatePlane Maine West FIPS 1802 Feet

Path: C:\Flycatcher\Projects\BrunswickGravel\22B-002_BRUNSWICK_GRAVEL\5_PRO\22B-002_BRUNSWICK_GRAVEL.aprx

Table 2 Wetland Summary

Resource ID	Dominant Cowardin Class[1]	Dominant Vegetation	Hydrology Indicators	Hydric Soil Indicators[2]	Wetland of Special Significance[3]	Principal Functions[4]	Description
W-EEG-2	PEM	Three-square club-bulrush *(Schoenoplectus pungens*), American burr-reed (*Sparganium americanum*), common spike sedge (*Eleocharis palustris*), common soft rush (*Juncus effusus*)	Surface water (A1), High water table (A2), Saturation (A3), Geomorphic position (D2)	S1. Sandy Mucky Mineral	No	Groundwater Recharge/Discharge; Sediment/Shoreline Stabilization; Fish and Shellfish Habitat; Wildlife Habitat	Narrow freshwater emergent marsh along pond shoreline in the southeastern portion of the Survey Area.
W-JLH -1/W-RDK-4	PFO	Eastern hemlock, red maple, balsam fir, eastern white pine, beaked hazelnut (*Corylus cornuta*), common winterberry, cinnamon fern, sensitive fern, fowl manna grass (*Glyceria striata*), skunk cabbage (*Symplocarpus foetidus*), woodland horsetail (E*quisetum sylvaticum*), eastern marsh fern (*Thelypteris palustris*), New York fern (*Parathelypteris noveboracensis*), royal fern	Surface water (A1), High water table (A2), Saturation (A3), Sparsely vegetated concave surface (B8), Water-stained leaves (B9), Moss trim lines (B16), Geomorphic position (D2), Shallow aquitard (D3), Microtopographic relief (D4), FAC-neutral test (D5)	A11. Depleted Below Dark Surface, S4. Sandy Gleyed Matrix	Potentially, contains a Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Wildlife Habitat	Large, forested pit and mound wetland complex between Old Bath Road and the pond. Contains several potential vernal pools.
W-JLH-2	PEM	Red maple, dwarf red raspberry (*Rubus pubescens*), broad-leaf meadowsweet (*Spiraea latifolia*), royal fern, cinnamon fern	Saturation (A3), Water-stained leaves (B9)	A11. Depleted Below Dark Surface , S4. Sandy Gleyed Matrix	Potentially, may contain Significant Wildlife Habitat from Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Wildlife Habitat	Small isolated PEM in enclosed under upland forested canopy; located between Old Bath Road and W-RDK-4.
W-JLH-3	PFO	Red maple, gray birch (*Betula populifolia*), speckled alder, sensitive fern, royal fern, skunk cabbage, wrinkle-leaf goldenrod (*Solidago rugosa*), broad-leaf meadowsweet, rattlesnake manna grass (*Glyceria canadensis*)	High-water table (A2), Saturation (A3), Water-stained leaves (B9), Geomorphic position (D2)	A11. Depleted Below Dark Surface & S5. Sandy Redox	No	Groundwater Recharge/Discharge; Wildlife Habitat	Small, riparian wetland adjacent to the pond in the southeastern portion of the Survey Area.
W-JLH-5/W-RDK-8	PFO	Red maple, balsam fir, common winterberry, cinnamon fern, royal fern	Drainage patterns (B10), Presence of reduced iron (C4), Geomorphic position (D2), Shallow aquitard (D3), Microtopographic relief (D4), FAC-neutral test (D5)	A11. Depleted Below Dark Surface	Potentially, may contain Significant Wildlife Habitat from Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Wildlife Habitat	Small, isolated forested depression on southwestern side of the Survey Area.
W-MFT-1	PFO	Red maple, eastern hemlock, black huckleberry (*Gaylussacia baccata*), common soft rush, cinnamon fern, sensitive fern, eastern marsh fern, bristly dewberry	Saturation (A3), Water-stained leaves (B9), Presence of reduced iron (C4), Geomorphic position (D2), Microtopographic relief (D4), FAC-neutral test (D5)	A11. Depleted Below Dark Surface & S5. Sandy Redox	Potentially, may contain Significant Wildlife Habitat from Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Sediment/Toxicant Retention; Wildlife Habitat	Pit and mound depression containing PSVP, south of Old Bath Road. Extends outside the Survey Area to the east.
W-MFT-2	PFO	Eastern hemlock, red maple, cinnamon fern	Saturation (A3), Water-stained leaves (B9), Sparsely vegetated concave surface (B8), Geomorphic position (D2), Microtopographic relief (D4)	A11. Depleted Below Dark Surface	Potentially, contains a Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Wildlife Habitat	Pit and mound depression containing PSVP, south of Old Bath Road. Extends outside the Survey Area to the east.
W-MFT-3	PFO	Eastern hemlock, red maple, cinnamon fern	Saturation (A3), Water-stained leaves (B9), Sparsely vegetated concave surface (B8), Geomorphic position (D2), Microtopographic relief (D4)	A11. Depleted Below Dark Surface	Potentially, may contain Significant Wildlife Habitat from Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Wildlife Habitat	Small, isolated forested wetland north of Sturgeon Lane.
W-MFT-4	PFO	Eastern hemlock, red maple, cinnamon fern, bristly dewberry	Saturation (A3), Water-stained leaves (B9), Geomorphic position (D2), Microtopographic relief (D4)	S1. Sandy Mucky Mineral	Potentially, contains a Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Wildlife Habitat	Pit and mound depression north of Sturgeon Lane and extends outside the Survey Area to the east. Contains PSVP.
W-MFT-5	PFO	Red maple, eastern hemlock, balsam fir, sensitive fern, cinnamon fern, bristly dewberry	Saturation (A3), Water-stained leaves (B9), Geomorphic position (D2), Microtopographic relief (D4)	S1. Sandy Mucky Mineral & S7. Dark Surface	Potentially, may contain Significant Wildlife Habitat from Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Wildlife Habitat	Small pit and mound depression; hydrology source from a culvert under Sturgeon Lane.
W-MFT-6	PFO	Red maple, eastern hemlock, balsam fir, royal fern, cinnamon fern, bristly dewberry	Saturation (A3), Water-stained leaves (B9), Geomorphic position (D2), Microtopographic relief (D4)	S1. Sandy Mucky Mineral & S7. Dark Surface	Potentially, may contain Significant Wildlife Habitat from Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Wildlife Habitat	Isolated pit and mound depression north of Sturgeon Lane.
W-MFT-7	PFO	Red maple, balsam fir, common winterberry, sensitive fern, Eastern poison ivy (*Toxicodendron radicans*), bristly dewberry, Eastern marsh fern, graceful sedge (*Carex gracillima*), pointed broom sedge (*Carex scoparia*)	Saturation (A3), Water-stained leaves (B9), Geomorphic position (D2)	S1. Sandy Mucky Mineral & S7. Dark Surface	Potentially, contains a Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Sediment/Toxicant Retention; Wildlife Habitat	Isolated depression south of Old Bath Road.
W-MFT-8	PFO	Balsam fir, red maple, eastern hemlock, common winterberry, black huckleberry, cinnamon fern, sensitive fern, royal fern, Eastern marsh fern, bristly dewberry, greater bladder sedge (*Carex intumescens*)	Saturation (A3), Water-stained leaves (B9), Geomorphic position (D2), Microtopographic relief (D4)	S5. Sandy Redox	Potentially, contains several Potentially Significant Vernal Pools	Groundwater Recharge/Discharge; Sediment/Toxicant Retention; Wildlife Habitat	Pit and mound forested swamp that extends outside the Survey Area to the west. Contains several PSVP.

Resource ID	Dominant Cowardin Class[1]	Dominant Vegetation	Hydrology Indicators	Hydric Soil Indicators[2]	Wetland of Special Significance[3]	Principal Functions[4]	Description
W-MFT-9	PEM	Gray birch, Eastern white pine, speckled alder, steeplebush, small cranberry (*Vaccinium oxycoccos*), sedge (*Carex* sp.), bristly dewberry	Saturation (A3), Water-stained leaves (B9), Geomorphic position (D2)	S5. Sandy Redox	No	Groundwater Recharge/Discharge; Sediment/Shoreline Stabilization; Fish and Shellfish Habitat; Wildlife Habitat	Depression adjacent to pond, separated by a small berm. Contains a human-made cranberry bog and PVP.
W-MFT-10	PEM	Gray birch, Eastern white pine, speckled alder, steeplebush, common winterberry, greater bladder sedge, rattlesnake manna grass, American burr-reed, cottongrass bulrush (*Scirpus cyperinus*), swampcandles (*Lysimachia terrestris*), bristly dewberry, small cranberry	High water table (A2), Saturation (A3), Water-stained leaves (B9), Presence of reduced iron (C4), Geomorphic position (D2)	S5. Sandy Redox	No	Groundwater Recharge/Discharge; Wildlife Habitat	Small, isolated sphagnum bog and excavated depression that contains PVP. Located north of the pond in the northeastern portion of the Survey Area.
W-MFT-11	PSS	Gray birch, red maple, speckled alder, Eastern white pine, steeplebush, sheep-laurel (*Kalmia angustifolia*), rattlesnake manna grass, greater bladder sedge, bristly dewberry, small cranberry	Saturation (A3), Water-stained leaves (B9), Presence of reduced iron (C4), Geomorphic position (D2)	S5. Sandy Redox	No	Groundwater Recharge/Discharge; Sediment/Shoreline Stabilization; Fish and Shellfish Habitat; Wildlife Habitat	Small depression riparian to the pond. Located north of the pond in the northeastern portion of the Survey Area.
W-MFT-12	PSS	Gray birch, speckled alder, steeplebush, small cranberry, pointed broom sedge, greater bladder sedge, lamp rush (*Juncus effusus*), three-seed sedge (*Carex trisperma*)	Saturation (A3), Water-stained leaves (B9), Presence of reduced iron (C4), Geomorphic position (D2)	S5. Sandy Redox	No	Groundwater Recharge/Discharge; Sediment/Shoreline Stabilization; Fish and Shellfish Habitat; Wildlife Habitat	Scrub shrub depression riparian to pond. Located north of the pond in the northeastern portion of the Survey Area.
W-MFT-13	PFO	Red maple, green ash (*Fraxinus pennsylvanica*), gray birch, Southern arrow-wood (*Viburnum dentatum*), common winterberry, steeplebush, Morrow's honeysuckle (*Lonicera morrowii*), lamp rush, cinnamon fern, sensitive fern, bristly dewberry, greater bladder sedge, nodding sedge (*Carex gynandra*)	Saturation (A3), Water-stained leaves (B9), Presence of reduced iron (C4), Geomorphic position (D2),	S6. Stripped Matrix and F3. Depleted Matrix	No	Groundwater Recharge/Discharge; Wildlife Habitat	Large, forested wetland complex located on the eastern side of the Survey Area between the pond and transmission line. Extends outside the Survey Area to the north and east and potentially connects to other mapped wetlands outside the Survey Area.
W-MFT-14	PFO/PSS	Red maple, speckled alder, Morrow's honeysuckle, sensitive fern, bristly dewberry	Water-stained leaves (B9), Presence of reduced iron (C4), Geomorphic position (D2)	F3. Depleted Matrix	No	Groundwater Recharge/Discharge; Wildlife Habitat	Isolated depression that has been disturbed or human-made. Located in the southeastern portion of the Survey Area between the pond and transmission line.
W-MFT-15	PFO/PEM	Red maple, gray birch, speckled alder, Morrow's honeysuckle, steeplebush, common winterberry, sensitive fern, royal fern, cinnamon fern, nodding sedge, greater bladder sedge, bristly dewberry, spotted touch-me-not (*Impatiens capensis*), skunk cabbage	High water table (A2), Saturation (A3), Water-stained Leaves (B9), Geomorphic position (D2), Shallow aquitard (D3)	F3. Depleted Matrix	Yes- Areas within 25 feet of stream	Groundwater Recharge/Discharge; Sediment/Shoreline Stabilization; Floodflow Alteration; Fish and Shellfish Habitat; Wildlife Habitat	Marsh riparian to the pond and extends along a stream as a narrow, forested stream floodplain.
W-MFT-16	PFO/PEM	Gray birch, red maple, Morrow's honeysuckle, common winterberry, speckled alder, Southern arrow-wood, sensitive fern, cinnamon fern, royal fern, bristly dewberry, swampcandles	Saturation (A3), Geomorphic position (D2)	S5. Sandy Redox	No	Groundwater Recharge/Discharge; Sediment/Shoreline Stabilization; Fish and Shellfish Habitat; Wildlife Habitat	Forested floodplain connected to an emergent marsh along the edge of the pond in the southeastern portion of the Survey Area.
W-MFT-17	PSS	Common winterberry, Morrow's honeysuckle, sensitive fern, nodding sedge, Jack-in-the-pulpit (*Arisaema triphyllum*)	Water-stained leaves (B9), Presence of reduced iron (C4), Geomorphic position (D2)	F3. Depleted Matrix	Yes- Areas within 25 feet of stream	Groundwater Recharge/Discharge; Sediment/Shoreline Stabilization; Floodflow Alteration; Fish and Shellfish Habitat; Wildlife Habitat	Narrow scrub shrub floodplain, riparian wetland to stream in the southeastern corner of the Survey Area.
W-MFT-18/W-RDK-6	PFO	Red maple, gray birch, green ash, balsam fir, speckled alder, common winterberry, Morrow's honeysuckle, steeplebush, Southern arrow-wood, sensitive fern, nodding sedge, swampcandles, bristly dewberry, greater bladder sedge	Saturation (A3), Water Marks (B1), Sediment Deposits (B2), Water-stained leaves (B9), Presence of reduced iron (C4), Geomorphic position (D2), Shallow aquitard (D3), Microtopographic relief (D4), FAC-neutral test (D5)	F3. Depleted Matrix	Yes- Areas within 25 feet of stream	Groundwater Recharge/Discharge; Sediment/Shoreline Stabilization; Floodflow Alteration; Fish and Shellfish Habitat; Wildlife Habitat	Forested floodplain riparian to stream located in the small parcel portion of the Survey Area on the eastern side of the transmission line.
W-MFT-19	PSS	Southern arrow-wood, steeplebush, speckled alder, Morrow's honeysuckle, sensitive fern, greater bladder sedge, wrinkle-leaf goldenrod	Presence of reduced iron (C4), Geomorphic position (D2)	F3. Depleted Matrix	Yes- Areas within 25 feet of stream	Groundwater Recharge/Discharge; Wildlife Habitat	Small, highly disturbed area draining to stream from the transmission line.

Resource ID	Dominant Cowardin Class[1]	Dominant Vegetation	Hydrology Indicators	Hydric Soil Indicators[2]	Wetland of Special Significance[3]	Principal Functions[4]	Description
W-MFT-20	PSS	Southern arrow-wood, steeplebush, speckled alder, Morrow's honeysuckle, sensitive fern, greater bladder sedge, wrinkle-leaf goldenrod, swampcandles	Water-stained leaves (B9), Presence of reduced iron (C4), Geomorphic position (D2)	F3. Depleted Matrix	No	Groundwater Recharge/Discharge; Wildlife Habitat	Small portion of a larger wetland outside the Survey Area in the transmission line. Contains highly disturbed soils and is riparian to stream in the transmission line.
W-MFT-21	PFO	Red maple, Eastern white pine, eastern hemlock, highbush blueberry, cinnamon fern, bristly dewberry, three-leaf goldthread (*Coptis trifolia*), sphagnum spp.	Saturation (A3), Water-stained leaves (B9), Geomorphic position (D2), Microtopographic relief (D4)	F3. Depleted Matrix	Potentially, may contain Significant Wildlife Habitat from Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Wildlife Habitat	Small, isolated pit and mound wetland; located between wetland W-RDK-4 and Old Bath Road in the western portion of the Survey Area.
W-MFT-22	PFO	Red maple, Eastern white pine, eastern hemlock, highbush blueberry, cinnamon fern, bristly dewberry, three-leaf goldthread, sphagnum spp.	Saturation (A3), Water-stained leaves (B9), Geomorphic position (D2), Microtopographic relief (D4)	F3. Depleted Matrix	Potentially, contains a Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Wildlife Habitat	Small, isolated pit and mound wetland; located between wetland W-RDK-4 and Old Bath Road in the western portion of the Survey Area. Contains PSVP.
W-RDK-1	PEM/PSS	Red maple, gray birch, speckled alder, allegheny blackberry (*Rubus allegheniensis*), meadow horsetail (*Equisetum pratense*), fringed sedge (*Carex crinita*), scouring rush (*Equisetum* sp.), royal fern, sensitive fern, wrinkle-leaf goldenrod, Eastern marsh fern, lamp rush, broad-leaf meadowsweet, bluejoint (*Calamagrostis canadensis*), steeplebush, interrupted fern (*Osmunda claytoniana*)	Sparsely vegetated concave surface (B8), Water-stained leaves (B9), Drainage patterns (B10), Presence of reduced iron (C4), Geomorphic position (D2), Shallow aquitard (D3)	A11. Depleted Below Dark Surface	Potentially, may contain Significant Wildlife Habitat from Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Wildlife Habitat	Small disturbed area in disturbed former excavation area near pond. Connected to pond under access road by a culvert.
W-RDK-2	PSS	Red maple, gray birch, speckled alder, allegheny blackberry, meadow horsetail, royal fern, sensitive fern, wrinkle-leaf goldenrod, Eastern marsh fern, lamp rush, broad-leaf meadowsweet, bluejoint, steeplebush, interrupted fern	Sparsely vegetated concave surface (B8), Water-stained leaves (B9), Presence of reduced iron (C4), Geomorphic position (D2), Shallow aquitard (D3)	A11. Depleted Below Dark Surface	Potentially, may contain Significant Wildlife Habitat from Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Wildlife Habitat	Small disturbed area in disturbed former excavation area near pond, similar to wetland W-RDK-1. Non-wetland, ephemeral surface flow across access road to pond.
W-RDK-3	PSS	Speckled alder, gray willow (*Salix bebbiana*), greater bladder sedge, bluejoint, pointed broom sedge, Canadian rush (*Juncus canadensis*), water horsetail (*Equisetum fluviatile*)	Sparsely vegetated concave surface (B8), Water-stained leaves (B9), Oxidized rhizospheres along living roots (C3), Presence of reduced iron (C4), Geomorphic position (D2), Shallow aquitard (D3)	HTM-A. Human Transported Material	No	Groundwater Recharge/Discharge; Wildlife Habitat	Small isolated depression in disturbed former excavation area.
W-RDK-5	PFO	Red maple, gray birch, balsam fir, striped maple (*Acer pensylvanicum*), meadow horsetail, Eastern arborvitae (*Thuja occidentalis*), smooth arrow-wood (*Viburnum recognitum*), bristly dewberry, sensitive fern, common selfheal (*Prunella vulgaris*), fowl manna grass, rattlesnake manna grass, royal fern, hop sedge (*Carex lupulina*), greater bladder sedge, fringed sedge, common winterberry, spotted touch-me-not	Surface water (A1), High water table (A2), Saturation (A3), Water marks (B1), Sediment deposits (B2), Drift deposits (B3), Surface soil cracks (B6), Inundation visible on aerial imagery (B7), Sparsely vegetated concave surface (B8), Water-stained leaves (B9), Drainage patterns (B10), Moss trim lines (B16), Presence of reduced iron (C4), Saturation visible on aerial imagery (C9), Stunted or stressed plants (D1), Geomorphic position (D2), Shallow aquitard (D3), Microtopographic relief (D4), FAC-neutral test (D5)	F3. Depleted Matrix	Yes- Areas within 25 feet of stream. Potentially, contains a Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Sediment/Shoreline Stabilization; Floodflow Alteration; Fish and Shellfish Habitat; Wildlife Habitat	Portion of a large, forested wetland complex that extends outside the Survey Area to the north, east, and the south. There are three sections of this wetland within the Survey Area. Contains two intermittent streams and a PSVP.
W-RDK-7/W-JLH-4/W-MFT-23	PFO	Red maple, eastern hemlock, American elm (*Ulmus americana*), highbush blueberry, common winterberry, cinnamon fern, royal fern, Eastern marsh fern, sensitive fern, royal fern	Saturation (A3), Sparsely vegetated concave surface (B8), Water-stained leaves (B9), Drainage patterns (B10), Geomorphic position (D2), Shallow aquitard (D3), Microtopographic relief (D4), FAC-neutral test (D5)	S6. Stripped Matrix and A11. Depleted Below Dark Surface	Potentially, contains a Potentially Significant Vernal Pool	Groundwater Recharge/Discharge; Wildlife Habitat	Linear forested drainage swale depression in the southwest corner of Survey Area, primarily devoid of vegetation. Contains PSVP.

[1] Wetland classifications per USFWS' Cowardin et al. 1979 (https://www.fws.gov/wetlands/Documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States.pdf)
[2] United States Department of Agriculture, Natural Resources Conservation Service. 2018. Field Indicators of Hydric Soils in the United States, Version 8.2. L.M. Vasilas, G.W. Hurt, and J.F.
[3] As defined in NRPA Chapter 310 (4)(A), further WoSS qualifiers may be met following receipt of updated responses from the MDIFW and MNAP.
[4] United States Army Corps of Engineers. 1999. The Highway Methodology Workbook Supplement. NAEEP-360-1-30a, New England District.

4.4 Watercourses

Three perennial and five intermittent watercourses were delineated within the Survey Area and are described in Table 3. Photographs are included in Appendix A. S-MFT-1 appears to be an excavated drainage (or at least partially manmade)

Table 3 Watercourse Summary

Resource ID	*Watercourse Name*	*Flow Regime*	*Dominant Substrate*	*Average Bank Width (ft.)*	*Flow Direction*	*Associated Wetland ID*
S-MFT-1	UNT Androscoggin River	Perennial	Sand, gravel, clay	15-20	North from waterbody	WB-EEG-1
S-MFT-2	UNT Androscoggin River	Perennial	Silt, sand, gravel	4-6	North into waterbody	W-MFT-15
S-MFT-3	UNT Androscoggin River	Intermittent	Silt, sand, gravel	1-2	North into waterbody	W-MFT-15
S-MFT-4	UNT Androscoggin River	Perennial	Silt, sand, gravel, clay	4-12	North into waterbody, blocked by beaver dam	W-MFT-15 W-MFT-17
S-MFT-5	UNT Androscoggin River	Intermittent	Silt, clay	1-2	SE	W-MFT-15, W-MFT-19
S-RDK-1	UNT Androscoggin River	Intermittent	Mineral, clay	2-3	NW	W-RDK-5
S-RDK-2	UNT Androscoggin River	Intermittent	Mineral, clay	2-3	N	W-RDK-5
S-RDK-3	UNT Androscoggin River	Intermittent	Silt, sand, cobble	3-5	SW	W-RDK-6, W-MFT-18

4.5 Waterbodies

One, large waterbody was identified within the Survey Area. Waterbody WB-EEG-1 is a large manmade pond created from historic gravel excavations, with upland and wetland berms along the eastern borders. Typical vegetation observed within the transition zone from lacustrine wetland fringe to deepwater habitat are American burr-reed, small cranberry, royal fern, and sallow sedge. Photographs are included in Appendix A.

4.6 Potential Vernal Pools

Twenty-three potential vernal pool habitats were identified within the Survey Area. The location of these habitats are shown on Figure 3. Some of these potential vernal pool features extend across large portions of the wetland in which they are contained. Boundaries of these features must be mapped during spring high water to obtain an accurate map result. PVPs are shown on Figure 3 as either Potentially Significant Vernal Pools or Potential Vernal Pools; the major difference being the origin features mapped as Potentially Significant are natural or natural modified whereas Potential Vernal Pools are manmade.

5.0 Certification

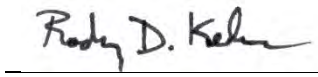
Rodney Kelshaw was the lead scientist that performed and oversaw the wetland delineations. Mr. Kelshaw has practiced wetland science and delineation with a focus on Maine and New England for 25 years.

Rodney's lead support was Rue Thurrell. Rue has practiced wetland science and delineation throughout the northeast with a focus on Maine and New Hampshire for 5 years.

The data provided in this report accurately reflects the field studies completed on-site and field studies were conducted in accordance with the methodologies described herein and industry best practices. The Survey Area was reviewed with reasonable diligence and to the best of the field scientist's ability given the site conditions present at the time.

Date: July 31, 2024

Lead Scientist/Firm: Rodney Kelshaw/ Flycatcher LLC

Signed: 

APPENDIX A

Representative Photographs

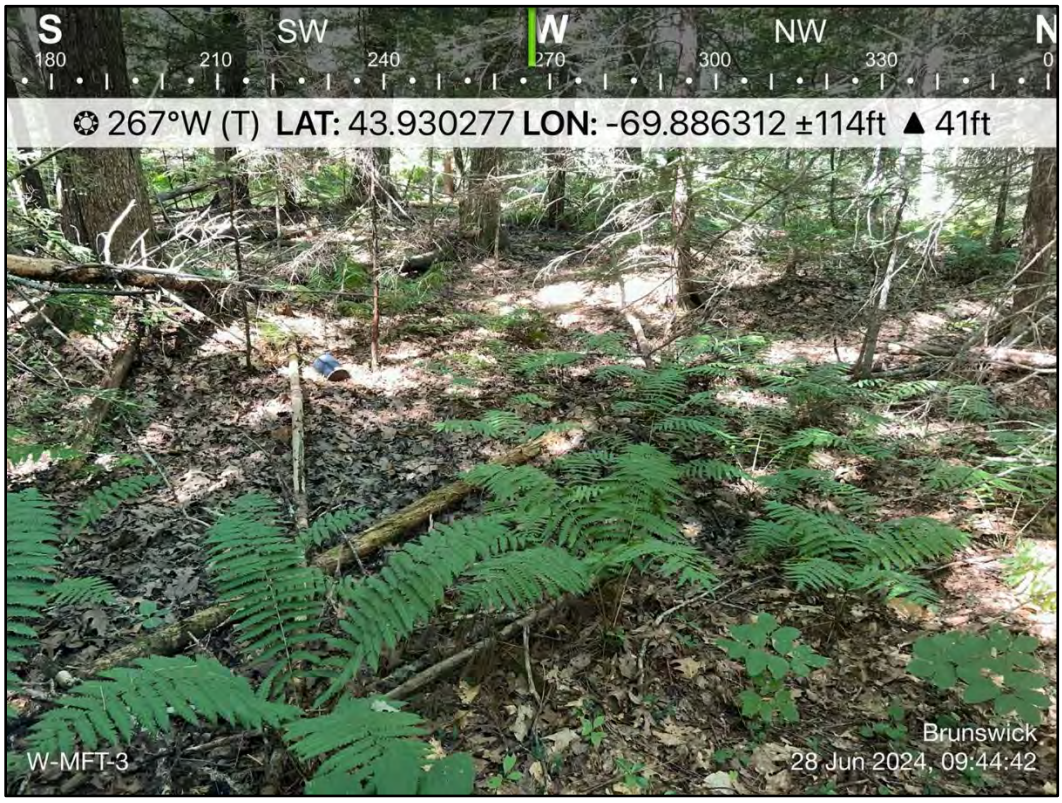
Wetland W-JLH-1/W-RDK-4, July 8, 2024

Wetland W-JLH-2, July 8, 2024

Wetland W-JLH-3, July 8, 2024

Wetland W-MFT-1, June 28, 2024

Wetland W-MFT-2 & PSVP-MFT-2, June 28, 2024



Wetland W-MFT-3, June 28, 2024

Wetland W-MFT-4, June 28, 2024

Wetland W-MFT-5, June 28, 2024

Wetland W-MFT-6, June 28, 2024

Wetland W-MFT-7 & PSVP-MFT-4, June 28, 2024

Wetland W-MFT-8, June 28, 2024

Stream S-MFT-1, July 3, 2024

Wetland W-MFT-9, July 3, 2024

Wetland W-MFT-10, July 3, 2024

Wetland W-MFT-11, July 3, 2024

Wetland W-MFT-12, July 3, 2024

Wetland W-MFT-13, July 3, 2024

Wetland W-MFT-14, July 3, 2024

Wetland W-MFT-15 & stream S-MFT-2, July 3, 2024

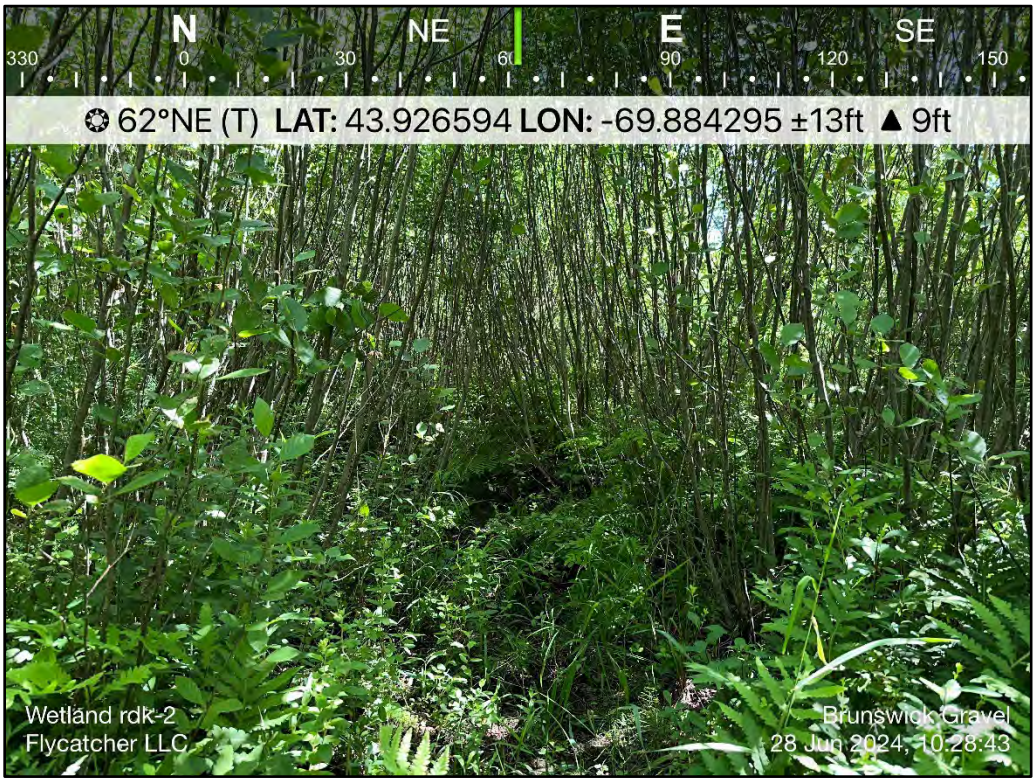
Wetland W-MFT-15 & stream S-MFT-3, July 3, 2024

Wetland W-MFT-21, July 11, 2024

Wetland W-MFT-22, July 11, 2024

Wetland W-MFT-23, July 11, 2024

Wetland W-RDK-1, June 28, 2024



Wetland W-RDK-2, June 28, 2024

Wetland W-RDK-3, June 28, 2024

Wetland W-RDK-4, June 28, 2024

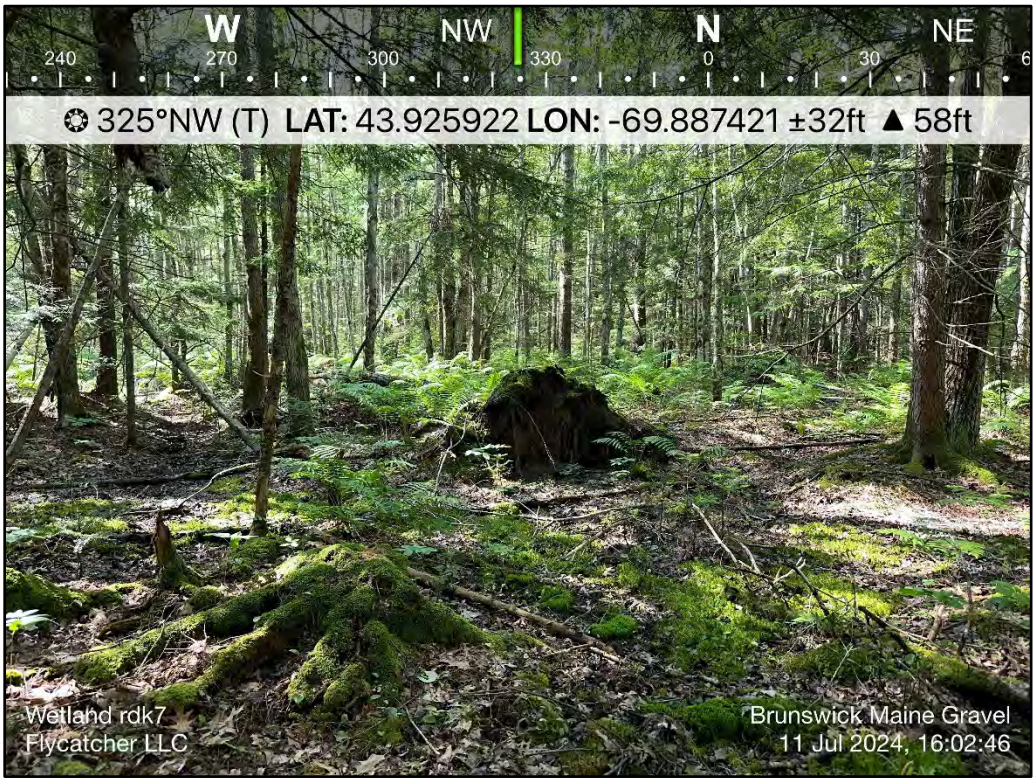
Stream S-RDK-1, July 3, 2024

Stream S-RDK-2, July 3, 2024

Wetland W-RDK-5, July 3, 2024

Stream S-RDK-3, July 3, 2024

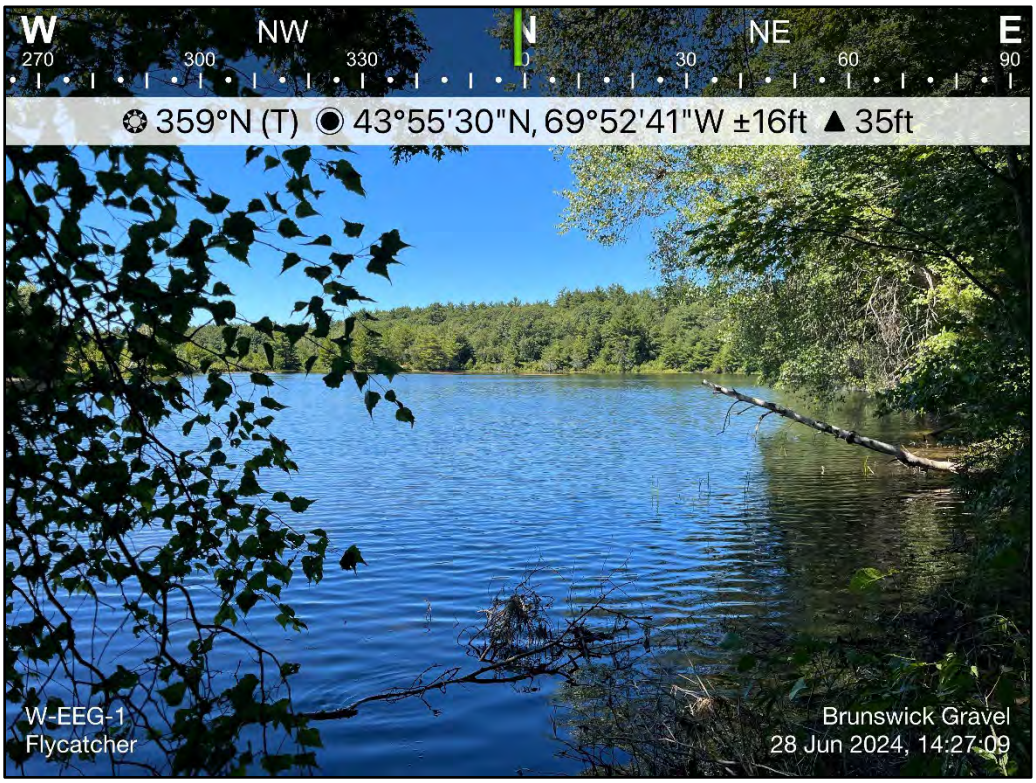
Wetland W-RDK-6, July 3, 2024



Wetland W-RDK-7, July 11, 2024

Wetland W-RDK-8, July 11, 2024

Wetland W-RDK-4, June 28, 2024



Waterbody WB-EEG-1 facing N, June 28, 2024

Waterbody WB-EEG-1 facing SW, June 28, 2024

APPENDIX B

USACE Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Brunswick Gravel City/County: Brunswick Sampling Date: 7/11/2024

Applicant/Owner: Town of Brunswick State: ME Sampling Point: W-RDK-1

Investigator(s): Rodney Kelshaw Section, Township, Range:

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 0-3

Subregion (LRR or MLRA): LRR R Lat: 43.927154 Long: -69.884320 Datum: NAD83

Soil Map Unit Name: NWI classification: PSS1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No 0	**within a Wetland?** **Yes** X **No**
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID: W-RDK-1

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)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- X 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)

- X Surface Soil Cracks (B6)
- X 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)
- X Geomorphic Position (D2)
- X Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes x	No ____	Depth (inches): 17

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W-RDK-1

Tree Stratum (Plot size: 60)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremula*	2	No	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	2	=Total Cover	
Sapling/Shrub Stratum (Plot size: 30)			
1. *Alnus incana*	81	Yes	FACW
2. *Acer rubrum*	12	No	FAC
3. *Spiraea latifolia*	5	No	FACW
4. *Betula populifolia*	2	No	FAC
5.			
6.			
7.			
	100	=Total Cover	
Herb Stratum (Plot size: 10)			
1. *Rubus pubescens*	44	Yes	FACW
2. *Equisetum pratense*	35	Yes	FACW
3. *Solidago rugosa*	10	No	FAC
4. *Carex lurida*	3	No	OBL
5. *Onoclea sensibilis*	3	No	FACW
6. *Potentilla recta*	3	No	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	98	=Total Cover	
Woody Vine Stratum (Plot size: 60)			
1.			
2.			
3.			
4.			
		=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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species	168	x 2 =	336
FAC species	29	x 3 =	87
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	200 (A)		426 (B)

Prevalence Index = B/A = 2.13

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 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** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point W-RDK-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/4	100					Muck	
3-9	5Y 5/3	85	10YR 4/6	15	C	M	Sandy	
9-14	2.5YR 2.5/1	100					Sandy	
14-17	5Y 4/2	85	10YR 4/6	15	C	M	Sandy	
17-30	5Y 5/1	100					Sandy	Saturated

[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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)

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**)
- ___ 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 (F22)
- X 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:

Soil is HTM-Sa (Human Transported Material), which is a New England hydric soil indicator. Former sand pit.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Brunswick Gravel City/County: Brunswick Sampling Date: 7/11/2024

Applicant/Owner: Town of Brunswick State: ME Sampling Point: RDK1-U

Investigator(s): Rodney Kelshaw Section, Township, Range:

Landform (hillside, terrace, etc.): sideslope Local relief (concave, convex, none): convex Slope %: 3-8

Subregion (LRR or MLRA): LRR R Lat: 43.927135 Long: -69.884413 Datum: NAD83

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes	No X	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 x	Depth (inches):
Water Table Present?	Yes	No x	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No x	Depth (inches):

Wetland Hydrology Present? **Yes** **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: RDK1-U

Tree Stratum (Plot size: 60)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 30)			
1. *Alnus incana*	30	Yes	FACW
2. *Betula populifolia*	5	No	FAC
3.			
4.			
5.			
6.			
7.			
	35 =Total Cover		
Herb Stratum (Plot size: 10)			
1. *Poa pratensis*	45	Yes	FACU
2. *Solidago rugosa*	40	Yes	FAC
3. *Onoclea sensibilis*	10	No	FACW
4. *Rubus idaeus*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 60)			
1.			
2.			
3.			
4.			
	=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: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	45	x 3 =	135
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	135 (A)		415 (B)

Prevalence Index = B/A = 3.07

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 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** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point RDK1-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/2	100					Loamy/Clayey	Sandy
4-19	10YR 3/3	100					Sandy	Sandy
19-30	2.5Y 4/3	75	10YR 4/6	15	C	M	Sandy	Sandy/saturated

[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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)

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**)
- ___ 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 (F22)
- ___ 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** X

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Brunswick Gravel City/County: Brunswick Sampling Date: 7/11/2024

Applicant/Owner: Town of Brunswick State: ME Sampling Point: W-RDK-4

Investigator(s): Rodney Kelshaw, Jessie Hutchinson Section, Township, Range:

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope %: 0-3

Subregion (LRR or MLRA): LRR R Lat: 43.928847 Long: -69.885813 Datum: NAD83

Soil Map Unit Name: NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No	**within a Wetland?** **Yes** X **No**
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID: W-RDK-4/W-JLH-1

Remarks: (Explain alternative procedures here or in a separate report.)
W-RDK-4 and W-JLH-1 are same wetland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X Sparsely Vegetated Concave Surface (B8)
- X 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)
- X 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)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: W-RDK-4

Tree Stratum (Plot size: 60)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus alba*	35	Yes	FACU
2. *Pinus strobus*	10	Yes	FACU
3. *Tsuga canadensis*	5	No	FACU
4.			
5.			
6.			
7.			
	50	=Total Cover	
Sapling/Shrub Stratum (Plot size: 30)			
1. *Tsuga canadensis*	15	Yes	FACU
2. *Acer rubrum*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	25	=Total Cover	
Herb Stratum (Plot size: 10)			
1. *Osmunda spectabilis*	40	Yes	OBL
2. *Osmundastrum cinnamomeum*	15	Yes	FACW
3. *Acer rubrum*	2	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	57	=Total Cover	
Woody Vine Stratum (Plot size: 60)			
1.			
2.			
3.			
4.			
		=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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	15	x 2 =	30
FAC species	12	x 3 =	36
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	132 (A)		366 (B)

Prevalence Index = B/A = 2.77

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

X 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** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point W-RDK-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
3-0	2.5YR 2.5/1	100					Muck	Oa layer, saturated
0-5	5YR 2.5/1	100					Muck	15% Organic, loamy fine sand, saturated
5-7	5YR 4/2	100					Loamy/Clayey	Loamy fine sand, FR, saturated
7-10	2.5YR 2.5/1	100					Loamy/Clayey	Loamy fine sand, FI
10-13	5YR 3/2	100					Sandy	Fine sand, FI
13-15	7.5YR 4/3	100					Sandy	Fine sand, FI
15-17	2.5YR 4/6	100					Sandy	Sand, VFI, Free H20, LOI

[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)
- X Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)

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**)
- ___ 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 (F22)
- ___ 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): 17

Hydric Soil Present? **Yes** X **No** _____

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Brunswick Gravel City/County: Brunswick Sampling Date: 7/11/2024

Applicant/Owner: Town of Brunswick State: ME Sampling Point: W-RDK-4

Investigator(s): Rodney Kelshaw, Jessie Hutchinson Section, Township, Range:

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope %: 0-3

Subregion (LRR or MLRA): LRR R Lat: 43.928838 Long: -69.885990 Datum: NAD83

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	**Is the Sampled Area**
Hydric Soil Present?	Yes	No X	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes	No X	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 X	Depth (inches):
Water Table Present?	Yes	No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No X	Depth (inches):

Wetland Hydrology Present? **Yes** **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W-RDK-4

Tree Stratum (Plot size: 60)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus strobus*	45	Yes	FACU
2. *Tsuga canadensis*	30	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	75	=Total Cover	
Sapling/Shrub Stratum (Plot size: 30)			
1. *Abies balsamea*	20	Yes	FAC
2. *Fagus grandifolia*	15	Yes	FACU
3. *Tsuga canadensis*	15	Yes	FACU
4. *Pinus strobus*	10	No	FACU
5.			
6.			
7.			
	60	=Total Cover	
Herb Stratum (Plot size: 10)			
1. *Mitchella repens*	45	Yes	OBL
2. *Acer rubrum*	10	No	FAC
3. *Maianthemum canadense*	10	No	FACU
4. *Trientalis borealis*	10	No	FAC
5. *Aralia nudicaulis*	10	No	FACU
6. *Pinus strobus*	2	No	FACU
7. *Quercus alba*	2	No	FACU
8.			
9.			
10.			
11.			
12.			
	89	=Total Cover	
Woody Vine Stratum (Plot size: 60)			
1.			
2.			
3.			
4.			
		=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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	45	x 1 =	45
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	139	x 4 =	556
UPL species	0	x 5 =	0
Column Totals:	224 (A)		721 (B)

Prevalence Index = B/A = 3.22

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** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point W-RDK-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/2	100					Loamy/Clayey	Sandy loam, VFR
4-19	10YR 3/3	100					Loamy/Clayey	Loamy sand, VFR
19-30	2.5Y 4/3	85	10YR 4/6	15	C	M	Sandy	Loamy fine sand, FR, saturated

[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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ 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)
- ___ Marl (F10) (**LRR K, L**)

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**)
- ___ 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 (F22)
- ___ 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** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Appendix E
Department of Marine Resources Letter

STATE OF MAINE
DEPARTMENT OF MARINE RESOURCES
21 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0021

JANET T. MILLS
GOVERNOR

PATRICK C. KELIHER
COMMISSIONER

April 25, 2024

Mr. Thomas Farrell
Parks and Recreation Director
220 Neptune Drive
Brunswick Maine 04011

Dear Mr. Farrell,

The Maine Department of Marine Resources (DMR) is writing to detail its interest in monitoring and management of the alewife resource located at the former Maine Gravel Services site which is currently owned by the Town of Brunswick. The Department supports the Conservation Commission's effort to develop a comprehensive plan that continues to protect the existing natural resources at the site while exploring new uses for the property and increasing public access.

The pond created by the Maine Gravel Services mining activity currently supports a native population of sea-run alewife (*Alosa pseudoharengus*). The sea-run alewife is identified as a Species of Greatest Conservation Need (SCGN) in Maine's Wildlife Action Plan. Alewives coastwide have experienced a steep decline in population along the East Coast. This species is currently experiencing range contraction and local populations have been significantly reduced or extirpated from several native habitats. The Maine Gravel Services pond is one location where this trend is being reversed and a newly established population is being added to the list of conservation efforts in Maine.

Alewives are native to the Androscoggin River watershed and the pond now supports a self-sustaining population of alewives. Adults arrive at the pond each spring (April-May) to spawn and adults migrate back to the ocean soon after spawning. The juveniles will spend the summer in the pond and migrate to the ocean in the late summer and fall. Alewives do not spend the entire year in the pond and need to migrate back to the ocean to complete their life cycle. Sea-run alewives should not be confused with landlocked alewives that have a completely different life history and habitat requirements.

Alewives colonized the Maine Gravel Services pond sometime around 2005 or shortly after. The exact year of introduction is unclear, as is the origin of the fish, either through an illegal introduction or natural recolonization. The outlet stream leading from the pond is passable for sea-run fish and natural recolonization is a strong possibility. Currently, alewives migrate to the base of the hydropower project upstream of the Brunswick-Topsham bridge.

Once the alewife population became established, employees of Crooker/Maine Gravel Services maintained access to the pond by monitoring beaver activity at the pond outlet and partially breaching beaver dams, if needed, to enhance passage for spawning fish. Once Crooker/Maine Gravel Services staff no longer lived on site the beaver issues became more of a concern. Evan Frankling of the Maine Warden Service informed the Maine Department of Marine Resources on May 3, 2021, that a beaver

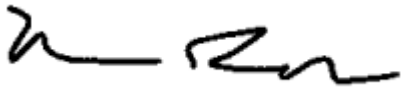
dam was blocking passage, and a large number of alewives were below the dam and were having difficulty making it into the pond. He had stated the Brunswick Rec Department staff had attempted to breach the dam will little success.

On May 4, DMR staff partially breached the dam and provided access to the pond for spawning sea-run alewives. In May 2021 DMR hired Nelson Frost, and Animal Damage Control Agent, to remove the beaver to reduce the likelihood of additional dams for the near future. The Town of Brunswick provided access to the property for the Animal Damage Control Agent, recognizing the importance of providing access for spawning fish. Since 2021, DMR staff have monitored the brook and cleared obstructions that prevent upstream migration of native sea-run alewives. These efforts have led to an annual run of alewives into the pond and currently support a self-sustaining alewife population.

As the Conservation Commission develops a plan for the property DMR asks that the Commission take into consideration the importance of native sea-run alewives to the ecosystem and the role that this specific pond plays in providing habitat for one of Maine's fish species listed as a Species of Greatest Conservation Need in the Maine Wildlife Action Plan. Specifically, DMR wants to continue to access the site to ensure upstream passage is available for alewives, the ability to monitor the population status, and conduct scientific studies at this location. The size of the pond, its location, and interests within the Town of Brunswick make it an excellent candidate for citizen science initiatives that would benefit DMR's management efforts and inform the public regarding an important natural resource within the town of Brunswick.

Thank you for the opportunity to provide information on DMR's activity at this location and the interest we have in this site. If you have any questions, please contact Michael Brown at the Maine Department of Marine Resources at 625-6341 or Michael.Brown@maine.gov

Sincerely,



Michael Brown

Marine Scientist III
Bureau of Sea-Run Fisheries
Maine Department of Marine Resources

Appendix F
Straw Poll Results of Proposed Uses

Former Maine Gravel and Captain Fitzgerald Committee

Straw Poll
Proposed Uses of Property
July 18, 2024

Proposed Use	Approve	More Info	Disapprove
Preserve Sandplain Grassland habitat	7	0	0
Conserve Blueberries	7	0	0
Develop walking trails, benches for year-round use	7	0	0
Create educational materials (local history)	4	3	0
Create educational materials (ecology)	7	0	0
Develop playing fields	0	2	5
Develop playground	5	1	1
Permit/encourage fishing	6	1	0
Permit/encourage non-motorized boating/kayaking/paddleboarding	7	0	0
Permit/encourage motorized boating	0	0	7
Permit/encourage hunting with or without restrictions	5	1	1
Develop public swimming facilities (shallow entry beach)	5	2	0
Develop tourist business (micro-brewery, farm-to-table restaurant, wedding/event venue)	2	1	5
Develop campsites for rental	0	5	2
Pursue partnership with Brunswick Topsham Land Trust for environmental education center	5	4	0
Permit/develop space for Brunswick Area Modelers	0	1	6
Permit/develop trails for mountain biking	1	7	0
Permit/encourage Dark Sky stargazing use and certification	7	0	0
Research collaboration with indigenous tribes for ongoing use/management	6	1	0
Develop a pavilion gathering space	5	2	0
Use the land to pursue Brunswick's climate action goals	3	2	2
Off-leash dog area	4	3	0
Public art (not covered in meeting)			

Appendix G
Public Feedback

Tom Farrell

From: Jym St. Pierre <jym@restore.org>
Sent: Friday, January 10, 2025 6:41 PM
To: Tom Farrell
Subject: J St. Pierre comments re Maine Gravel/Fitzgerald Management Plan
Attachments: 20250110 JAS Comments re FitzgeraldGravel mgt plan.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Please accept the attached comments on the Former Maine Gravel Services and Captain Fitzgerald Recreation & Conservation Area Master Development & Management Plan. Thank you.

Jym St. Pierre
17 Colonial Drive
Brunswick, ME 04011
207-576-3655 mobile

Comments to
Former Maine Gravel Services and
Captain Fitzgerald Recreation & Conservation Area Committee
Concerning the Master Development & Management Plan
By Jym St. Pierre
January 10, 2025

Chair Mason, members of the committee, and Director Farrell:

My name is Jym St. Pierre. I am a Brunswick resident currently serving on several town committees, including the Tree, Town Commons, and Davis Fund committees. I also am on the Brunswick-Topsham Land Trust Advisory Council and have curated numerous exhibits for Pejepscot History Center. I hold a BA degree in liberal arts and a master's degree in natural resources from the University of Maine. For the past half century, I have worked in Maine for a series of public agencies and nonprofit public interest organizations focused on land and wildlife conservation. I have also volunteered with numerous conservation, history, and art groups.

I had hoped to attend your workshop on January 11. However, I now have to attend a memorial service that day for a close friend and will miss the meeting. So, please accept these comments.

The Former Maine Gravel Services and Captain Fitzgerald Recreation & Conservation Area properties offer extraordinary opportunities for Brunswick. I have followed the work of the committee since the beginning in 2023, attending nearly every meeting and workshop. I have explored and photographed the area. I also offered to serve on the committee to share my expertise, but was told the committee was already full.

As I have commented at several of your meetings, the proposed development and management plan includes many good ideas. No need to reiterate what is being recommended. You know it well. Rather, I will only comment briefly on a few points that are of special interest to me:

1. **History**. These properties encompass numerous stories of historical interest, locally and beyond. I hope those stories will be shared through interpretive panels, programs, and other venues.

2. **Climate**. Climate change is rapidly impacting the world, including our community. Brunswick could help track those impacts by partnering with agencies and academic institutions in Maine to set up long-term climate change monitoring plots, including on the Fitzgerald/Maine Gravel properties.

3. **Hunting**. I know some parties would like to see hunting be an allowed use. While I understand the point, I urge extreme caution. Hunting there could be a significant concern with on-site recreational use, nearby houses, and an adjoining highway so close. Both for public safely and for wildlife conservation, this area would better serve the community as a no-hunting wildlife sanctuary. The Fitzgerald piece and parts of the Maine Gravel piece could be designated to be managed as wilderness or wildland.

4. **Art**. At more than one of the committee's meetings I have urged that the management plan allow for possible future public art installations. Brunswick Public Art has a great record of installations around town and is moving ahead with new projects. I have an idea for a public art sculpture that could be sited on this property. The concept is not fully ripe yet and others many have their own ideas, but for now I urge that the plan explicitly provide for such projects.

5. **Name**. Finally, what we call places is important. I am aware of the history of the names of these two properties, but they are cumbersome and not reflective of the significance of the combined area going forward. The current names could be honored through historic panels while it would be exciting to have a new name. The town could invite ideas, as was done with the naming of the Kate Furbish Preserve. For now, my suggestion is Sturgeon Park to honor the ancient fish and natural history of the nearby Androscoggin River as well as the human history of Sturgeon Lane, one of the principal access ways to the property.

Thank you for considering these comments.

Tom Farrell

From: Ben Huber <benoakhuber@gmail.com>
Sent: Saturday, January 11, 2025 2:39 PM
To: Scheherazade Mason; Tom Farrell
Subject: Old bath road / Maine gravel / capt Fitzgerald

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Sherry and Tom,

Thank you very much for your thoughts, work, and exemplary patience today at the public hearing today.

Truly I think it's a great plan. You can't please all the people all the time. And boy, but there were folks expressing that. So for what it's worth to you and the committee, from at least one person: thank you. Good luck. As and when I can help you, please let me know.

Thanks again.

All the best,
Ben Huber
259 Old Bath Road

Tom Farrell

From: Brian Parke <bparke@mmta.com>
Sent: Monday, January 13, 2025 9:33 AM
To: Tom Farrell
Cc: 'Allison Parke'
Subject: Resident Comments for the Captain Fitzgerald Land

Follow Up Flag: Follow up
Flag Status: Flagged

Good morning Tom,

As Deerfield Drive neighbors abutting the property, my wife and I attended the workshop on Saturday and wanted to express our thoughts as requested by email. We share the sentiment that this was the first we have heard about this committee and the plans for the parcel. As abutters, I would have thought more effort would have been made to get input from those more directly impacted. Regardless, we are here now and we want to thank you and the entire team for what looks like a huge amount of planning and work that has gone into the plan.

Our first concern is access to the recreational property. When the expansion of the bike path was discussed, it was proposed to have parking and path access at the end of Deerfield Drive and we are happy to see the current Captain Fitzgerald plan has no such suggestion and what appears to be plenty of planned parking at the site. However, if future discussions include such a suggestion of Deerfield access, we think it would be appropriate for the committee to formally notify Deerfield residents so we can strenuously object. The purpose of moving to the end of a dead end street was the promise of no transient traffic, making it safe for kids and pets. Changing this to include bike path or recreation parking (or access for that matter) or removing/changing the berm that mitigates Route One traffic noise at the end of Deerfield Drive, would be met with vocal and active opposition.

We would also like to express concern for the cost of such a project when the Town of Brunswick is not lacking for existing paths and recreation. The capital expense estimates for the five phases were nice to share, but they appear to be high-level and are likely to be the floor, not the ceiling. Missing however, is the cost of ongoing expenses for maintenance, plowing, staffing, etc. as well as any type of traffic study to know what road improvements need to be considered to alleviate safety concerns on the Old Bath Road that were voiced at Saturday's meeting. To us, the current plan is heavy on grandiose ideas and light on the practical roadmap to get us there.

Lastly, we would like to express our support for our neighbors who have shared concerns about access past their homes and especially the gentleman concerned about the water tables, well water quality and the aquifer system. If we were in their position, we would feel just as helpless that our concerns were being minimized for what others considered the greater good, regardless of its impact on my quality of life. The water issue is particularly concerning because, from an outsider's perspective, the resident's concern is being placated by a study that is based on assumptions and not actual testing. We get the fact that smart people with geologic backgrounds have looked at the study and they "believe" the study to be true. But what if their "belief" is wrong? Who pays the price for this lack of certainty at the front end when the result is that wells are adversely impacted after the project is completed? The Town? The people who "believe" the study that relied on assumptions? No – those people will be long gone and the residents who live near this site will be left holding the bag with the potential for fouled or insufficient well water and the cost of treatment or bottled water.

To that end, we would respectfully request a more in-depth study on the project's impact on local wells. In the alternative, bring Town water lines down the Old Bath Road to alleviate this concern altogether, including the expense of this endeavor into the project details that you deliver to the Town Council.

Thank you for your time and consideration and for allowing our input on this project.

Brian & Allison Parke
26 Deerfield Drive
Brunswick, ME 04011
(207)415-2432

Tom Farrell

From: Colleen Moore <colleenmoore110@gmail.com>
Sent: Sunday, January 12, 2025 8:24 PM
To: Tom Farrell
Subject: Plans for the Fitzgerald Conservation Area

Hello Mr. Farrell. I would like to respectfully submit my opinion about the plans for the Fitzgerald Conservation Area and adjoining sand dune/pond area.

1. Since learning of the Fitzgerald Area this past Spring, I and my dogs have enjoyed multiple walks with multiple friends and their dogs who all agree it is a beautiful area and perfect for quiet walks. Along with all my friends, I appreciate the unique plants and birds that area has to offer, as well as the beauty, and so close to a major shopping area. Families can be seen picking blueberries, walking and talking on the trails, and exploring the sand dunes. I am grateful to all those who maintain that area and make it possible for people like myself and our dogs to enjoy it. (We are all diligent about picking up after our dogs and being respectful of that area and all others who use it. We would never want to jeopardize our privilege to enjoy that area!!!)

2. As an avid athlete and outdoors person, I fully support recreation areas, but I would hate to see even 1 square inch of that particular area developed. It is home to rare birds and plants and it would be unconscionable to develop any part of it. We need to protect the rare wildlife, plants, and natural resources from disturbance. The information boards on the Fitzgerald trails say in part:

   A. "Little Bluestem-Blueberry Sandplain Grassland and Pitch Pine Barrens is **a documented rare natural community with high ecological value in Maine and certainly one of the highest value habitat types in Brunswick."**

   B. "Given this site's rare species and habitat conditions ..." "Controlled burning of the Fitzgerald Area improves habitat for rare and threatened species."

   C. Birds that utilize the grassland include whip-poor-will, a legendary species which has seen a concerning decline of over 61% since 1966. Their song used to be common but now is very rarely heard. Another is the Prairie Warbler, not commonly found in Maine, but was recorded in the Maine Birding Field Notes from October 29 – November 8, 2024.

   D. "Many of Maine's sandplain grasslands and pine barrens have disappeared due to their suitability for development..."

Given these facts, I repeat: It would be unconscionable to be party to the disappearance or even the disturbance of this "rare natural community with high ecological value and one of the highest value habitat types in Brunswick.

Please, I beg you and all persons involved in the decisions about this area to **leave it as is** and maintain the area the way you have been doing with controlled burns, mowing, etc. **So many people, including children, enjoy it as it is**, and since its location is so close to so many people, it allows all of them to truly appreciate nature at its finest. **It needs no embellishment.**

POSSIBLE SOLUTIONS

Ballfields: Since the resident population on the old naval base is booming, it makes sense to put recreational areas there, especially since there is already infrastructure there such as water, sewer, roads, etc. I've seen several potential sites for ball fields. If it has not already been done, I suggest that the Town of Brunswick officials consult with the Mid Coast Regional Redevelopment Authority to allocate land for recreation fields.

Playgrounds: Every elementary school has a playground. The Town could also put playgrounds at existing rec fields. The Fitzgerald area provides an opportunity for children to explore the multiple rare aspects of that area; playgrounds are not necessary there.

Thank you for listening and for considering the opinion of people like myself. Again, please, please, please leave it as is.

Respectfully,

Colleen Moore
Regular user and steward of the Fitzgerald/Sand Dune area and other Brunswick trails.

Tom Farrell

From: MARK GUERIN <guerin.mark@gmail.com>
Sent: Monday, January 13, 2025 2:14 PM
To: Tom Farrell
Subject: Lindberg Meeting Comments

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Tom,

I attended part of the meeting on Saturday and welcome many of the changes suggested by your committee.

I wasn't at all convinced that using the pond for recreational use would adversely affect the water quality of wells around the lake. One can easily find proof that the aquifers under houses that surround fresh water lakes almost always mix with that lake water, and there are many thousands of such lakes surrounded by houses and used for recreational swimming and fishing where the water quality of surrounding wells is minimally affected by the recreational usage of the lake; otherwise, recreation activities wouldn't be allowed and people wouldn't dig wells nearby. It's a bogus argument.

I use Lindberg frequently to walk my dogs and know that there is access to it via a trail that runs parallel to and close by Route One that goes in the direction of the trailer park. I'm wondering if this trail cannot be improved and utilized as a safe access to Lindberg that doesn't involve walking on Old Bath Road.

Mark

MARK GUERIN
33 Abenaki Road
Harpswell, ME 04079
C: 978-289-2631
guerin.mark@gmail.com

Tom Farrell

From: ROBERT BURGESS <rburgess250@comcast.net>
Sent: Monday, January 13, 2025 10:16 PM
To: Tom Farrell
Subject: Fitzgerald / Maine Gravel

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Tom,

I attended the public workshop on the Fitzgerald Recreation/ Maine Gravel project on 1/11/25 and was glad to learn stargazing was still one of the uses the Committee was recommending. In that regard, there was testimony at the hearing by one of the abutting property owners that there was currently some level of unauthorized nighttime uses; he worried that expanded usage after dark at the site as proposed in the Committee's plan could detrimentally affect the quiet enjoyment of his property and invite mischief. Since Southern Maine Astronomers was a chief proponent of stargazing at the site I wanted to qualify our intended uses.

We propose that stargazing activities be limited to certain pre-determined dates and that the site be opened for use after dark at those times. We contemplated perhaps quarterly events. We would seek access through the police or the Recreation Department for those events and they would be for a limited period ending within several hours of sunset (earlier in the winter, later in the summer). We were not advocating for all-hours access any day of the year.

It's worth noting that these types of arrangements are currently required in other observing sites in the southern Maine area, for example, Twin Brook Recreation Fields in Cumberland and Mitchell Field in Harpswell. They also are the rule in some of the other Urban Night Sky Places, certified by Dark Sky International, around the country.

It's my hope this proposed usage will allay the concerns of abutting neighbors.

Thank you for a very informative program on Saturday, 1/11.

Rob Burgess
President, SMA

Tom Farrell

From: SARAH Cline <purple50@comcast.net>
Sent: Wednesday, January 15, 2025 11:11 AM
To: Tom Farrell
Subject: comments in regards to 1/11 mtg

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Tom,

I am a Brunswick resident who attended the public workshop last Saturday 1/11. Thank you for offering the workshop! Here are my comments/requests of this unique and special piece of property.

- First and foremost the Old Bath Rd needs to be repaired and have a proper bike lane. Safety should come first.

- Please make it a priority to take down a minimal amount of trees. Threatened species, birds and hundreds of other insects, caterpillars etc loose their habitat when trees come down.

- No dog park please. The excess bacteria will be terrible for all bodies of water in the area. Dogs allowed on leashes only and must stay on trails so not to destroy the wonderful flora and fauna some of which are threatened.

- Less parking than what is currently proposed. This would mean less footprint to protect this gem of a property.

- Please no model airplanes permitted due to birds and wildlife. We need to protect this wonderful natural resource not scare off and harm the many species that live there.

- **No playgrounds, they are not necessary in this space!! It already <u>is</u> a playground. This is a big, safe, space for kids to run, jump, explore, discover, hear, see, touch, smell, taste. I am a retired Kindergarten Teacher, believe me, kids need**

open space like this one for discovery and physical exercise. They have playgrounds at school which is the perfect place for them.

- How about a compromise on the playing fields - just one not two. If it means removing trees then NO playing fields.

Thank you for taking my requests into consideration and for your hard work on this project.

Sarah Cline
27 Damarin Ln
Brunswick

Tom Farrell

From: Brianne Smithson <smithson@bowdoin.edu>
Sent: Wednesday, January 15, 2025 7:41 PM
To: Tom Farrell; caron_adam@yahoo.com; Mike Lyne (mdlyne@gmail.com); Emilie Schmidt; Peter Lowell
Cc: Dennis Wilson; Sabrina Best
Subject: RE: Recreation Commission Agenda Packet
Attachments: 2024HuntingRunNiRiverRulesandRegulations_2.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

The discussion and feedback on Capt. William Fitzgerald reminded me of a reservoir that I once lived near in Virginia (Ni River Reservoir, Spotsylvania County Rec & Parks). It had a long list of rules and regulations associated with it due to the drinking water concern. I've attached a document that covers Ni River and another (Hunting Run) in case it is helpful.

From: Tom Farrell <tfarrell@brunswickme.gov>
Sent: Tuesday, January 14, 2025 1:45 PM
To: caron_adam@yahoo.com; Mike Lyne (mdlyne@gmail.com) <mdlyne@gmail.com>; Brianne Smithson <smithson@bowdoin.edu>; Emilie Schmidt <emilie_schmidt@icloud.com>; Peter Lowell <plowell36@gmail.com>
Cc: Dennis Wilson <dwilson@brunswickme.gov>; Sabrina Best <sbest@brunswickme.gov>
Subject: RE: Recreation Commission Agenda Packet

Hello everyone,

Please find your agenda packet for this Wednesday night's Recreation Commission meeting at the following link https://www.brunswickme.gov/AgendaCenter/Recreation-Commission-19/?#_01152025-3443

We are meeting this Wednesday, January 15th at 7:00pm in Room 206 at Town Hall

Brianne is unable to attend so please send me a quick email reply so I will know if you will be in attendance as we need to ensure we have a quorum to conduct business.

Thank you,
Tom

Thomas M. Farrell, Director
Parks and Recreation Dept
P: *207.725.6656*
F: *207.725.0148*
E: *tfarrell@brunswickme.org*

Brunswick maine
220 Neptune Drive
Brunswick | ME 04011
www.brunswickme.org

SPOTSYLVANIA PARKS AND RECREATION DEPARTMENT
P.O. Box 28
Spotsylvania, Virginia 22553
(540) 507-7529

HUNTING RUN RESERVOIR

9701 Elys Ford Road
Fredericksburg, VA 22407
(540) 548-2013

NI RIVER RESERVOIR

10516 Gordon Road
Spotsylvania, VA 22553
(540) 582-2144

RULES AND REGULATIONS
for
2024 Operating Season

Scheduled Operating Dates –

Hunting Run Reservoir

Open Saturdays and Sundays beginning March 2, 2024
through March 31, 2024

Open Each Week on Thursday, Friday,
Saturday and Sunday from
April 4, 2024 – October 14, 2024
and the following Holidays:
Memorial Day – Monday, May 27, 2024
Labor Day – Monday, September 2, 2024
Columbus Day – Monday, October 14, 2024

Ni River Reservoir

Open Saturdays and Sundays beginning March 2, 2024
through March 31, 2024

Open Each Week on Monday, Tuesday
Saturday, Sunday from
April 1, 2024 – October 14, 2024
and the following holiday – Independence Day – Thursday, July 4, 2024

Ni River Reservoir and Hunting Run Reservoir Parks will close for the season beginning
Tuesday, October 14, 2024
Spotsylvania County reserves the right to change or alter schedule of operations at any time for the 2024 Operating Season.

2024 Operating Season

HUNTING RUN AND NI RIVER RESERVOIR RULES AND REGULATIONS

General Prohibited Uses:

1. All water contact sports such as wading, swimming, scuba diving, and skiing which will endanger or cause to change the purity of the domestic water supply are prohibited.

2. Any recreational device that includes water contact; such as surf boards, inner tubes, paddle boards (exception – paddle boards are allowed at Hunting Run Reservoir only), floatation devices, etc.

3. Littering, organic and inorganic, is prohibited.

4. Camping is prohibited unless authorized by the Board of Supervisors.

5. Persons willfully marking, defacing, or damaging public equipment, supplies or utilities are punishable in accordance with the Violations Section of the Ni River Reservoir Ordinance.

6. Fishing or accessing reservoirs from any property or source other than at each reservoirs respective park/recreation area facility is prohibited at any time, regardless of rather reservoirs are open or closed.

7. Home made vessels with no Coast Guard approved placard designating capacities.

Hours of Operation:

The Reservoirs recreational facilities shall open at 6:00 a.m. and shall close at sunset or 8:00 p.m., whichever comes first. Days and dates of operation will be posted at each site for the seasons operations. The Virginia Department of Game and Inland Fisheries sunrise/sunset table for Fredericksburg Virginia will be the official time used to determine sunset each day. It shall be a violation to access reservoirs from any property or source, other than the designated recreation areas, at any time of normal operations after hours or during the non-operating season and will be enforced and punishable to the full extent of the law. All access is to be controlled through the reservoir recreation access points unless official business is being conducted by proper agencies of Spotsylvania County or the State of Virginia. Spotsylvania County reserves the right to change, alter or close reservoirs at any time or for any reason. Patrons wishing to rent equipment may do so at any time during the operating hours. However, if closing time is sooner than the 3 hr. minimal rental period. Patron shall return equipment 15 minutes prior to designated closing time for the day but are required to pay the full minimal rental fees. All patrons not returning by their designated rental agreement or sunset/closing times shall be subject to trespassing laws punishable by law.

Fees and Charges:

1. Launching: (Fees apply to all rented equipment and all personal watercraft launches)
   County Residents (Spotsylvania only) Daily Launch.....$2.00
   Non-County Residents Daily Launch.....$4.00
   County Residents (Spotsylvania only) Seasonal Launch Pass..... $10.00
   Non-County Residents Seasonal Launch Pass..... ... $40.00

* Launch Fees apply to all persons launching boats (no exceptions for age, active military or handicap)

Boat and Equipment Rentals – Continued:

2. Boat and Equipment Rentals: (See next page for Senior Citizen Fees)

Boat and Motor
Per hour.....$6.00
(Minimum charge - $18.00, Maximum charge - $48.00)

Boat and Oars
All day.....$20.00 (more that 6 hours)
Half day.....$12.00 (6 hours or less)

*Battery.....$12.00 All Day $7.00 Half Day
Life Preservers $1.00
Motor .....$15.00 All Day $10.00 Half Day

*Note – It is strongly recommended that a second battery is rented when planning to be on the water for more than three (3) hours.

3. - Spotsylvania Resident Seasonal Access Pass for Ni River and Hunting Run $15.00

- Fredericksburg/Stafford Resident Seasonal Access Pass for Ni River and Hunting Run $18.00

- Non Spotsylvania, Fredericksburg or Stafford Seasonal Access Pass for Ni River and Hunting Run $25.00

4. Access Fees: Daily - Spotsylvania Resident.....$3.00
Daily - Fredericksburg/Stafford Resident.....$5.00
Daily - Non-County/Non-City.....$7.00
Seasonal – Spotsylvania Resident for Ni River/ Hunting Run.....$15.00
Seasonal – Fredericksburg/Stafford Resident for Ni River/ Hunting Run.....$18.00
Seasonal – County Resident for Ni River Only $8.00
Seasonal – County Resident for Hunting Run Only $8.00
Seasonal – Fredericksburg/Stafford Resident – Ni River Only...$10.00
Seasonal – Fredericksburg/Stafford Resident – Hunting Run Only...$10.00
Seasonal – All others – Hunting Run/Ni River (Non Spotsylvania, Fredericksburg or Stafford) $25.00
The following are not charged for permits:
NO CHARGE – For Access Permits
Youth under 16, Senior Citizens age 62 or older, Active Military and Handicapped

***NOTE – ALL FEES ARE FINAL. NO REFUNDS. NO EXCEPTIONS.**

5. Senior Citizen Fees: (Apply to 62 and older)

Boat and Motor
Per hour.....$5.00
(Minimum charge - $15.00, Maximum charge - $40.00)

Boat and Oars
All day.....$18.00 (more than 6 hours)
Half day.....$10.00 (6 hours or less)

(*Note – All Fees are Final. No Refunds. No Exceptions.)

Size/Creel County:

Size/Creel count shall apply as posted. Each person shall submit their catch for creel count and inspection.

Rules and Regulations for Boating and Fishing

1. Each boat shall be equipped with a Coast Guard approved life preserver for each passenger. All children age thirteen (13) and under shall wear a life preserver at all times while a passenger in a boat on the lake. Life preservers must be available on board boat for each passenger – Throw cushions cannot be substituted for life jackets. Therefore, all boats shall be subject to inspection and only allowed to launch/access reservoirs from either of the respective reservoir recreation facilities at Ni River and Hunting Run Reservoirs.

2. The authorized weight carrying capacity noted on each boat shall not be exceeded. This shall include both the equipment and persons.

3. Any boat that is Coast Guard approved will be permitted on the reservoir. Boat must have stamp or seal showing that it is Coast Guard approved.

4. All canoes, rafts, or boats used on reservoir are subject to inspection for zebra mussel or nuisance species contamination and shall be certified safe to carry passengers by the Parks and Recreation Department or the department's authorized personnel of the water filtration plant and/or the state, local and federal law enforcement agencies.

5. Each person shall submit his/her catch to authorized personnel at the check-in station for inspection and a creel count.

6. No seines, traps, or other special fishing devices will be permitted in the lake to take fish.

7. No gasoline motors or boats with gasoline engines mounted to them will be permitted on Ni River Reservoir. Motors will be allowed on Hunting Run Reservoir but must be disconnected from the fuel tank and remain out of the water while on reservoir at all times.

8. Reckless boating will not be tolerated and is punishable in accordance with all local and/ or state laws.

9. Persons under the age of 18 may not rent a boat unless accompanied by an adult. The use of a 12 volt electric motor is permitted.

10. State fishing regulations shall apply. Creel and limits shall be posted at each site and shall not be exceeded.

11. State issued fishing licenses and access permits are required while on the reservoirs. Persons will temporarily surrender their Driver's License for the taking of information upon payment of daily access fees and/or the rental of equipment. The driver's license will be returned upon the satisfactory return of rental equipment.

12. All boats and rental equipment must be returned to the check-in station thirty (30) minutes prior to the rental or closing period, whichever applies to the individual renter. These times will be determined prior to renter accessing reservoirs.

13. Persons renting equipment are liable for loss or damage of boats, oars, life preservers, motors and are responsible for reimbursement to the county at a cost to be determined by the Director of Parks and Recreation.

14. Bank fishing is permitted only in designated areas. All persons bank fishing must be registered at the check-in station. Youths under 16 years of age, adults 62 years of age or older, active military, and handicap persons may fish without charge in areas designated for bank fishing.

15. All personal property while on County property is subject to search by County staff and all law enforcement agencies.

16. Pets must remain on leash at all times while on park property. Note – Horseback riding is not allowed at either Ni River or Hunting Run Reservoirs respective park facilities.

17. Common Courtesy shall be expected to allow as many patrons as possible fishing access to any or all piers during hours of operation.

18. All fees charged for rental of equipment and or access permits shall be non-refundable. No Exceptions.

19. It shall be the responsibility of each person fishing on reservoirs to complete a catch and creel report at the conclusion of <u>every</u> visit to either Ni River or Hunting Run Reservoir.

20. Spotsylvania County reserves the right to physically inspect each vessel for Catch and Creel Regulations enforcement and counts.

21. Persons renting boats and equipment are responsible for knowing and not exceeding the limits of each boat as per the plaque attached to each vessel.

Chapter 22

ARTICLE III. NI RIVER AND HUNTING RUN RESERVOIRS*

Ordinance

***Editor's note:** Ord. No. 22-26, adopted Sept. 25, 2007, amended the title of art. III to read as herein set out. Formerly said article was entitled Ni River Reservoir.
State law references: Authority of county to operate recreation areas, Code of Virginia, § 15.1-526.

Sec. 22-226. Definition.
As used in this article, the word *"reservoir"* shall mean the county's Hunting Run Reservoir and the Ni River Reservoir.
(Ord. No. 22-26, 9-25-07)

Sec. 22-227. Applicability of article.
The provisions of this article are applicable to only the reservoirs and the reservoirs property.
(Ord. No. 22-26, 9-25-07)

Sec. 22-228. Policing of recreational area.
The park attendant, county sheriff's department and state game wardens for the county may lawfully police the reservoir recreational area for the purpose of protecting the property from harm, keeping order thereon or otherwise enforcing the provisions of this article and other ordinances of the county and the laws of the state with respect to such property.
(Code 1980, § 17-67)

Sec. 22-229. Temporary closing of recreational area.
Whenever climatic or other conditions cause the recreational area or any part thereof to become hazardous in the opinion of the county administrator or the director of parks and recreation, he shall, with the approval of the board of supervisors and/or the parks and recreation commission, forthwith close the recreational area or that part deemed to be hazardous for a period determined by the board of supervisors.
(Code 1980, § 17-64)

Sec. 22-230. Construction activities.
(a) No construction of any kind and no disturbing of the soil or ground cover on any ground around the reservoir owned in fee simple or controlled by the county with a flood easement shall be undertaken until plans for the same have been approved by the planning commission and board of supervisors.
(b) No docks, piers or ramps shall be constructed at the reservoir except at areas that are designated as recreation by the parks and recreation department, the planning commission and the board of supervisors, and then only after plans and specifications have been approved by the parks and recreation department, the planning commission and the board of supervisors.
(c) The building of duck blinds or floating wooden or metal rafts or piers on or in the water of the reservoir is prohibited.
(Code 1980, §§ 17-61(a), (c), 17-62(i))

Sec. 22-231. Erosion and sedimentation control.
(a) Any person proposing to disturb the soil or ground cover within one thousand (1,000) feet of the reservoirs shall place baled straw or another suitable barrier that has been approved by the administrator between the area to be disturbed and the waters of the reservoirs (in question), and such straw or other barrier shall remain in place until such time as the disturbed area shall have a new cover equal to or exceeding the original cover.
(b) In addition to the requirements of subsection (a) of this section, any person stockpiling soil during construction of roads, buildings, etc., within one thousand (1,000) feet of the reservoirs shall within thirty (30) days after the completion of construction, level all stockpiled soil and seed or place sod on all of the affected area.
(c) Any person plowing and cultivating more than one (1) acre of land for agricultural purposes shall be exempt from this section providing such person follows good farming practices as recommended by the soil conservation service.
(Code 1980, § 17-63; Ord. No. 22-26, 9-25-07)
Cross references: Erosion and sediment control generally, Ch. 8.

Sec. 22-232. Reserved.
Editor's note: Renumbered as § 23-7.5.5.5

Sec. 22-233. Hours for use of reservoir restricted.
No person, except governmental officials on official duty, shall be permitted to go upon or remain on said reservoirs from one-half (1/2) hour after sunset to one (1) hour before sunrise.
(Code 1980, § 17-62(l); Ord. No. 22-26, 9-25-07)

Sec. 22-234. Fishing.
(a) *Permitted generally.* Fishing with live or artificial bait from boats or from the shore is permitted within the permitted area.
(b) *Limitations.* Species, size limit or catch and captive fish count shall follow state game commission recommendation for each season. Each person shall submit their catch for creel count inspection at the park attendant's office. Additional requirements on species, size and catch limit may be set by the board of supervisors. Limitations will be posted at respective reservoirs as per the Department of Game and Inland Fisheries recommendations.
(c) *Prohibited activities.* The following activities are prohibited:
(1) Frogging and the catching of turtles;
(2) Trapping or the seining of fish, except by personnel of the commission of game and inland fisheries while on official duty;
(3) Fishing from any inner tube type conveyance that permits the human body to be partially submerged in the waters of the lake;
(4) Fishing within two hundred (200) feet of the dam or any buildings, sludge tanks or lagoons connected with the water filtration plant;
(5) Fishing within two hundred (200) feet of the risers and water intakes.
(d) *Fishing license.* Persons age sixteen (16) to seventy (70) years must possess a valid state fishing license.
(e) *Fees.* Fees for access permits, and related activities shall be established by resolution of the board of supervisors.
(Code 1980, §§ 17-60(b)--(d), 17-62(f), (g), (j), (k), 17-65(c), (d); Ord. of 4-22-86(2); Ord. No. 22-1, 3-27-90; Ord. No. 22-26, 9-25-07; Ord. No. 22-28, 2-12-08)

Sec. 22-235. Boating.
(a) *Types of boats permitted,* Only canoes, rubber rafts and boats propelled by sail, oars, paddle or electric motor are permitted on or in the waters of the reservoirs. Gasoline motors may be used by personnel of the state commission of game and inland fisheries and of the county while on official duty only.

(b) *Life jackets or cushions required.* Each canoe, raft or boat shall have a Coast Guard approved life jacket or cushion for each person on board.
(c) *Inspections.* All canoes, rafts or boats used on the reservoirs are subject to inspection and shall be certified as safe to carry passengers by the parks and recreation department or the county's authorized personnel and/or law enforcement officers of the Commonwealth of Virginia.
(d) *Right-of-way.* When two (2) boats are approaching each other under sail or motor power and on the same course the operator of each boat shall keep to the starboard side passing the other boat on the port side. Sailboats and rowboats shall at all times have the right-of-way over power boats.
(e) *Inner tubes.* Boating from any inner tube type conveyance that permits the human body to be partially submerged in the waters of the reservoirs is prohibited.
(f) *Prohibited area.* Boating within two hundred (200) feet of the dam or any buildings, sludge tanks or lagoons connected with the water filtration plant is prohibited.
(g) *Fees.* Fees for launching boats and for boat and equipment rentals shall be established by resolution of the board of supervisors.
(Code 1980, §§ 17-60(a), (e), (f), (g), 17-62(a), (j), (k), 17-65(a), (b); Ord. of 4-22-86(2); Ord. No. 22-1, 3-27-90; Ord. No. 22-26, 9-25-07; Ord. No. 22-27, 11-13-07)

Sec. 22-236. Picnics, fires, barbecue grills.
Picnics and passive recreation activities are permitted in designated areas.
(Code 1980, § 17-61(d); Ord. No. 22-26, 9-25-07)

Sec. 22-237. Domestic animals running at large.
No pets, dogs or other domestic animals shall be permitted to run at large. Such animals must be leashed and under the supervision and observation of the owner at all times.
(Code 1980, § 17-62(n))

Sec. 22-238. Reserved.
Editor's note: Renumbered as § 23-7.5.6.

Sec. 22-239. Commercial activities.
There shall be no commercial activities within the flood easement area.
(Code 1980, §§ 17-61(h), 17-62(d))

Sec. 22-240. Alcoholic beverages.
No use of alcoholic beverages is permitted in the recreation area. No person under the influence of alcohol shall operate or be a passenger in a boat on the reservoirs at any time. No person under the influence shall be permitted in the park at any time.
(Code 1980, § 17-62(p); Ord. No. 22-26, 9-25-07)

Sec. 22-241. Hunting.
Hunting is prohibited on the premises.
(Code 1980, § 17-62(o))

Sec. 22-242. Firearms, bows and arrows, fireworks.
(a) Discharging of firearms and the shooting of arrows is prohibited.
(b) Fireworks, and bows and arrows are prohibited.
(Code 1980, § 17-62(e); Ord. No. 22-25, 9-12-06; Ord. No. 22-26, 9-25-07)
Cross references: Fireworks generally, § 9-26 et seq.

Sec. 22-243. Swimming, wading, skiing.
Water contact sports, i.e., skiing, swimming, wading, etc., are prohibited.
(Code 1980, § 17-62(b))

Sec. 22-244. Taking of water.
Taking of water by any person for irrigation or for a private water supply from the reservoir is prohibited.
(Code 1980, § 17-62(h))

Sec. 22-245. Littering.
(a) There shall be no littering of the flood easement area.
(b) There shall be no littering on the waters.
(Code 1980, §§ 17-61(b), 17-62(c))
Cross references: Litter control, § 19-121 et seq.

Sec. 22-246. Prohibited activity.
It shall be unlawful for any person to pollute, or to introduce, by any means, into any named reservoirs any hazardous material, hazardous substance or hazardous waste as those terms are defined by the laws or regulations of the United States and/or the Commonwealth of Virginia; or, to introduce, or in any way cause the introduction of any object or substance, or noxious or otherwise, which may reasonably be expected to endanger the life, health or safety of people. For the purposes of this article, *"person"* shall mean an individual, corporation, partnership, association, or any other legal entity.
(Ord. No. 22-26, 9-25-07)

Sec. 22-247. Non-indigenous nuisances and invasive species contamination.
All canoes, rafts or boats used on the reservoirs are subject to inspection for non-indigenous nuisance species as currently defined under section 29.1-571 of the Code of Virginia. Any vessel found to have any such contamination will not be permitted onto the reservoirs.
(Ord. No. 22-26, 9-25-07)

Secs. 22-248--22-265. Reserved.

Tom Farrell

From:	Sandy S <sandys2pups@gmail.com>
Sent:	Friday, January 17, 2025 1:20 PM
To:	Tom Farrell
Subject:	Comments on proposal for Former Maine Gravel - Captain Fitzgerald Property
Follow Up Flag:	Follow up
Flag Status:	Flagged

Dear Mr. Ferrell and fellow committee members:

I am a Brunswick resident. Please accept these comments on the proposal for the Former Maine Gravel - Captain Fitzgerald Property, presented Jan. 11, 2025.

The property contains several areas of critically imperiled habitat that support numerous bird species, some of which are protected in Maine under the State Endangered Species Act, including short-eared owls (listed as threatened in Maine), grasshopper sparrows (endangered in Maine), and upland sandpipers (threatened in Maine), as well as many others. **All migratory birds in Maine are also protected under the Federal Migratory Bird Treaty Act, and its implementing rules and regulations. "Take" defined as the unpermitted killing, injury or crippling loss of a protected migratory bird is not permitted, including any activities that will imperil birds. Permits are currently not issued by the U.S. Fish & Wildlife Service for most forms of "take."**

In addition, there may be rare snakes and butterflies there. Given the ecological significance of the area, protection and conservation should be the highest priority.

As such, allowing any part of this property to be used for flying model airplanes would be counterproductive, inappropriate, **and could result in bird "take" possibly resulting in criminal prosecution and fines.** While the airplanes might not impact the plants, they most certainly could impact birds (and butterflies), with whom they would share air space. In addition, the noise could be very disturbing to birds and other wildlife. Allowing flying model airplanes in or around an area that attracts birds, including some that are threatened or endangered, is not appropriate. The model airplane use of this property should be eliminated.

The proposed ball fields also are incompatible with protection and conservation. Putting in ball fields would require clear cutting a significant stand of trees and replacing them with grass. Large swaths of grass, whether lawns, golf courses, or ball fields, are ecological deserts. They also require significant maintenance, which often entails application of

pesticides, herbicides, etc., but at the very least requires frequent cutting. These disturbances, including but not limited to the reduction of plant diversity, would adversely affect the number and variety of insects that are present. Such a reduction in insects would deny many bird species, as well as other animals such as snakes and bats, among others, an important source of food. It would also eliminate potential bird nesting/bat roosting sites and protection from predators.

In addition, by removing the planned ball fields from the proposal, you likely could reduce the amount of parking currently proposed for the property. Also, by removing the ball fields, you would be eliminating periods of heavy traffic (families coming to ball games, dropping off children for sports practice, etc.), and that would considerably reduce the negative impact to the surrounding community.

I urge you to find another property that is already clearcut, and use that for ball fields. That area could also be used for flying model airplanes when games are not in session.

I suggest you reconsider the off leash dog park. Putting an off leash dog park on a peninsula in the pond raises concerns about water quality and contamination. Not all people who take their dogs to dog parks are responsible -- some pay more attention to their phones and socializing with other humans than they do to their dogs, and don't always clean up after their dogs. Unless park employees are going to be policing/cleaning the area regularly, heavy rains or snow melt will wash feces into the pond, adversely affecting water quality.

Moreover, unless the area is fenced in, many dogs will jump in to swim, and could easily reach the mainland shore, where they are now off leash dogs in an area with rare plants and animals, and with no human supervising or controlling them.

In addition, as summers continue to get hotter, the likelihood of dangerous conditions such as growth of blue-green algae increases. Blue-green algae is potentially harmful to both humans and dogs (and other species). For this reason you may wish to also reconsider the swimming area as well.

Thank you for this opportunity to comment.

Respectfully submitted,

Sandra Scholar, Esq.
Brunswick Resident

Tom Farrell

From: Katie Jochems <katie.jochems@gmail.com>
Sent: Monday, January 20, 2025 3:04 PM
To: Tom Farrell
Subject: Fitzgerald Management plans - comment

Hello,

I want to start out by thanking the committee for their hard work on such a difficult task. I attended the most recent meeting and I could see the passion behind the project. I just think we have missed the mark with the current plan.

I've been a resident of Brunswick for 10+ years and first found the Fitzgerald trails about 5 years ago. Since then, I occasionally went back to enjoy the property until I got a new puppy in February 2024. We have gone to those trails nearly every single day and it has become a staple in our morning routine. We even got to enjoy the walk through all the snow this morning and a neighbor was so kind to plow out the street before I had even got there. I have fallen deeply in love with this property and my opinion comes from the viewpoint of a concerned resident who utilizes this piece of land daily. I have also come to know the neighbors of this land and the regulars who also visit year round and we have similar concerns.

I think the current project is just too big and far too invasive. The amount of parking lots alone is staggering and the swimming area needs to be completely left alone and not paved over. We cannot allow people to pollute this gorgeous piece of water and land. It as given a whole new meaning to "Pave paradise to put up a parking lot." The sand hill and surrounding tree area that is proposed to be a parking lot and bathrooms is our very favorite part of the entire walk and where I get to run and play and enjoy the beautiful nature that would be taken away. If parking areas are needed, limiting them to dirt only and 10-12 spaces is more than enough. I think personally the field area directly adjacent to the current parking area just outside the gate is a perfect spot to build a small parking lot and people can still walk down to the trails as we currently are along that paved path. There is no need for us to suddenly turn peoples' back yards into a roadway. Parking lots do not need to be 80+ spaces. That is a waste of money and natural space that should be left alone as much as possible.

As for the rest of the project, the only thing I support is expanding the trail system to go all the way around the pond. There is no need for ball fields there, though I have come to understand why they are on the plan and hope they can be moved to another plan down the line. Expanding the trails is truly all that is needed. No swimming area, no dog park area, no parking lots, there is no reason to ruin the most amazing thing about this place, the nature it offers. The amount of money to build the proposed project is massive yet still far less concerning to me than the ongoing upkeep of such a huge undertaking. The neighbors are the ones plowing it out and maintaining it currently for people to access so if anything, one road in with a single, small parking lot is the only thing needed and if the town could plow that and manage the roadway, the upkeep would truly be minimal in terms of winter maintenance and would allow the citizens of brunswick to not have to rely on our neighbors to reach public walking trails.

Overall I commend you all for your hard work. I just hope you hear and feel the deep concern we as residents have for this project. Please scale this back considerably. Please do not put in paved parking lots and ruin the beauty of this landscape. Please do not allow a swimming area. Please deeply reconsider what you plan to propose. I look forward to attending the next meeting. Thank you.

Katie Jochems,
10 B St

Tom Farrell

From: Donna Chale <donnachale@live.com>
Sent: Tuesday, January 21, 2025 3:40 PM
To: Tom Farrell
Subject: Captain Fitzgerald and Maine Gravel Land Development

Follow Up Flag: Follow up
Flag Status: Flagged

I appreciate the opportunity to make suggestions for the use of these parcels.

Over the years I have enjoyed picking blueberries seasonally on the Captain Fitzgerald land and hope that this area could continue to be wild with the possibility of some easy to navigate trail development to encourage area residents to enjoy walking or hiking the area year round and picking blueberries in the summer.

The Maine Gravel Land is new to me, but from what I can see it would be a lovely area for cross country skiing in the winter. It is relatively flat and skiing around the lake would be scenic. Many of us appreciate and use the Kate Furbish trails for skiing and would, I am sure, take advantage of additional xc ski areas. The same paths could be utilized for hiking or walking when there is no snow.

I believe that minimal intervention would benefit both the community and the environment. These trails would provide wonderful opportunities for families and neighbors to enjoy nature together. That said both of these suggestions would require designated parking for hikers and skiers near the trailheads, but I hope that could be done with only minor impact on the actual wild areas.

Donna Chale
8 Pepperberry Path
Brunswick

Tom Farrell

From: Esther Mechler <brunswick64@gmail.com>
Sent: Wednesday, January 22, 2025 2:24 PM
To: Tom Farrell
Subject: Input for the Gravel Pit committee!

Follow Up Flag: Follow up
Flag Status: Flagged

Tom! this time I was better, making a copy for each member, I think. I brought the three pages over to the front desk where a gracious receptionist took them from me to put in your Inbox.

Thank you so much. It feels very good to have such dedicated people in the town; we are very lucky indeed.

stay warm.
Esther M.

Esther Mechler
207-798-7955
"I love forms beyond my own and regret the borders between us" Loren Eiseley

---

Note to the Captain Fitzgerald & Former Maine Gravel Committee

Thank you all for your ongoing work to guide policy about the use of open space in our fair town. I know it has not been easy, and think you have done a great deal to take all the factors into consideration.

Many of us are relieved and grateful that hunting with guns will not be allowed in this habitat. Many people seem to feel that bow and arrow hunting is less harmful but sadly that is not the case. It is true that it is quieter and hence not so disturbing to neighbors. And the killing agent, the arrow as opposed to the bullet, does not fly as far.

However if our town is to remain a nonviolent space for all of us, the bow-and-arrow route is actually worse in that even according to some hunters themselves, a member of the Maine BowHunters Alliance estimated that 50% of animals who are shot with crossbows are wounded but not killed. A study of 80 radio-collared white-tailed deer found that of the 22 deer who had been shot with 'traditional archery equipment," 11 were wounded but not recovered by hunters.

Bleeding out can be a long, slow and painful death. Do we want to encourage that?

We ask that you consider dropping this bit of barbaric and very outdated, crude "fun" or "sport" from within town limits.

Thank you

E. Mechler

Hunting

Hunting might have been necessary for human survival in prehistoric times, but today most hunters stalk and kill animals merely for the thrill of it, not out of necessity. This unnecessary, violent form of "entertainment" rips animal families apart and leaves countless animals orphaned or badly injured when hunters miss their targets.

Pain and Suffering

Quick kills are rare, and many animals suffer prolonged, painful deaths when hunters severely injure but fail to kill them.

A member of the Maine BowHunters Alliance estimates that 50 percent of animals who are shot with crossbows are wounded but not killed. A study of 80 radio-collared white-tailed deer found that of the 22 deer who had been shot with "traditional archery equipment," 11 were wounded but not recovered by hunters.

A British study of deer hunting found that 11 percent of deer killed by hunters died only after being shot two or more times and that some wounded deer suffered for more than 15 minutes before dying.

Twenty percent of foxes wounded by hunters are shot again; 10 percent manage to escape, but "starvation is a likely fate" for them, according to one veterinarian.

Hunting also disrupts migration and hibernation patterns and destroys families. For animals such as wolves and geese, who mate for life and live in close-knit family units, hunting can devastate entire communities.

The fear and the inescapable, earsplitting noises from the gunfire and other commotion that hunters create cause hunted animals to suffer tremendous stress. This severely compromises their routine and their eating habits, making it hard for them to store the fat and energy that they need to survive the winter. Loud noises can also disrupt mating rituals and can cause parent animals to flee their dens and nests, leaving their young vulnerable to natural predators.

Hunting as Sport and 'Fair Chase'

Hunting is often called a sport as a way to pass off a cruel, needless killing spree as a socially acceptable, wholesome activity. However, sports involve competition between two consenting parties and the mediation of a referee. And no sport ends with the deliberate death of one unwilling participant.

Bow hunting = unacceptably high crippling rates Not a method for "instant kill"

in New Jersey

Canada

Pennsylvania

For a very long time, hunting for sport has been widely accepted as necessary, be it for food or to 'prevent deer from starving to death'. This is the norm in state Fish and Wildlife departments, and public policy even in land trusts in Maine. It is called the North American Model of Wildlife Conservation (NAM). And it centers on "consumptive use" of wildlife -

But what is changing out there is that the "nonconsumptive use" of wildlife, meaning not killing animals, has been rising in favor over the past few years to the point where about 75% of the public prefers that we conserve our wildlife (as we do open space) for the health of the planet, for our enjoyment of other life forms, and for their intrinsic value. Surveys are showing this change. And in the late spring the committee sent out a survey for the use of the property and found that about 75% of the local public also favored **'non-consumptive** use' of wildlife. I think the committee was surprised that so many feel this way since the few hunters who enjoy their sport are very vocal and have long succeeded in appearing to be in the majority when in fact they comprise only about 5% of the population. That percentage is going down annually despite the NRA's efforts to recruit women, children and even visually handicapped people to shoot animals.

I have a copy of Richard Louv's book Our Wild Calling (about how connecting with animals can transform our lives and save theirs) He is the author of Last Child in the Woods and other books and was the recipient of one of the Evening for the Environment's highest awards in Portland a few years back. His speech was amazing. Our Wild Calling makes the case for protecting, promoting, and creating a sustainable and shared habitat for all creatures - not out of fear but out of love.

I know for sure that some (hopefully not most) of the committee will not like this "new" perspective on how we co-exist with our animal neighbors. The idea is that some people 'need the deer for dinner' (though there are tons of free food in Brunswick, there is proof of that). But in some few ways the world is changing for the better, to a more compassionate view and I surely do hope that will prevail both in the ***Former Gravel Pit*** **and in the** ***Maquoit Woods.*** Neither should be a shooting ground for two months a year. They both need to be safe spaces year 'round for all of us.

E. Mechler
Brunswick, Maine

View on sport hunting from a Maine veterinarian

One thing the pandemic has shown us, the world is changing. As a former Maine veterinarian I treated many different species, from eagles and owls, to turtles and mice, in addition to the humble house cat and dog. I patched together hunting hounds torn up from bear baiting, raccoons caught in leg hold traps, many owls shot with pellets, eagles wound up in fishing line, and too many animals and birds to count, injured from car entanglements and window strikes. The latter are things we as a society would have a hard time changing, the former, maybe we need to reconsider and taking a stronger position toward preventing.

I am urging the people of Maine as well as their representatives to think long and hard about the language in the bills LD 687 & LD 983. While I personally am well known as anti hunting- a position I arrived at gradually after a pro-hunting childhood coming from a family of hunters. I have traveled the world and gone to the furthest remote outposts, only to realize there are no wild areas left on planet earth. I also have wanted to donate land I own to Inland Fisheries and Wildlife, but was thwarted when the proviso to restrict hunting was broached. I have seen change coming in Africa, the Amazon and other disappearing rain forested areas. People want to be outdoors, observing animals in their natural habitat.

Many of us want unmanaged forests, isolated vistas and animals living the way life should be. **As our wild places shrink, the vast majority of people would prefer taking to the woods with pets and children in tow to enjoy what is left of Maine's natural beauty without the fear of stepping into a leg hold trap, or worse.** Economically, the word is Eco-tourism. **Public lands should be set aside for those of us wanting to shoot animals with cameras, not guns.** At the very least, rid the state of completely barbarous leg hold traps. Please Maine, do not shoot the goose that lays your golden eggs.

Dr Amy P Wood

Georgetown, Me

Issues with Bow-Hunting

Written by Laura Simon
Wildlife Ecologist, master's degree from the Yale School of Forestry and Environmental Studies
July 2014

One of the main problems with trying to manage deer through lethal means-- as repeatedly cited during a Smithsonian Institute conference on Deer Overabundance (McShea et. al 1997) -- is that deer are highly prolific, and their high reproductive rate can quickly compensate for declines in their population.

Deer exhibit higher productivity (i.e. more twins and triplets are born, higher survival rates and earlier onset of sexual maturity) when there are fewer deer and more food is available. In other words, they "bounce back." This is why removal can have an oscillating effect, as demonstrated on Angel Island in California, where biannual removals over a 5 year period of 215 to 25 deer resulted in high rebound to 250 deer.

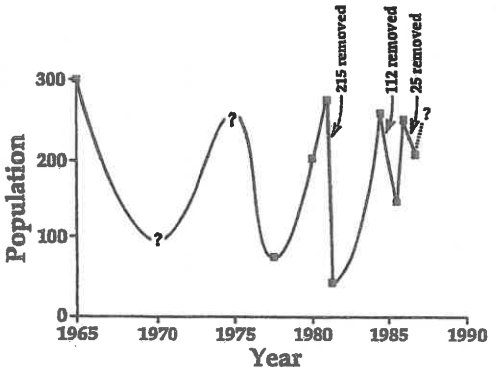


FIGURE 6.6. Population size of black-tailed deer on Angel Island. Shown is the repeated irruptive behavior and no apparent lessening of peak population sizes. Question marks represent qualitative estimates not based on data. See text for further explanation.

Any lethal control program must not only significantly reduce the deer herd *but also sustain enough pressure to keep the population at a low level and prevent this bounce-back*, AND prevent deer from the surrounding area from wandering in --- all of which usually poses an insurmountable challenge especially in urban/suburban areas.

Dozens of studies show unacceptably high-crippling rates even when the most modern bow-hunting methods are used (Gregory 2005, Nixon et. al 2001, Moen 1989, Cada 1988, Boydston and Gore 1987, Langenau 1986, Gladfelter 1983, Stormer et. al, 1979, Downing 1971, etc).

In other words, on average, for every deer struck by an arrow, another may be crippled but not killed. Archers may be good at hitting a stationary target but judgment, distance estimation, and adrenaline all come into play and influence whether or not a hunter attempts a "good shot" or one that may pose risk of injury to the deer.

Bow-hunting is, by its very nature, not considered an instant kill method (unless the arrow penetrates a vital organ like the heart, which is uncommon). When deer are struck by an arrow, it triggers a flee response. A big part of bow-hunting is following the blood trail and finding the deer before they succumb to injury, blood loss, shock, and other secondary complications, which may take hours, or even days. Bow-hunting is also one of the more *inefficient* forms of hunting, in terms of the time and effort required for the number of deer taken. For example, in a frequently cited and published case of deer reduction by bow-hunting, *it took 66 hunters a total of 371 outings to kill 22 deer* on a 53-acre site (Kilpatrick and Walter, 1999).

The bottom line is that trying to keep deer at a certain low level can be an expensive and futile battle, and *bow-hunting is one of the most inhumane and inefficient ways to attempt this.*

One of the most important tasks in designing a wildlife conflict mitigation plan is to a) collect and compile data to indicate the magnitude and scope of the problem(s) b) clearly define what the problems are, and c) set clear, achievable and measurable goals and a way to achieve them and d) create an ongoing monitoring program to assess the program's progress and level of goal achievement.

Hunting is often proposed by most communities as the best way to manage deer problems. However, in most communities, valid baseline data are not collected, clear measurable goals and performance indicators aren't set, and a monitoring system is not put in place. The result is that the hunt is measured by anecdotal observation which in itself is affected by people's pre-conceived attitudes and expectations.

The community would be wise to spend its funds assessing exactly what the deer conflicts are, (scope and location) so that site-specific solutions can be applied. Arbitrarily killing some deer won't reduce the population for long and won't resolve conflicts. There are better and more humane strategies for resolving deer issues.

CITATIONS:

Boydston, G.A. and Gore, H.G. 1987. Archery Wounding Loss in Texas. Texas Parks and Wildlife Department. Austin, Texas. 16pp.

Cada, J.D., 1988. "Preliminary Archery Survey Report." Montana Department of Fish, Wildlife and Parks. Helena, Montana. 7pp.

Downing, R.L. 1971. "Comparison of Crippling Losses of White-tailed Deer Caused by Archery, Buckshot and Shotgun Slugs." Proceedings of the Southeastern Association of Game and Fish Commissioners. 25:77-82.

Gregory, N.G. 2005. Bowhunting deer. Science in the Service of Animal Welfare. Universities Federation for Animal Welfare 2005 (14) 111-116.

Moen, A.N. 1989. "Crippling Losses." Deer and Deer Hunting 12(6):64-70.

Gladfelter, H.L. and Kienzler, J.M. 1983. "Effects of the Compound Bow on the Success and Crippling Rates in Iowa." Proceedings of the Midwest Bowhunting Conference. Wisconsin Chapter of the Wildlife Society. Edited by Beattie, K.H. and Moss, B.A. pp 215-219.

Gladfelter, H.L., Kienzler, J.M. and Koehler, K.J. 1983. "Effects of Compound Bow Use on Hunter Success and Crippling Rates in Iowa." Wildlife Society Bulletin 11(1):7-12.

Langenau, Jr., E.E. 1986. "Factor Associated with Hunter Retrieval of Deer Hit by Arrows and Shotgun Slugs." Leisure Sciences 8(4):417-438.

McShea, W.J. H.B. Underwood, and J.H. Rappole,1997. The science of overabundance: Deer ecology and population management. Washington D.C.: Smithsonian Institution Press.

Nixon, C.M., L.P. Hansen, P.A. Brewer, J.E. Chelsvig, T.L. Esker, D. Etter, J.B. Sullivan, R.G. Koerkenmeier, and P.C. Mankin. 2001. Survival of white-tailed deer in intensively farmed areas of Illinois. Can. J. Zool. 79: 581-588.

Stormer, F.A., Kirkpatrick, C.M. and Hoekstra, T.W. 1979. "Hunter-Inflicted Wounding of White-tailed Deer." Wildlife Society Bulletin 7(1):10-16.

"A book that offers hope."
—The New York Times Book Review

OUR WILD CALLING

How connecting with animals can transform our lives—and save theirs

RICHARD LOUV

Author of the international bestseller
LAST CHILD IN THE WOODS

Valuing Animals As Individuals

Oct 25, 2024 | Reforming State Wildlife Management, State Wildlife Management, Wildlife Intrinsic Value

Two wolves trot through a grass field. Junction Butte Pack wolf 907F (right) trots through a field in this aerial photo from 2023. Image courtesy of Yellowstone Wolf Project.

Valuing animals as individuals is essential because each animal has intrinsic worth — including unique experiences and emotions— and a vital role within their ecosystem. Individual-level valuation recognizes the importance of compassion and ethical treatment of animals, rather than viewing them merely as parts of a species group. Without this lens, we wouldn't be able to fully appreciate the extraordinary achievements of a wolf like 907F or a grizzly like 399.

However, because state and federal wildlife agencies often apply the North American Model of Wildlife Conservation (NAM), they often disregard the welfare of individual animals, particularly for species deemed predators or nuisances, which can lead to policies allowing their removal or even inhumane treatment.

The NAM's focus on maintaining population levels of game species for the benefit of hunters and anglers means individual animals, especially non-game species or animals seen as "nuisance" or "predatory," are often undervalued in management decisions.

By focusing narrowly on population numbers and hunting opportunities instead of valuing animals as individuals more broadly, management decisions of state wildlife agencies often overlook the complex roles and inherent value of a wolf when say, they authorize a kill order. And often, if individual animals are considered, plans tend to frame them only in terms of their utility or impact on other species.

As a result, even **well-known and beloved individuals like Grizzly 399** are not protected from the impacts of development, human-wildlife conflict, or policies that prioritize hunting over holistic conservation efforts. The current model of thinking also discourages public engagement in conservation that isn't in line with the way things are currently run. And this "science" ignores the growing body of evidence about the complex emotional lives individual animals lead, as well as the educational value they bring to communities, further limiting the tools available to conserve biodiversity amid habitat fragmentation and increasing human activity.

By shifting away from population-based metrics alone, agencies could adopt policies that support both the welfare of individual animals and the broader ecosystem, aligning more closely with the public's growing concern for all species, game and nongame alike.

That's why we're calling for **a shift in the wildlife management philosophy** to one that values animals as individuals. Decisions should be focused on compassion and coexistence, following ecologically sound and ethically responsible policies that reflect public support for biodiversity and animal welfare.

Conservation of What, Management for Whom

Dec 15, 2024 | Reforming State Wildlife Management

Conservation of What, Management for Whom: Wildlife Governance as if Extinction and Democracy Mattered

In today's world, the stakes for wildlife conservation have never been higher. Species are disappearing at an alarming rate, habitats are vanishing under the weight of human development, and climate change is intensifying the pressures on already fragile ecosystems. Amid this biodiversity crisis, we're forced to confront a critical question: *Conservation of what, and management for whom?*

For over a century, wildlife governance in the United States has revolved around narrow goals and even narrower constituencies. Most state wildlife agencies were designed to serve a single purpose—managing game species for hunting and fishing—guided by the

preferences of a limited demographic: licensed hunters and anglers. While these traditions have their place, they no longer represent the full spectrum of public interest in wildlife.

Americans today care about wildlife in diverse and meaningful ways. Many value non-consumptive activities like birdwatching, hiking, and photography. Others view wildlife through a cultural, spiritual, or ecological lens, understanding animals as essential members of their communities and ecosystems. And for millions, the simple existence of wild animals—a world where species thrive for their own sake—is enough to inspire action.

Yet our current systems of wildlife management largely exclude these voices. Decision-making remains concentrated in the hands of state commissions and agencies that are often politically appointed, unelected, and beholden to outdated priorities. This governance structure is not only undemocratic—it's failing the very wildlife it was created to protect.

The Biodiversity Crisis

Consider this: In the U.S., **more than one-third of all species are at risk of extinction**. Many of these animals are not hunted or fished and therefore fall outside the traditional purview of state wildlife agencies. Amphibians, songbirds, pollinators, and other critical species are slipping through the cracks of a **system designed to prioritize game management** over biodiversity.

Conservation as if Extinction and Democracy Mattered

We believe that wildlife protection and conservation should be guided by two fundamental principles: the urgency of preventing extinction and the imperative of strengthening democracy. These goals are not mutually exclusive; in fact, they are deeply intertwined.

Preventing extinction requires bold, decisive action to protect wildlife and ecosystems. But this cannot happen without a **governance system that invites everyone to the table**. When decisions are made transparently and democratically, they are stronger, more just, and more reflective of the public will.

At the same time, climate change, habitat loss, and pollution are accelerating declines in wildlife populations. The threats we face today demand bold, transformative action. Incremental tweaks to an outdated system will not suffice.

A Vision for Wildlife Governance

Wildlife for All was founded on the belief that wildlife governance must evolve. If we are to meet the twin challenges of extinction and democracy, we need a system that **reflects the values**, concerns, and aspirations of all people—not just a select few.

This means:

- **Broadening the Mission**: State wildlife agencies must move beyond their historic focus on game species to embrace a mission centered on biodiversity and ecosystem health. Every species matters, whether or not it generates revenue through hunting licenses.
- **Inclusive Decision-Making**: Wildlife belongs to everyone. Governance structures must ensure that the full diversity of public voices—including non-hunters, Indigenous communities, and historically excluded groups—are heard and valued.
- **Ethical, Science-Driven Policy**: Decisions about wildlife management should be based on the best available ethics and science, not political agendas or special interests. This includes planning for the long-term effects of climate change on habitats and species.

Wildlife Conservation

Does It Have a Heart?

By Don Molde ● Climate, Community, Environment, News, Opinion ● October 17, 2022

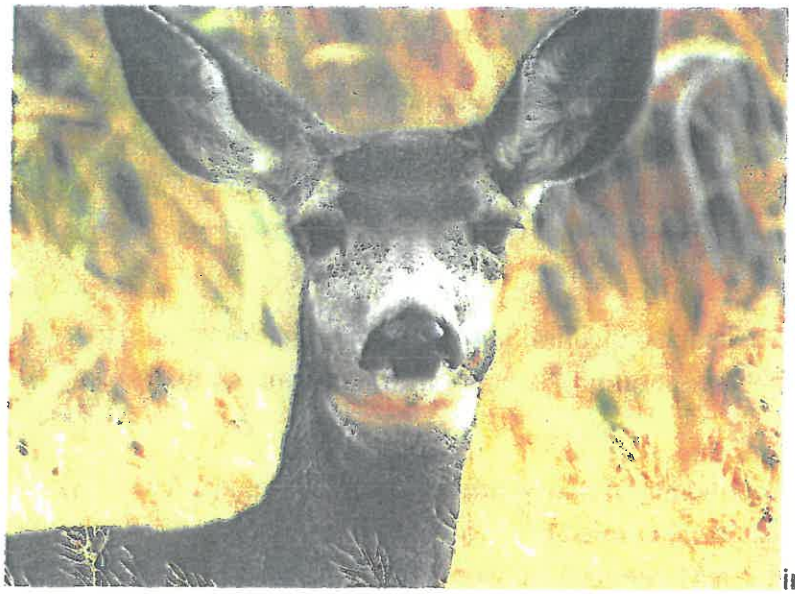


image: Don Molde

Opinion

Wasn't it but a decade or so ago when words had generally accepted meanings when facts were facts? Now we have 'alternative facts, and words with fuzzy definitions.

Perhaps it is no coincidence that controversy and bemusement exist about the meaning of conservation as it pertains to wildlife management.

Organizations struggle with a definition or avoid one entirely. Elephant hunters call themselves conservationists. Those who oppose trophy hunting and the frivolous killing of wildlife think of themselves as conservationists.

How can killing a wild animal be called conservation? How is hunting conservation?

Aside from arguing that fees and other expenses paid by those who kill wildlife somehow contribute to the furtherance of conservation efforts, what other justification can be offered? Aren't we now in the era where wildlife is demonstrably worth more alive than dead?

While we all agree on the importance of habitat, ecosystem integrity, effects of climate change, and the like, what is missing in most definitions of wildlife conservation is any appreciation for the intrinsic value and worth of the life of individual animals.

In Nevada, we have a black bear hunt in the fall from mid-September to the end of November. After 80 years of not hunting bears, the Nevada Board of Wildlife Commissioners (NBWC) in 2010 caved to pressure from hunters and established a hunt.

Black bears live primarily on the Sierra Front along the Nevada/California border. The size of black bear population on the Nevada side is limited to a few hundred animals.

NBWC claims Nevada's bear population is functionally larger because California's larger black bear population can, perhaps by osmosis, resupply our bear population if needed. However, adult black bears are territorial, have home ranges, and do not randomly wander across state lines. If removed from their home range, black bears make every effort to return.

There is no management issue to be resolved by our bear hunt...no need to kill bears to avoid 'over-population', to produce 'fear of humans'...as is sometimes offered to defend hunting.

The season kill quota....20 bears...with limitations on number/age of females to be killed...speaks to the tiny 'boutique' nature of this hunt. The only justification for the bear hunt is to offer a handful of hunters, lucky enough to draw a tag, a chance to kill a bear. The sentient nature and value of the bear's life goes unrecognized.

Therein lies a rub

Bear hunting is trophy hunting for the most part. So is the hunting of mountain lions, grizzly bears, bighorn sheep, and even wolves. According to information obtained by the Association of Fish and Wildlife Agencies (AFWA), the public thinks poorly of trophy hunting.

Even more striking, a national survey of the public's wildlife values conducted by AFWA, shows a substantial majority believes wildlife has sentient features.

This comes as no surprise to anyone who has ever had a domestic pet (even a goldfish) but is bad news for fish and wildlife agencies. Proudly and resolutely, they stand behind the assertion that they only manage populations.

Worrying about the worth and value of individual lives of large, scarce, charismatic omnivores and carnivores like wolves, bears, and mountain lions is, in their view, beyond their job description and, one suspects, well beyond their concern.

A recent survey in Nevada regarding wildlife values found that 44% of respondents were Mutualists, defined as those who regard wildlife as an extension of their social network, compared to Traditionalists who regard wildlife as worthy of domination, a commodity or

management opportunity for human benefit. Pluralists, representing about 20% of our citizenry, can be of either view, depending on circumstances.

Given this large discrepancy between the agency's view...it's just a numbers game...and the public's belief that (at least some) wildlife have sentient qualities.... what should the public expect from its fish and wildlife agency? Should the management agency recognize shifting public opinion and adjust where it can?

Is wildlife conservation just a matter of letting hunters skim off surplus animals without damaging the base population (e.g., deer hunting)? For wildlife species that live in a manner resembling a domestic livestock herd, (e.g., mule deer, elk, pronghorns), that management posture might be easier to defend.


image: courtesy of Project Coyote

What about species that are not herd animals, that live in a complex social (pack) structure, that have self-regulating reproductive capability, low reproductive rates, and a multi-year maturation process for the young (e.g.., bears, wolves, mountain lions, coyotes, and others)? Is their management just a numbers game as well? Shouldn't the public demand a different style of management that recognizes the highly sentient nature of these species?

These days, it's a hard sell to claim that killing an animal is conservation. Wildlife watchers dwarf hunters in numbers and economic benefit to the community, a gap that will further widen. While Cecil the Lion provided a trophy hunter a new rug or mount for which he paid some fees to the local economy, many years of wildlife viewing with Cecil, alive and well as a major draw, would have easily eclipsed what the hunter contributed.

It's beyond the scope of this discussion to suggest ways in which fish and wildlife agencies might adjust their management approach to account for the public's belief in the sentient nature of wildlife. Should agencies find themselves devoid of ideas, others stand ready to offer suggestions based on current research as well as simple obvious suggestions long overlooked by the agencies.

What is clear is that the meaning of wildlife conservation can no longer be solely defined as a numbers game.....managing for surplus animals.

I'm not sure about the best definition of wildlife conservation. Clearly, it will have complex, carefully crafted clauses, and qualifiers no matter which side drafts its version.

Those who kill wildlife will tilt their language in the direction of economic benefit, carrying on a tradition, claims of management benefit, and Traditionalist values of utility.

Those with Mutualist/Pluralist leanings will counter with ecosystem importance, benefits to the human spirit, and the need for democratic management. They will also insist that no definition will be sufficient or complete unless and until the sentient nature of wildlife is recognized.

Fish and wildlife agencies do have a challenge ahead if they want greater public involvement and financial support for their important activities. There are many ways their management techniques could be improved. It is a matter of attitude and commitment which recognizes the public's growing recognition and appreciation of the sentient nature of wildlife.

Don Molde is a 50-year Reno resident, retired psychiatrist, co-founder of Nevada Wildlife Alliance, former board member of Defenders of Wildlife, and former board member of the Nevada Humane Society. He has been active in wildlife advocacy for 45 years. Support Don's work here.

Tom Farrell

From: Albert Manville <amanville634@gmail.com>
Sent: Wednesday, January 22, 2025 2:58 PM
To: Tom Farrell
Cc: Albert Manville
Subject: Fwd: Comments on Brunswick's Draft Mgt. Plan, Former Gravel Services
Attachments: Brunswick Draft Mgt. Plan.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Director Farrell:
To your corrected email address. My bad.

---------- Forwarded message ---------
From: **Albert Manville** <amanville634@gmail.com>
Date: Wed, Jan 22, 2025 at 2:53 PM
Subject: Comments on Brunswick's Draft Mgt. Plan, Former Gravel Services
To: <tfarrel@brunswickme.gov>
Cc: Albert Manville <amanville634@gmail.com>

Director Farrell, Members of the Review Committee,

Please find my comments pasted below, as well as attached, on Brunwick's Draft Management Plan for the former Maine Gravel Services Area. Thank you for considering them. Respectfully submttted. - Albert Manville-

Subj: Comments on the Town of Brunswick's Draft Management Plan for the Former Maine Gravel Services Area and Captain Fitzgerald Recreation/Conservation Site

Submitted by:
Albert M. Manville, Ph.D. Certified Wildlife Biologist (The Wildlife Society)

Via: tfarrel@brunswickme.gov

Date: January 22, 2025

Director Farrell and Review Committee Members:

Thank you for the opportunity to comment on Brunswick's Draft Management Plan for the former Maine Gravel Services Area (GSA), including the Fitzgerald Conservation site. I am a permanent Maine resident, residing in Brunswick, am a Ph.D. Certified Wildlife Biologist (by The Wildlife Society), a Board Member with the Natural Resources Council of Maine, and Professor Emeritus for Johns Hopkins Univ.'s Advanced Academic Programs, among other credentials. Previously, while working for Defenders of Wildlife (12 yrs); the Boone & Crockett Club (2 yrs); the Division of Migratory Bird Management, U.S. Fish & Wildlife Service (17 yrs), and the National Park Service (2 yrs), I have had numerous opportunities to comment on similar management plans. I'll keep my brief comments focused on issues related to wildlife.

If this Plan is developed and implemented properly under the auspices of sound, sustainable and practical wildlife conservation and management, it can serve as a great benefit to wildlife, provide viewing/teaching/educational/eco-touring/photographic opportunities for area residents and other visitors, and help address climate change by protecting and restoring existing habitats. Additionally, it can be a 'go-to' place to visit for bird watching; possibly a site for licensed/permitted bird banding and mist-net bat capture and marking; vernal pool investigations for frogs, toads, and salamanders; spring and fall bird migration assessments; monarch butterfly conservation and viewing opportunities; bat foraging and echolocation evaluations; and other conservation restoration activities. These efforts relate especially for State-listed threatened and endangered bird species such as the Grasshopper Sparrow (State Endangered), Upland Sandpiper (State Threatened), and Short-eared Owl (State Threatened) all found in/around the GSA, as well as for the Federally-listed

Northern long-eared and Tri-colored bats. Special visual and acoustic surveys for these bird and bat species should be conducted, ideally once this Plan is approved. This should include annual spring Breeding Bird Surveys, Christmas bird counts, and bat acoustic monitoring surveys. The proposed hiking trails and boardwalk would appear to provide sufficient viewing opportunities. I support these.

Additionally, this GSA is part of Bird Conservation Region 14 (USFWS. 2021. Birds of Conservation Concern [BCC]), which supports populations of breeding and migrating BCCs, whose populations are declining, some precipitously, but are not yet ready for listing under the [Federal] Endangered Species Act. *E.g.*, these include the Long-eared Owl, Black-billed Cuckoo, Olive-sided Flycatcher, Canada Warbler, and Rose-breasted Grosbeak, among others. These are birds that may breed, feed, and/or migrate through the GSA.

With the fragmentation, destruction and loss of wildlife habitat as perhaps the greatest threat to virtually all wildlife species, efforts to protect the existing forested, sand dune, wetland, bottom-land hardwood, conifer, and shrub communities in the immediate GSA and Fitzgerald Conservation areas would be very important. Since the adjacent Brunswick Naval Air Station is part of an Audubon Important Bird Area (IBA), further protecting this GSA would enhance bird conservation efforts for this IBA.

I do not support using part of the area as a model aircraft flight arena. The noise from these aircraft can be very loud especially for gas-powered models, disturbing nesting birds and their fledglings, and possibly resulting in collisions with birds in the immediate area, especially if pilots attempt to harass flighted birds. Such collisions could be interpreted by Special Agents of the USFWS's Office Law Enforcement as "takings" under the Migratory Bird Treaty Act (MBTA; "take" defined as the un-permitted killing, injury or crippling loss of any protected migratory bird). The USFWS does not ordinarily issue "takings" permits to kill migratory birds. Currently, more than 1,000 species of migratory birds are protected by the implementing regulations of the MBTA.

Even though I am a dog owner, I do not support making part of the GSA an off-leash dog park. Dogs should continue to be allowed in the GSA on-leash, as Maine law requires, but an off-leash park could be considered to be incompatible with the purpose and intent of this GSA. Further, where owners fail to clean up after their pets, the dog area on a peninsula into the lake could result in fecal water contamination, eutrophication, and spread of parasites and diseases. Those situations should be avoided or at least minimized.

While the Brunswick Police Dept. confirms no significant level of lead contamination from their former police firearms range, monitoring of lead levels in the lake, adjacent streams and surrounding wetlands should continue — as recommended in the Draft Management Plan. Because the former Brunswick Naval Air Station is nearby, periodic surveys for PFAS and other forever chemicals should be regularly conducted. Where levels are high, the swimming area and other affected wetlands should be closed until the contamination loads are effectively mitigated.

Rather than trying to move or remove beavers (they will invariably return), I recommend using beaver diverters (there are a number of types currently available which work). By their design, they allow water to flow out of impoundments, generally deterring beavers from constructing new dams, or repairing existing ones. This can also remove or reduce the threat of giardia contamination. Water quality testing should be periodically conducted for this parasite. Bonny Brook, for example, would be a good place to test a diverter. I do not support lethal beaver trapping. Beavers serve an important ecological function as "nature's keystone architects."

I do not support tree cutting/removal to create ball fields. This is incompatible with prioritizing the protection and conservation of the habitats and species of the GSA, including its existing woodlands.

This concludes my brief overview of comments on this Draft Management Plan. Thank you for the opportunity to provide feedback. Respectfully submitted,

/s/
Albert M. Manville, Ph.D., C.W.B.
Brunswick Resident

Albert M. Manville, II, Ph.D.; Certified Wildlife Biologist (CWB), The Wildlife Society (42 years); Part-time Senior Lecturer and Adjunct Conservation Biology and Wildlife Management Professor Emeritus, Krieger School of Arts and Sciences, Advanced Academic Programs, Johns Hopkins University, Wash. DC Campus (25 yrs.); former Wildlife Instructor, U.S.D.A. Graduate School (14 yrs); Life Member, the American Society of Mammalogists (35 yrs.); former Sole Proprietor, Wildlife and Habitat Conservation Solutions LLC (6 yrs.); former Senior Wildlife Biologist and Director/VP, Wildlife Policy Div., Defenders of Wildlife (12 yrs); Former Big Game Records Coordinator, Boone & Crockett Club (2 yrs); Scientific Advisor, International Commission on the Biological Effects of Electromagnetic Fields (ICBE-EMF; 3 yrs); and retired Supervisory and Senior Wildlife Biologist, Division of Migratory Bird Management, U.S. Fish & Wildlife Service, Wash. DC HQ Office (17 yrs.)
amanville634@gmail.com

Subj: Comments on the Town of Brunswick's Draft Management Plan for the Former Maine Gravel Services Area and Captain Fitzgerald Recreation/Conservation Site

Submitted by:
Albert M. Manville, Ph.D. Certified Wildlife Biologist (The Wildlife Society)

Via: **tfarrel@brunswickme.gov**

Date: January 22, 2025

Director Farrell and Review Committee Members:

Thank you for the opportunity to comment on Brunswick's Draft Management Plan for the former Maine Gravel Services Area (GSA), including the Fitzgerald Conservation site. I am a permanent Maine resident, residing in Brunswick, am a Ph.D. Certified Wildlife Biologist (by The Wildlife Society), a Board Member for the Natural Resources Council of Maine, and Professor Emeritus for Johns Hopkins Univ.'s Advanced Academic Programs, among other credentials. Previously, while working for Defenders of Wildlife (12 yrs); the Boone & Crockett Club (2 yrs); the Division of Migratory Bird Management, U.S. Fish & Wildlife Service (17 yrs), and the National Park Service (2 yrs), I have had numerous opportunities to comment on similar management plans. I'll keep my brief comments focused on issues related to wildlife.

If this Plan is developed and implemented properly under the auspices of sound, sustainable and practical wildlife conservation and management, it can serve as a great benefit to wildlife, provide viewing/teaching/educational/eco-touring/photographic opportunities for area residents and other visitors, and help address climate change by protecting and restoring existing habitats. Additionally, it can be a 'go-to' place to visit for bird watching; possibly a site for licensed/permitted bird banding and mist-net bat capture and marking; vernal pool investigations for frogs, toads, and salamanders; spring and fall bird migration assessments; monarch butterfly conservation and viewing opportunities; bat foraging and echolocation evaluations; and other conservation restoration activities. These efforts relate especially for State-listed threatened and endangered bird species such as the Grasshopper Sparrow (State Endangered), Upland Sandpiper (State Threatened), and Short-eared Owl (State Threatened) all found in/around the GSA, as well as for the Federally-listed Northern long-eared and Tri-colored bats. Special visual and acoustic surveys for these bird and bat species should be conducted, ideally once this Plan is approved. This should include annual spring Breeding Bird Surveys, Christmas bird counts, and bat acoustic monitoring surveys. The proposed hiking trails and boardwalk would appear to provide sufficient viewing opportunities. I support these.

Additionally, this GSA is part of Bird Conservation Region 14 (USFWS. 2021. Birds of Conservation Concern [BCC]), which supports populations of breeding and migrating BCCs, whose populations are declining, some precipitously, but are not yet ready for listing under the [Federal] Endangered Species Act. *E.g.*, these include the Long-eared Owl, Black-billed Cuckoo, Olive-sided Flycatcher, Canada Warbler, and Rose-breasted Grosbeak, among others. These are birds that may breed, feed, and/or migrate through the GSA.

With the fragmentation, destruction and loss of wildlife habitat as perhaps the greatest threat to virtually all wildlife species, efforts to protect the existing forested, sand dune, wetland, bottom-land hardwood, conifer, and shrub communities in the immediate GSA and Fitzgerald Conservation areas would be very important. Since the adjacent Brunswick Naval Air Station is part of an Audubon Important Bird Area (IBA), further protecting this GSA would enhance bird conservation efforts for this IBA.

I do not support using part of the area as a model aircraft flight arena. The noise from these aircraft can be very loud especially for gas-powered models, disturbing nesting birds and their fledglings, and possibly resulting in collisions with birds in the immediate area, especially if pilots attempt to harass flighted birds. Such collisions could be interpreted by Special Agents of the USFWS's Office Law Enforcement as "takings" under the Migratory Bird Treaty Act (MBTA; "take" defined as the un-permitted killing, injury or crippling loss of any protected migratory bird). The USFWS does not ordinarily issue "takings" permits to kill migratory birds. Currently, more than 1,000 species of migratory birds are protected by the implementing regulations of the MBTA.

Even though I am a dog owner, I do not support making part of the GSA an off-leash dog park. Dogs should continue to be allowed in the GSA on-leash, as Maine law requires, but an off-leash park could be considered to be incompatible with the purpose and intent of this GSA. Further, where owners fail to clean up after their pets, the dog area on a peninsula into the lake could result in fecal water contamination, eutrophication, and spread of parasites and diseases. Those situations should be avoided or at least minimized.

While the Brunswick Police Dept. confirms no significant level of lead contamination from their former police firearms range, monitoring of lead levels in the lake, adjacent streams and surrounding wetlands should continue — as recommended in the Draft Management Plan. Because the former Brunswick Naval Air Station is nearby, periodic surveys for PFAS and other forever chemicals should be regularly conducted. Where levels are high, the swimming area and other affected wetlands should be closed until the contamination loads are effectively mitigated.

Rather than trying to move or remove beavers (they will invariably return), I recommend using beaver diverters (there are a number of types currently available which work). By their design, they allow water to flow out of impoundments, generally deterring beavers from constructing new dams, or repairing existing ones. This can also remove or reduce the threat of giardia contamination. Water quality testing should be periodically conducted for this parasite. Bonny Brook, for example, would be a good place to test a diverter. I do not support lethal beaver trapping. Beavers serve an important ecological function as "nature's keystone architects."

I do not support tree cutting/removal to create ball fields. This is incompatible with prioritizing the protection and conservation of the habitats and species of the GSA, including its existing woodlands.

This concludes my brief overview of comments on this Draft Management Plan. Thank you for the opportunity to provide feedback. Respectfully submitted,

/s/
Albert M. Manville, Ph.D., C.W.B.
Brunswick Resident

Albert M. Manville, II, Ph.D.; Certified Wildlife Biologist (CWB), The Wildlife Society (42 years); Part-time Senior Lecturer and Adjunct Conservation Biology and Wildlife Management Professor Emeritus, Krieger School of Arts and Sciences, Advanced Academic Programs, Johns Hopkins University, Wash. DC Campus (25 yrs.); former Wildlife Instructor, U.S.D.A. Graduate School (14 yrs); Life Member, the American Society of Mammalogists (35 yrs.); former Sole Proprietor, Wildlife and Habitat Conservation Solutions LLC (6 yrs.); former Senior Wildlife Biologist and Director/VP, Wildlife Policy Div., Defenders of Wildlife (12 yrs); Former Big Game Records Coordinator, Boone & Crockett Club (2 yrs); Scientific Advisor, International Commission on the Biological Effects of Electromagnetic Fields (ICBE-EMF; 3 yrs); and retired Supervisory and Senior Wildlife Biologist, Division of Migratory Bird Management, U.S. Fish & Wildlife Service, Wash. DC HQ Office (17 yrs.)
amanville634@gmail.com

Tom Farrell

From: Ann Manson <anngrovesmanson@gmail.com>
Sent: Saturday, January 25, 2025 3:33 PM
To: Tom Farrell
Subject: Feedback on proposed uses of the former Maine Gravel & Captain Fitzgerald land parcels

Dear Mr. Farrell,

I attended the information session the committee held on January 11th. I waited to send in my comments until I heard back from Maine Audubon on what input they provided the committee. I reached out to Nick Lund and he checked in with the conservation department, but no one there thinks that Maine Audubon made comments on the proposal. I am very curious who from Maine Audubon provided input and what that input was. I regret not asking the question at the information session.

While I appreciate all the work the committee put into the proposal given the direction provided, the proposal has far too much infrastructure for such a sensitive spot. Captain William Fitzgerald Conservation and Recreation Area is one of the few S1 critically imperiled little bluestem-blueberry sandplain grasslands left in the state. As such, the town of Brunswick should be doing all it can to protect and preserve it. There should be no additional roads on the parcel other than what is required to perform the necessary burns. An accessible trail would be a wonderful thing to add to the area so a greater number of people can enjoy the surrounding nature. Additional interpreted signage would be a great thing to add also, not a model airplane strip. The Landing is the place for that. Any other infrastructure should not be bordering the preserve, but placed away from it to minimize damage to the vegetation.

As for the Maine Gravel sight, none of the proposed recreation facilities belong there, in my opinion, other than the much needed playground, a path around the pond, and spot to put non-motorized watercraft into the pond. That area teems with wildlife and is not appropriate for dogs off leash or large numbers of people frolicking in the pond. I truly understand the need for the playground, but it should be situated away from Captain Fitgerald. That said, it will be little more than an attractive nuisance if there is no safe way to cross the street and then walk to it. I am hoping and praying that the size of the pond and the associated state of Maine regulations make it unattractive as as a public swimming area. Build the pool at Landing for public swimming. Also, parking should be limited to 20 spaces? Nothing near the 175 spaces I think I counted. And as for the ball fields, I think it is ridiculous to put them on the plan knowing that you will not build them there. Why does a placeholder for fields in East Brunswick need to be on plan versus a list? Cutting down trees to make ball fields in counter to Brunswick's climate change goals, and I truly believe the majority of Brunswick residents will not allow it. Find already disturbed land for ball fields.

Make the two parcels a wonderful place to respectively enjoy nature and learn about the natural world. Recreation should be limited to walking, running, berry picking and perhaps biking.

Sincerely,

Ann Groves Manson

15 Beacon Dr

Brunswick

Tom Farrell

From: Ed Friedman <edfomb@comcast.net>
Sent: Wednesday, January 29, 2025 1:56 AM
To: Tom Farrell
Cc: Julia Henze; Nathaniel Shed
Subject: Friends of Merrymeeting Bay Fitzgerald-Gravel Comments
Attachments: FOMB Fitzgerald-Gravel Comments Final 1-28-25.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Tom,

Please find FOMB comments attached for the Fitzgerald/Maine Gravel property. Please add these to the record and distribute to the management committee and other appropriate parties

Thanks!
Ed
666-3372
www.friendsofmerrymeetingbay.org

Friends of Merrymeeting Bay

P.O. Box 233, Richmond, ME 04357 www.fomb.org

1/28/25

Tom Farrell, Director of Parks and Recreation Department
Town of Brunswick
220 Neptune Drive
Brunswick, ME 04011
tfarrell@brunswickme.org CC. nshed@brunswickme.org jhenze@brunswickme.org
Via Email

Re: Captain Fitzgerald/Maine Gravel Property

Tom, members of The Former Maine Gravel Services & Captain William Fitzgerald Recreation & Conservation Area Master Development & Management Plan Committee and Town Council,

Thank you for the opportunity to comment at the January 11th forum and for all the work you have put into researching this site, presenting site information via the internet and soliciting opinions from the community on management options for this unique property.

Our membership organization of about 450 households, focused on environmental research, advocacy, education and land protection recognizes, as do many of you, the unique natural characteristics of this land. Because we are one of the few environmental organizations to take a holistic approach, we appreciate your consideration of broad community input into how this property will be run in the future. We also believe, based on preponderance of the evidence (see reference notes below), that highest and best use for this property, including the sand plain/grassland (Navy), wooded/ wetland/forest/pond (Gravel) terrestrial portions as well as the pond with alewife run, is largely one of conservation and low key passive recreation. This means no active dog parks, radio-controlled aircraft, developed swimming or boating facilities, ball fields or additional impervious surfaces. Given our choice, we'd probably just leave things low-key like they are.

We understand the need and desire for some active recreational facilities in that section of Brunswick but suggest those are inappropriate uses for this site and that perhaps energy and budgeting should be dedicated to searching, and possibly waiting, for an appropriate site already cleared and closer to the road, much like the recreation area in Topsham located on the Foreside Rd.

Uses for the parcel as proposed at the meeting have several specific problematic issues including:

Clearcutting-possible cutting of the only non-forested wetland timber on the property for ball fields; addition of a significant amount of non-permeable infrastructure including roads, ADA trail and pavilions or buildings;

Water quality-the proposal will certainly not improve water quality (surface and aquifer) and there's an excellent chance water quality will be degraded with the proposed increased uses in and out of the water. Interestingly, nowhere in the public record or in the IF&W letter on the property (attached) did we find any detailed data on actual water quality other than reference to a single

reading of dissolved oxygen (DO) (8.7ppm) and temperature (22.4C) where the outlet brook crosses Old Bath Rd. Of very great concern is that in a total of 11.5 hours of gillnetting for their fish census, IF&W notes: "an unusually large amount of algae observed stuck to the gillnets." This does not speak well of existing water quality, despite "an unusually high density of freshwater mussels," (none of which are identified to species) and is probably indicative of poor circulation or throughput and perhaps high nutrient levels. While parasites from the recurring (despite repeated trapping) resident beaver are mentioned as possibly causing giardia, there appear to be no data on either total coliform or *E. coli* bacteria, nutrient or DO levels.

Based on health reasons alone it seems negligent to suggest development of a formal swimming hole in a water body with some known likely exposures (giardia) adverse to human health; further possible unknown but likely exposures (*E. coli*) and further possible unknown-unknown exposures; like PFAS, heavy metals, PAH's or organochlorines, certainly all possible with proximity to known BNAS PFAS releases, the operation of heavy equipment on site for years (think hydrocarbons) and the general propensity for things of ill repute to be dumped in gravel pits. Without further sampling, it may be reasonable for locals to swim and fish at their own risk but this does not seem anything the town should necessarily sanction or promote. State fish consumption advisories already include the pond and are more restrictive for fish from the Androscoggin.

Dogs-We don't believe development of an additional formal town dog park is necessary or desirable for this site. Dogs should be leashed if their behavior is questionable but dogs off-leash should also be welcome as long as they are under voice control and good natured with people and other dogs and don't chase wildlife. We have no problem with dogs swimming in the pond.

ADA access- The management plan calls for a paved ADA trail around half the pond and stone dust topping around the other half. This is unnecessary when perfectly good ADA access to the middle of the sand plain exists along the paved extension of Lindbergh Crossing. Why asphalt a new path when paved access already exists? If desired, the existing paths from the end of Lindbergh pavement running NE to the SE corner of the pond then NW along the old property line and SW back to the pavement could be quite easily graded and stone dust applied to make an ADA accessible loop trail.

Neighborhood-Overwhelming neighborhood sentiment at the January 11 meeting seemed against any major increase in property use as the draft management plan would likely promote and cause. Valid concerns included abuse of the natural resource, inappropriateness of the plan's scale, possible effects to area wells and aquifer (Bay Bridge Estates already has unsatisfactory water) and safety issues with regard to Old Bath Rd. Having seen the adverse effects from overuse on conservation parcels and the neighborhoods leading to them, we sympathize totally with these concerns believe neighborhood concerns should be given great weight.

Costs-The proposed management plan if realized, comes with a very high partial cost of approximately 12.5 million dollars. Partial cost because prices will only increase over the years the plan could be implemented and no operational/maintenance expenses, short or long term, were calculated or estimated and included in the estimates. Wright Pierce was quick to say grants can be written for much of the expense but they are doubtlessly making a lot of money on their work for the town and someone has to pay for the grant-writer's time. Ultimately Brunswick tax payers will foot the bill directly or indirectly. Contrast high costs of the proposed active recreation plan with that of the property's continued use for passive recreation-walking, skiing, ice skating, birding, foraging, some occasional swimming and fishing, stargazing, photography, ecological research, etc. which *cost virtually nothing*. The town could if holding a burning desire to spend a little money on the property, add some more interpretive signs, small parking areas and make an ADA loop incorporating the existing paved access. We don't feel these are necessary or recommend these

changes but their cost would be a fraction of that which is proposed with very little ecological impact.

Recognizing the broad input received by the management committee, we caution the committee that while some compromising on uses may be necessary, a "split the baby" approach so often the product of committee decisions, generally results in a product attaining little but the lowest common denominator, a bunch of "baby pieces" no one is very happy with. We urge you to ask what the property is best suited for based on its integral unique natural attributes, focus the plan accordingly and find other sites for uses inappropriate here but also desired.

Thank you for your consideration.

.

Ed Friedman, Chair
666-3372
edfomb@comcast.net

References & Some Additional Comment

This space (Little Bluestem-Blueberry Sandplain Grassland, Pitch Pine Barrens) includes critically imperiled habitat for species including grasshopper sparrow, upland sandpiper, and short-eared owl. These open grasslands may also provide excellent habitat for a rare snake, the northern black racer. Rare butterflies can include cobweb skippers, dusted skippers, and coral hair-streaks. https://storymaps.arcgis.com/stories/4b33c320f85744f1b86dde3ccfe5b97f

The pond is not natural and was formed by excavation and the presence of a natural spring that fills it. The pond drains out through Bonney Brook into Merrymeeting Bay. Ibid.

The Former Maine Gravel Services Pit Site (the Site) was donated to the Town of Brunswick under the condition that it will be used as a public recreational area. (Wright Pierce, 2024 pg.1) https://www.mainegravel-fitzgeraldplanning.org/_files/ugd/c0f42d_a2a72dcee6444cfd8e05849c33747e36.pdf

The gravel pit pond at the Site of this investigation has many similarities to kettle hole ponds, including minimal inlet and outlet streams and the presence of surrounding sandy soils with high transmissivity. Based on observations made during the site walk on October 25, 2024, it appeared that minimal outflow was occurring in the man-made outlet channel to the east. As such, it is assumed that the general interaction between groundwater and the pond at the Site is similar to what is seen in kettle hole ponds as described above. Ibid, 4

Beaver dam activity was observed on the outflow stream during the site walk on October 25, 2024. The beaver dam is shown in Photo 5 and was observed to partially block the man-made outflow channel. This is a non-permanent structure and cannot be relied upon as a long-term means to stabilize water levels within the pond. It should be noted that beavers are known to cause giardia blooms, also known as "Beaver Fever". This can cause severe illness if water is ingested due to a parasitic infection. It would be advisable for the beaver to be removed. The beaver dam did not appear to result in any change in water level as water flows preferentially through the aquifer as noted in Section 1.6. It was also noted during the site walk that the water within the man-made drainage channel was stagnant, murky, and dark in color with organics in comparison with the clear water observed in the pond (Photo 6). This observation suggests that there is minimal flow occurring through the drainage channel under normal conditions. Ibid, 6.

Tree and vegetation removal should be minimized wherever possible. Established vegetation stabilizes the ground surface and inhibits erosion and siltation. Maintaining as much existing

vegetation cover as possible at the Site will help protect long term water quality of the pond. Ibid, 7.

Microbiological contamination of surface water may occur through direct fecal input from man or animal, sewage overflow, surface runoff, or overgrowth of naturally occurring microorganisms (WHO, 2003). Other concerns to water quality may include litter associated with public facilities and undisposed pet waste. The Town should enforce "leave no trace" policies to minimize these impacts. Ibid.

The potential for large-scale tree and vegetation removal or the application of fertilizer or pesticides pose the highest risks to water quality at the Site. Maintaining as much existing vegetation cover as possible at the Site will help protect long term water quality and clarity of the pond. It is also recommended that limited fertilizer or pesticide products be applied to any proposed recreational fields. Artificial turf is not proposed at this Site. A public swimming area is considered low-risk to groundwater quality since the surrounding sand and gravel material naturally filters the surface water as it recharges back into the aquifer. The presence of Beavers pose a greater risk to water quality and human health. Ibid, 10.

The response from MNAP indicated that, according to the information in their files, the Survey Area is adjacent to a Sandplain Grassland to the west and recommends maintaining at least a 100-foot buffer of this natural community type. Additionally, there are two rare sedges associated with Sandplain Grasslands within the adjacent natural community. Based on the soil types and proximity to the Sandplain Grasslands, there may be habitat for these species within the Survey Area. MNAP recommends the entire Project Area be surveyed for clothed sedge (Carex vestita) and dry land sedge (Carex siccata). (Flycatcher, 2024)
https://www.mainegravelfitzgeraldplanning.org/_files/ugd/c0f42d_9c464b74bbf24ea9ace00684b9cae58d.pdf

Flycatcher requested an Official Species List from the USFWS in an effort to understand the potential for wildlife listed under the Federal Endangered Species Act (ESA) to occur in the Survey Area vicinity. The USFWS noted the following protected wildlife may occur in the area: a) Northern Long-eared Bat (Myotis septentrionalis), which is listed as an endangered species; b) tri-colored bat (Perimyotis subflavus), a proposed endangered species; c) Atlantic salmon (Salmo salar), which is listed as an endangered species; and monarch butterfly (Danaus Plexippus), which is a candidate for listing. The Survey Area overlaps the critical habitat for Atlantic salmon. Specific to northern long-eared bat, the determination keys (Dkey) were utilized, and a determination of no effect was found for this species. However, an up to date Dkey consultation will need to be performed when a project is planned. Ibid.

Twenty-three potential vernal pool habitats were identified within the Survey Area. The location of these habitats are shown on Figure 3. Some of these potential vernal pool features extend across large portions of the wetland in which they are contained. Boundaries of these features must be mapped during spring high water to obtain an accurate map result. Ibid,13.

According to mapping conducted by Flycatcher (Natural Resources Map, Figure 3), nearly all wooded portions of the Gravel site contain a high percentage of wetland except the NE section where the Committee has recommended possible elimination of much timber in favor of active recreation facilities-ballfield, parking lot, swimming infrastructure, rest rooms, asphalt ADA access trail.

Freshwater Fish (See attached-IF&W)

- *In the summer of 2021 two - 400' and one - 200' gillnets were fished for a total of 11.5 hours with the following results: 10 BLC, 20 LMB, 6 PKS, 6 SMB, 34 WHP, and 37 YLP. One minnow trap was fished for 4.4 hours resulting in a catch of 4 PKS. (Lewis, IF&W Survey, 2021)*
- *No crayfish or other fish species were observed but the pond supports an unusually high density of freshwater mussels. Ibid.*
- *The pond appears to be very productive with an unusually large amount of algae observed stuck to the gillnets when tending. Ibid, 2.*
- *Eagle Brook was sampled at the Old Bath road crossing. Water temperature was 22.4 degrees Celsius, dissolved oxygen was 8.7 PPM. Species captured included FSK, YLP, EEL, and YOY LMB. Fish passage was good at this crossing. Ibid, 2.*

Alewives (See attached-DMR)

There is a sizable and important alewife run into the pond, probably in no small part because fish passage at the Brunswick dam is very inefficient and the pond habitat this site offers is far better spawning habitat for alewives than adjacent riverine habitat. Alewives like slow moving shallow ponds for spawning whereas blueback herring, closely related, seek out moving water typical of rivers and streams.

The sea-run alewife is identified as a Species of Greatest Conservation Need (SCGN) in Maine's Wildlife Action Plan. Alewives coastwide have experienced a steep decline in population along the East Coast. This species is currently experiencing range contraction and local populations have been significantly reduced or extirpated from several native habitats. The Maine Gravel Services pond is one location where this trend is being reversed and a newly established population is being added to the list of conservation efforts in Maine. (Brown, DMR 2024)

Adult alewives need access to their spawning habitat to spawn and then egress when spawning is complete. This period is typically mid-May into early June. Young of the year juveniles need to exit the pond typically in early fall (September), usually concurrent with higher flows associated with fall rains.

While beavers and beaver dams help provide important habitat for many species, if dams block alewife passage there must be some active management. Options include live or lethal trapping beaver, total or partial breaching of the dam, artificial fish passage (ladders or lifts) and possibly integrated fish-friendly-flow devices as are described somewhat at the hyperlinks below. Arguably the best dam management here is partial breaching at select times to ensure freedom of ingress and egress at the three critical life stages with minimal cost and effort. DMR would like to do this and we recommend the town endorse the department's management of the dam and alewives and ensure they have access. As Mike Brown's letter closes:

DMR wants to continue to access the site to ensure upstream passage is available for alewives, the ability to monitor the population status, and conduct scientific studies at this location. The size of the pond, its location, and interests within the Town of Brunswick make it an excellent candidate for citizen science initiatives that would benefit DMR's management efforts and inform the public regarding an important natural resource within the town of Brunswick. Ibid, 2.

https://wwf.ca/stories/when-beaver-met-salmon-how-fish-friendly-flow-devices-keep-their-relationship-moving-forward/

https://www.beaversolutions.com/get-beaver-control-products/fish-passage-at-beaver-dams/

https://nunatukavut.ca/site/uploads/2020/10/Beaver-Baffler-Fact-Sheet.pdf

STATE OF MAINE
DEPARTMENT OF MARINE RESOURCES
21 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0021

JANET T. MILLS
GOVERNOR

PATRICK C. KELIHER
COMMISSIONER

April 25, 2024

Mr. Thomas Farrell
Parks and Recreation Director
220 Neptune Drive
Brunswick Maine 04011

Dear Mr. Farrell,

The Maine Department of Marine Resources (DMR) is writing to detail its interest in monitoring and management of the alewife resource located at the former Maine Gravel Services site which is currently owned by the Town of Brunswick. The Department supports the Conservation Commission's effort to develop a comprehensive plan that continues to protect the existing natural resources at the site while exploring new uses for the property and increasing public access.

The pond created by the Maine Gravel Services mining activity currently supports a native population of sea-run alewife (*Alosa pseudoharengus*). The sea-run alewife is identified as a Species of Greatest Conservation Need (SCGN) in Maine's Wildlife Action Plan. Alewives coastwide have experienced a steep decline in population along the East Coast. This species is currently experiencing range contraction and local populations have been significantly reduced or extirpated from several native habitats. The Maine Gravel Services pond is one location where this trend is being reversed and a newly established population is being added to the list of conservation efforts in Maine.

Alewives are native to the Androscoggin River watershed and the pond now supports a self-sustaining population of alewives. Adults arrive at the pond each spring (April-May) to spawn and adults migrate back to the ocean soon after spawning. The juveniles will spend the summer in the pond and migrate to the ocean in the late summer and fall. Alewives do not spend the entire year in the pond and need to migrate back to the ocean to complete their life cycle. Sea-run alewives should not be confused with landlocked alewives that have a completely different life history and habitat requirements.

Alewives colonized the Maine Gravel Services pond sometime around 2005 or shortly after. The exact year of introduction is unclear, as is the origin of the fish, either through an illegal introduction or natural recolonization. The outlet stream leading from the pond is passable for sea-run fish and natural recolonization is a strong possibility. Currently, alewives migrate to the base of the hydropower project upstream of the Brunswick-Topsham bridge.

Once the alewife population became established, employees of Crooker/Maine Gravel Services maintained access to the pond by monitoring beaver activity at the pond outlet and partially breaching beaver dams, if needed, to enhance passage for spawning fish. Once Crooker/Maine Gravel Services staff no longer lived on site the beaver issues became more of a concern. Evan Frankling of the Maine Warden Service informed the Maine Department of Marine Resources on May 3, 2021, that a beaver

dam was blocking passage, and a large number of alewives were below the dam and were having difficulty making it into the pond. He had stated the Brunswick Rec Department staff had attempted to breach the dam will little success.

On May 4, DMR staff partially breached the dam and provided access to the pond for spawning sea-run alewives. In May 2021 DMR hired Nelson Frost, and Animal Damage Control Agent, to remove the beaver to reduce the likelihood of additional dams for the near future. The Town of Brunswick provided access to the property for the Animal Damage Control Agent, recognizing the importance of providing access for spawning fish. Since 2021, DMR staff have monitored the brook and cleared obstructions that prevent upstream migration of native sea-run alewives. These efforts have led to an annual run of alewives into the pond and currently support a self-sustaining alewife population.

As the Conservation Commission develops a plan for the property DMR asks that the Commission take into consideration the importance of native sea-run alewives to the ecosystem and the role that this specific pond plays in providing habitat for one of Maine's fish species listed as a Species of Greatest Conservation Need in the Maine Wildlife Action Plan. Specifically, DMR wants to continue to access the site to ensure upstream passage is available for alewives, the ability to monitor the population status, and conduct scientific studies at this location. The size of the pond, its location, and interests within the Town of Brunswick make it an excellent candidate for citizen science initiatives that would benefit DMR's management efforts and inform the public regarding an important natural resource within the town of Brunswick.

Thank you for the opportunity to provide information on DMR's activity at this location and the interest we have in this site. If you have any questions, please contact Michael Brown at the Maine Department of Marine Resources at 625-6341 or Michael.Brown@maine.gov

Sincerely,

Michael Brown

Marine Scientist III
Bureau of Sea-Run Fisheries
Maine Department of Marine Resources

MDIF&W LAKE INVESTIGATION (8/17/2021)

LAKE: Crooker (Brunswick) Pond 6450, Brunswick

ACRES: 42

BACKGROUND: Crooker Pond was recently acquired by the town of Brunswick from Crooker Construction. Department communications indicate the town is considering opening the pond to public access with parking for 20-30 vehicles and accommodations for a hand carry boat launch. Interest by the town in managing Crooker Pond for recreational fisheries has resulted in engagement with MDIF&W for further guidance.

PURPOSE: New pond survey, particularly interested in possibility of creating a trout fishery in the Brunswick urban area.

CW MANAGEMENT GOAL: Currently closed to fishing per town of Brunswick ordinance. Management goal to be determined.

STOCKING HISTORY: No history of legal stocking.

REGULATIONS: Open to fishing under general law regulations for South Zone lakes and ponds. Note: Closed to fishing per town of Brunswick ordinance.

FINDINGS:

- In the summer of 2021 two - 400' and one - 200' gillnets were fished for a total of 11.5 hours with the following results: 10 BLC, 20 LMB, 6 PKS, 6 SMB, 34 WHP, and 37 YLP. One minnow trap was fished for 4.4 hours resulting in a catch of 4 PKS.
- WHP, YLP, and BLC were all above average size quality while LMB and SMB were on the small side. See table below for mean length and weight data.
- No crayfish or other fish species were observed but the pond supports an unusually high density of freshwater mussels.
- Max water depth observed was 20 feet. There was no band of cool, oxygenated water suitable for trout. The pond was nearly homothermous and had an oxygen deficiency below 10 feet. Oxygen levels are expected to continue to degrade through the end of summer. Water color was greenish blue with only slight turbidity observed. Secchi disc reading was 15.5 feet.
- Crooker Pond is a flooded gravel pit and the underwater topography is extremely irregular, probably as a result of left over sand/gravel piles and mining pits. The highest fish density including all BLC captured were associated with underwater structure,

predominantly at the underwater island near the center of the pond.

- The pond appears to be very productive with an unusually large amount of algae observed stuck to the gillnets when tending.
- Crooker Pond outlet (Eagle Brook) has a wide and deep outlet area which narrows quickly, flows through both wooded and urban habitat, crosses two roads and enters the lower Androscoggin river approximately 2 miles from Crooker Pond.
- There are no known fish passage barriers on Eagle Brook which might make Crooker Pond vulnerable to infestation by exotic species such as northern pike and rock bass.
- Eagle Brook was sampled at the Old Bath road crossing. Water temperature was 22.4 degrees Celsius, dissolved oxygen was 8.7 PPM. Species captured included FSK, YLP, EEL, and YOY LMB. Fish passage was good at this crossing.

- Access to the pond is behind a locked gate off Old Bath Road. The dirt road continues past the gate, winds past a house and several outbuildings before coming to a fork. Both forks follow the pond shoreline, the western fork makes it to the southern tip of the pond while the eastern fork makes it only halfway down. There is an informal boat launch on the eastern side sufficient to launch a small to medium sized trailered boat. Removing the boat may be challenging due to poor traction in the sandy substrate of the shoreline.
- There is adequate access and parking to consider both winter and spring stocking programs if the gate were open.

Data	WHP	YLP	BLC	LMB	SMB
Average of Length (n)	346/13.6 (15)	303/11.9 (15)	340/13.4 (10)	264/10.4 (4)	285/11.2 (2)
Average of Weight	659/1.5	378/0.8	581/1.3	249/0.6	308/0.7

Conclusions:

- Crooker Pond is an aesthetically pleasing water with lots of potential for public access, recreation, and fishing opportunities.
- Summer water quality is insufficient to provide habitat for trout, precluding summer holdover necessary for a multi-year class fishery.
- Crooker Pond could be suitable for a put-and-take fall yearling/advanced fall fingerling BKT ice fishing program if access could be arranged with the town.
- The above average size of the perch and black crappie in the pond would be attractive to pan fish anglers at least initially. Size quality may change over time.

Recommendations:

- The pond offers a great opportunity for outdoor recreation and fishing in a Town with limited inland water resources. Explore access and ordinance issues with the Town.
- Further consider stocking program if above issues are resolved.

Prepared by: Brian Lewis

SMB Smallmouth bass
LMB Largemouth bass
YLP Yellow perch
WHP White perch
BLC Black crappie
PKS Pumpkinseed sunfish
BKT Brook trout
EEL American eel
YOY Young of year
Abbreviation key: Ed Friedman, Friends of Merrymeeting Bay

Tom Farrell

From: Nathaniel Shed
Sent: Thursday, January 30, 2025 10:22 AM
To: Tom Farrell; Dave Watson; Dave Watson; sherry.f.mason@gmail.com; Emily Baisden; ebeniam@gmail.com; thestins93@gmail.com; Helene Harrower; Emilie Schmidt; Adam Caron
Cc: Julia Henze; Sande Updegraph
Subject: RE: Fitz Park
Attachments: West Brunswick Park and Recreation Area Feb 2025.docx

Please the attached memo on my thoughts on the park plans and the expenses connected to its development. Best, Nat.

West Brunswick Park and Recreation Area

Thoughts on the draft recommendations from the Wright-Pierce report dated January 2025

Because I have not been able to attend several of our meetings and I am not able to attend on February 6, 2015, I am sharing my ideas in writing with the public, the committee, consultants, and the town staff.

Overall, I am very pleased with the draft recommendations from Wright-Pierce based on all the ideas and input from the public, the many experts who shared their thoughts and members of the Captain Fitzgerald and Former Maine Gravel Services Committee. I have reviewed the written reports, committee minutes, and the videos of meetings & public forums.

The breakdown of this plan into five phases makes good sense as to the practical steps and in meeting the priorities of the committee. My suggestions are a mix of looking at ways that we can lower the overall cost of this new park and recreation area, and to a lesser degree my personal perspective on how I see this properly being developed over time.

Phase 1 – Roads, Pathways, Parking and Restrooms

I am very concerned about having three entrances. I would like to see the play area at 418 Old Bath Road moved to an area near the Sturgeon Lane entrance. This location could have a single unisex vaulted toilet and a parking lot. The 418 Old Bath Road entrance and road construction could be put on hold until we can start Phase V. A fishing / boating dock could be temporarily placed on the west shore of the lake. My reason for limiting access to the northern section of the property is to save money and is so that we can collect day use fees for parking on the north side / swimming area of this park.

I would also recommend that the section from the end of Sturgeon Lane (where the pavement ends) to the swimming area remain a gravel road, and that the parking lot be gravel.

Phase 2 – Low priority

I can see moving forward on Phase 2 at a later date and only if state or federal funds are available to cover the majority of the costs.

Phase 3 – Fitzgerald Recreation area – Road, Parking and Bike path

I would like to see diagonal parking along the south side of Lindbergh Landing Road (near the field and before the current gate). The current road beyond the gate should be a gravel road the rest of the way into the blueberry sand plain. I support the construction of a bike path in this area, but the construction on this should be postponed until the A to K trail along Route 1 is a reality. Any construction costs for the Brunswick Area Modelers should be taken out of Phase 3. The nature trail that starts at the swimming area and goes along the east side of the lake could be a very simple trail (like the Town Common trails) with a very limited aggregate base, no stone dust surface, with the needed boardwalks and bridges.

Phase 4 – Swimming Area, Changing – Bathroom etc.

The construction of a safe swimming area with changing rooms / restrooms and a parking lot is a top priority. The play area is important, but I feel it would need to be paid for with grants, or state / federal funding. The educational pavilion would need to be built from funds from non-profit organizations / state / federal government.

Phase 5 – A road, playing fields, restrooms and parking on the north side of lake, would be contingent on funding from state and/or federal funds and would most likely happen after Phases 1 to 4 are completed.

Most of these suggestions aim to bring the overall cost estimate of $12,433,000 down to a more pragmatic amount of between $7,800,000 and $9,100,000. I am making these cost-saving suggestions from my perspective as chair of the Finance Committee for the Town Council. The Finance Committee role is to look ahead and estimate the Town of Brunswick's annual budgets going forward. We keep an eye on the percentage increase in these annual budgets. We also recommend the timing and amount of future bonding (long-term loans) for large capital expenses. Some of the current capital projects that are scheduled for the next few years include a new tower fire truck, Jordan Ave – culvert & sidewalks, a public works facility, a school bus repair garage and the Town of Brunswick's share of several large highway construction projects. How and when the capital funding for this undeveloped property is going to happen is very hard to predict. Applying for and receiving large grants (and/or matching grants) will make reaching these financial goals more attainable.

We have been provided with a Cadillac plan with a 30% contingency and a 40% engineering, administration and inspection costs. I think that a 20% contingency is more realistic with !0% for project overruns and 10% to cover inflationary costs over the next few years. The design, engineering, administration and inspection expenses budgeted at 40% does not make sense for most of these projects. Gravel roads, simple trails, vault toilets and playgrounds are straightforward projects that could be done in-house. Instead of a flat percentage for these overhead expenses, a project-by-project breakdown for each service is needed. These overhead costs of $3,552.400 are the single largest part of this project. Hopefully we can live with a Subaru budget and still create a wonderful park that will meet both passive and active recreational needs of our community.

On a personal note, I am very much interested in having signs and kiosks installed that tell the stories of Indigenous peoples who lived on this land and relied on the Androscoggin River (Pejebscook) and Merrymeeting Bay (Chisapeak).

We have not talked much about a future name for this property. I like "Sandplain Park".

Take care,

Nat Shed

District 6 – Brunswick Town Council

Tom Farrell

From: Sande Updegraph
Sent: Thursday, January 30, 2025 11:08 AM
To: Tom Farrell
Subject: Capt Fitzgerald

Follow Up Flag: Follow up
Flag Status: Flagged

Director Farrell,

I have received only one communication from a constituent on the proposed plan. I am a bit surprised although maybe not because District 4 is on the far other side of Brunswick. That comment was to not do anything! This is not because of cost but because she wants to "keep the property pristine and untouched".

I told her that I would send her thoughts to you.

Thank you for all that you do.

Sande

Sande Updegraph
Brunswick Town Council, District 4, Council Chair
207-838-9439
supdegraph@brunswickme.org

Tom Farrell

From: Jane Arbuckle <jarbuckle22@gmail.com>
Sent: Thursday, January 30, 2025 11:47 AM
To: Tom Farrell
Subject: Draft Plan for Maine Gravel and Capt Fitzgerald Land Parcels

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Tom -- I attended part of the public meeting a couple of weeks ago where you and others presented the draft management plan for this property. And I recently read the draft plan. Based on those fairly minimal connections with the property, I'm offering some basic comments on the Plan.

This plan seems aimed purely at developing this property for recreational use. Given that the first Goal is to "protect and preserve the existing ecosystem and habitats located on the site", The Plan appears to overdevelop the land, trying to bring recreational opportunities to all portions of the property, without taking into account the huge impact of those activities on wildlife. There has been an abundance of research that shows that human recreational presence, on trails and off, negatively affects wildlife populations. Locating trails all over the critical habitat and around (and in some cases, through) all of the wetlands, will push out any wildlife that now inhabits them. They need large areas of no disturbance, including undisturbed and unfragmented travel routes to get to and from the wetlands, not just the wet areas themselves. Ground nesting birds will abandon their nesting grounds if they are repeatedly disturbed by passers by. The wide accessible trail around the pond is nice for humans, but it will cut off access for many species of wildlife that may currently depend on the pond. As a result, I suggest the following.

1. Reduce the quantity of trails -- have large areas where there are no trails at all, especially through the middle of the sand plain grassland and around the wetlands.
2. Create the wide, accessible trail on a much smaller portion of the property --- do not ring the pond with it.
3. Eliminate the swimming component of this plan -- it will mean too much artificial manipulation of the land, building of infrastructure, and require too much maintenance and cost.
4. Creating soccer fields here may have been in some plan over a decade ago, but it is inconsistent with this land, and with its location. I would urge the committee to acknowledge that (this was actually done by Committee members at the meeting), and to inform the Council of that, rather than saying that "they'll never be built", or "I'll vote against that when it comes up in the future". Just take it out of the plan and say that a more suitable location should be found.
5. Develop an annual cost budget now, rather than waiting. That cost is a very real one and will impact taxpayers -- we all should know up front what we're in for before there are any decisions made re moving forward.

Thanks for the opportunity to comment. I'm hoping to get out there in the next couple of days. If I do, I may send you another note!

Best,

Tom Farrell

From: Stinson <thestins93@gmail.com>
Sent: Friday, January 31, 2025 1:00 PM
To: Tom Farrell
Subject: Fwd: Gravel

Follow Up Flag: Follow up
Flag Status: Flagged

Tom - I'm passing along Sandy Stott's thoughts on the Fitzgerald/Gravel Services plans.

Thanks! Kurt Stinson

---------- Forwarded message ---------
From: **Sandy Stott** <fsandystott@gmail.com>
Date: Fri, Jan 31, 2025 at 9:23 AM
Subject: Gravel
To: kurt stinson <thestins93@gmail.com>, Helene Harrower <helene.harrower@paulsmarina.com>

Good morning, Kurt and Helene,

Nearly, nearing February, and I hope your years have begun well. I know that today is the due date for comment on the draft plan for Gravel and Fitz, and I figure I can send a short one to you; you can then pass on whatever seems relevant.

I'm most pleased by the plan's leaving the Fitz's 66 acres mostly intact, siting the playing fields and most parking "across the pond." As far as habitat is concerned, those 66 acres seem the richest, even as there's more investigation of the other 160 acres to be done. Also, it puts much of the "recreation" where disturbance is already significant. And learning that the pond's waters are not spring-fed and have uniform temps was an eye-opener -- different waters, it seems.

My other sense is that the plan leads with an appeal to eco-values, but if its recreation vision comes into being, the sheer numbers of people will make keeping habitat and disturbance of such things as nesting impossible. Again, this is part of what pleases me about the role the Fitz seems slated for, even as I would wish for no bike path/s in that sector (see disturbance/s).

I would, if charged with writing, be more upfront about the recreation uses, saying that they are primary and that introducing people to this land and water is an environmental goal. To say that the primary goal is maintaining and/or enhancing the current, largely unpeopled state pits rec vs conservation over the coming years, and that doesn't make friends/advocates out of those who are hoping to provide outdoor recreation for this sector of town.

My 2 cents worth. Happy to explain further. There sure is a lot of work in this plan. Thanks for your parts in it.

Tom Farrell

From: Mariah Chase <mchase2434@yahoo.com>
Sent: Friday, January 31, 2025 3:11 PM
To: Tom Farrell
Subject: Captain Fitzgeral Plans

Follow Up Flag: Follow up
Flag Status: Flagged

Hello, my name is Mariah and I am writing this letter out of concern for the future of Captain Fitzgerald Recreation and Conservation area and the surrounding environment. I have lived in Brunswick with my two little ones for a few years now while going back to school for Environmental Sciences, and hope to be long-term residents. Over the past year or so, my kids (5 and 11) and I have fallen in love with the Captain Fitzgerald area. I am glad to hear that so many people are interested in the outdoor area, that the committee will be removing fragmented bullet and the old buildings that are both dangerous to people and the ecosystem, and that there will be more surveying in the future to see what the habitat contains.

That being said, I am very worried about the "need" to remove native beavers for swimming. Studies show that beavers have positive effects on environment,especially wetland areas. They are a wonderful example of our natural wildlife and their life cycles, as they won't be living at the pond forever, but would be awesome for kids (and adults) to watch when they are. We also live near the ocean and several other swimming places. The chemicals needed to restore the pond is not a good idea either, and the problematic plumbing and infrastructure to facilitate the swimming activities would not be a problem anymore if the swimming was taken from the final plan. Furthermore, removing the sand pile will be a huge and costly undertaking and in my opinion, unnecessary. Have you ever traversed the sand dune? It's a FANTASTIC view and already regrowing, filling in with grasses, bushes, and even some trees. You can see the deer are walking up and down to forage as well.

I understand the need for some more parking and infrastructure for people to access the site, but the plan to clear cut trees for two fields and a parking lot makes me uneasy to say the least. Brunswick is losing so many trees to impermeable surfaces which is awful for the soil, plants, animals, and people. This action also fragments the forest further than we have thus far.

We already have/ just got new outdoor spaces with pavement and fields/courses on the Landing and other places. I truly feels its unnecessary to have every outdoor space be a monoculture of pavement amusement parks and anthropomorphic perspectives guiding the plans. It's almost perfect as is, minus the current human contamination.

How much green space and wildlife was lost just last year to construction not only in Brunswick as a whole, but just in Cooks Corner alone. The landing area is destroyed for years by PFA's (and other environmental disasters?) Every outdoor space in Brunswick is slowly becoming less outdoor. It's becoming more rare to see a dense area of trees in this town while the town has already acknowledged the need for decisions to be made around are changing climate, not our entertainment. Let's have this one space of Captain Fitzgerald Park as natural as possible and TRULY enjoy the outdoors for what it is, not what we can make of it, please. The indigenous people set a beautiful example and future generations will thank you.

Thank you for you time!
Mariah Chase

Tom Farrell

From: Bruce Kantner <bruce@tellink.net>
Sent: Friday, January 31, 2025 4:01 PM
To: Tom Farrell
Subject: Capt. Fitzgerald... Committee feedback

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Capt Fitzgerald Committee,

I'm writing quickly before 4:00PM this Friday to give comments on your plan. I'll write more this evening and hope you'll accept them. Your website says submit by "end of day."

I attended your 1/11/25 workshop and appreciate your excellent presentation and reception of public comments. Overall I agree with several citizens who said the project seems like "overkill" and doesn't fully address concerns about protecting the aquifer below the pond, limiting clearing of the forest for new playfields, overdeveloping with paved roads/trails and recreational facilities, and improving the Old Bath Rd (not in your committee purview).

That's my summary. I understand how much hard work and genuine soliciting of public input you all did. I have some questions about the accuracy and completeness of your consultants work. I found their lead presenter on the 11th a bit hard to understand (voice) and wished it had been a better presentation. I plan to attend next week's meeting.

Sincerely and with thanks,

Bruce Kantner

Tom Farrell

From: Gifford Jamison <gfjamison@hotmail.com>
Sent: Friday, January 31, 2025 9:04 PM
To: Tom Farrell
Subject: Former Maine Gravel & Captain Fitzgerald Master Plan

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Tom,

I hope all is well. We are writing to express our opposition to the plan as presented on the website and described in the January 11th public meeting we attended. Simply put, there is just too much being packed into the parcels. We are concerned that over time, perhaps even a short amount of time, what is cherished by many local residents as well as walkers, bird watchers, and others from the region, the sandplain grass land, will be highly impacted. We feel the ball fields, associated parking area, swimming and play area, the off-leash dog area, and the un-necessarily wide paths through the preserve will exert too much pressure on the wide variety of vegetation, birds, and animals that currently thrive in the area. We are grateful that the Town chose to acquire the grass land parcel and up to this point has kept in a natural state. A modified plan that could include bringing the original parking lot closer to the Captain Fitgerald Conservation area, a bike path, and slightly wider trails could potentially be improvements that could make the area more accessible but have far less potential to encroach on the natural habitat.

We thank the committee for all the work that has gone into the plan thus far and appreciate the opportunity for public input.

Warm Regards,

Giff Jamison
Cathy Jamison
184 Old Bath Rd,
Brunswick

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

Don't need dog park
Minimal amount of trees cut
Oppose the amount of space for parking - ball fields.
I'm concerned with the scope of the project and how it effects the natural resources.

+ farrell

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

I and several of my friends often walk the entire area the sand dunes as well as the trails on the barrens. We don't want to lose this beautiful, tranquil spot where we bring our dogs and enjoy nature. One of your signs says that the area is a "rare natural community with high ecological value in Maine and certainly one of the highest value habitat types in Brunswick." Having been blessed with this jewel, it is our/your responsibility to protect it, not develop it. Thank you!

Please keep it the way it is !! Thank You!!

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

Don't need dog park
Minimal amount of trees cut.
Oppose the amount of space for parking - ball fields.
I'm concerned with the scope of the project and how it effects the natural resources.

t farrell

Comment Card

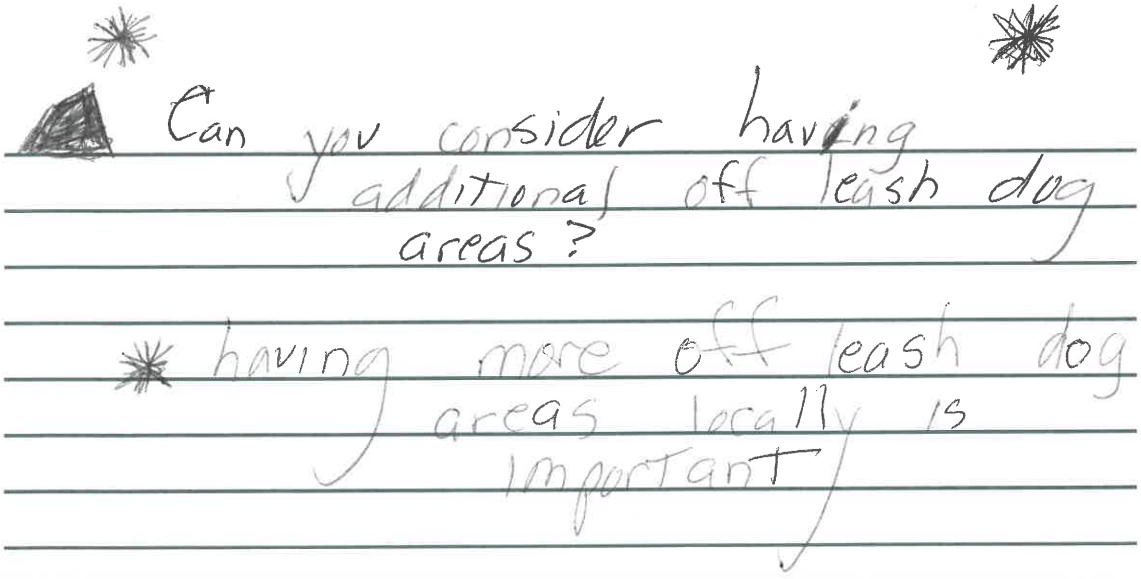
What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

I and several of my friends often walk the entire area the sand dunes as well as the trails on the barrens. We don't want to lose this beautiful tranquil spot where we bring our dogs and enjoy nature. One of your signs says that the area is a "rare natural community with high ecological value in Maine and certainly one of the highest value habitat types in Brunswick." Having been blessed with this jewel, it is our/your responsibility to protect it, not develop it. Thank you!

Please keep it the way it is !! Thank You !!

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?



Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

A more modest improvement makes more sense.
- improve hiking trails
- add parking
- add playground
- add off leash dog area
- have biking trail

no swimming

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

Overall, I like the proposed plans.
The dog park does seem extraneous.
I would suggest considering safety as a primary concern for any "water" activities – will lifeguards be present? If not, how would Emergency Responders be summoned, besides personal cell phones?

Denise Shannon

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

Will pond be maintained for ice skating?
Will life guards be present? When?
~~to~~ With concerns around the aquafir is there potential to bring public water to those of us that use the aquafir as our water source?

Comment Card

Pervious pavers - great!

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

Please don't cut trees for ballfields !!
This cutting of canopy is causing climate change

Hunting not needed or welcom by
80% + of the popula to THANK You
for no firearms. Bow/arrow is the most
cruel (50% miss lethal rate) & We don't
need that either !

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

Aquafor must be protected and to do so, I believe a complete study should be funded before anything moves forward.

Thank you. Becky Petryk

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

There should be no hunting on the site (BOTH!) KIDS, dogs + WALKERS ARE NOT! a good mix with hunting. Trying to keep one activity contained on one parcel would be impossible. Would you WANT to have someone chase down a wounded animal onto a playGROUND?

Thank you.

Jim Petryk

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

Please use pervious surfaces for parking lots.

Name the pond "Farrell Pond"

Please consider using alternative sites for the playing fields - store the carbon.
I appreciate the further explanations by the town.
OVER → :)

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

Very thoughtful comments - well stated and civil. I applaud the plan and think it offers a framework for further discussion. I appreciated the hydrology comments + feel those need to be settled. I also thought the neighbors concerns about increased traffic were very legit. But the world changes and no one is entitled to expect the status quo forever.

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

If we do this could there be a underroad passage to the playground area

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

Thank you to everyone for the hard work of the planning of this site.

1. Will the results of the testing of the Soil & water be available to the public?
2. Please avoid cutting down Trees to build ballpark; Save the trees; build ballfield on Crooker's property.
3. Keep it low Key; less asphalt, more nature.

Tina Phillips; tinalphillips@comcast.net

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

WATER ACCESS Improvement for Handicap/Fishing should be considered for PHASE I - Much NEEDED!

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

Model Airplane use is incompatible w/ The Rare Natural community Protection as Prioritized by The Comp Plan and Zoning Ordinance. Forested Areas are Part of The Town's Prioritized forest Blocks as Protected Through overlay Zone. Avoid and minimize Forest Clearing Here. The 80 car (Sturgeon Lake) Parking Lot Should be Moved so Completely out of The Rare Sandplain and Pitch Pine Stands.
Dog Park UNNECESSARY! People can Go to BikePath!

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

Rename - Lindbergh Preserve.
did not read cost except #5.
More work on water.

Millie Stewart

Comment Card to Tom Ferrel

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

"Great Pond" Please check the legal restrictions of this term.
Concerned citizen.
P.S. My title of the property would be "Sand Mountain."

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

I think the committee has done a thoughtful and moving job with this project. I am sorry to hear from multi-generational Brunswick residents with a "not in my backyard" outlook. With the proper surveys & testing, I firmly believe this will benefit many future generations of Brunswick residents.

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

I would like bike trails.

1. Will bike trails connect Bath and Brunswick along Rt 1 and Old Bath Road and Fitzgerald. I would like that. ~~Start~~ Roads are too busy now in East Brunswick. I live in East Brunswick and would like to bike.

2. Please keep water quality & trees. & environment.

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

improve trails + parking off Lindbergh Drive

minimize development

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

NO BALL FIELD

Bow Hunting - CROSS Bow over 65 yeardd

KEEP IN Wild

NO TREE CUTING

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

No dog park!!!
Avoid cutting trees as much as possible.
Protect the forest. Wildlife needs them
NO ball fields - put them on the former base.
Protect the aquifer - it's precious
Bow hunting including cross bow
The neighborhood road does not need more traffic

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

Keep it as natural as possible
No need for a dog area nor ballFields
No airplanes
Call it "Crocker's Pit" that's what it's been called for decades.
My taxes are high enough!

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

There is an ecologicaly valuable anadromous fish run, Alewife, that should be nurtured. SO, We could add a representative of the RCWC. Thank you.

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

Freaking Awesome! Thank you for all this hard work. You have come up w/ something for everyone.
Couple thoughts: It will be so important to have dog owners pick up poop since it will wash into water.
Can you find a way w/ the Bike/Ped committee to get bike/ped access to the bikepath that doesn't require driving or biking the cook's corner area. The IDEAL solution would be an overpass from the path at the top of the runways. And (I dream big :) widen Old Bath Rd - or a removed bike lane

Comment Card

What would you like the Committee to know before finalizing the Plan for submission to the Town Council?

GREAT JOB

The Dog Park area should be left alone- I don't think you can count on people to pick up after their pets and that area looks like any feces would pollute the surrounding water.

Find another place for it or publicize the other one on the Andros.

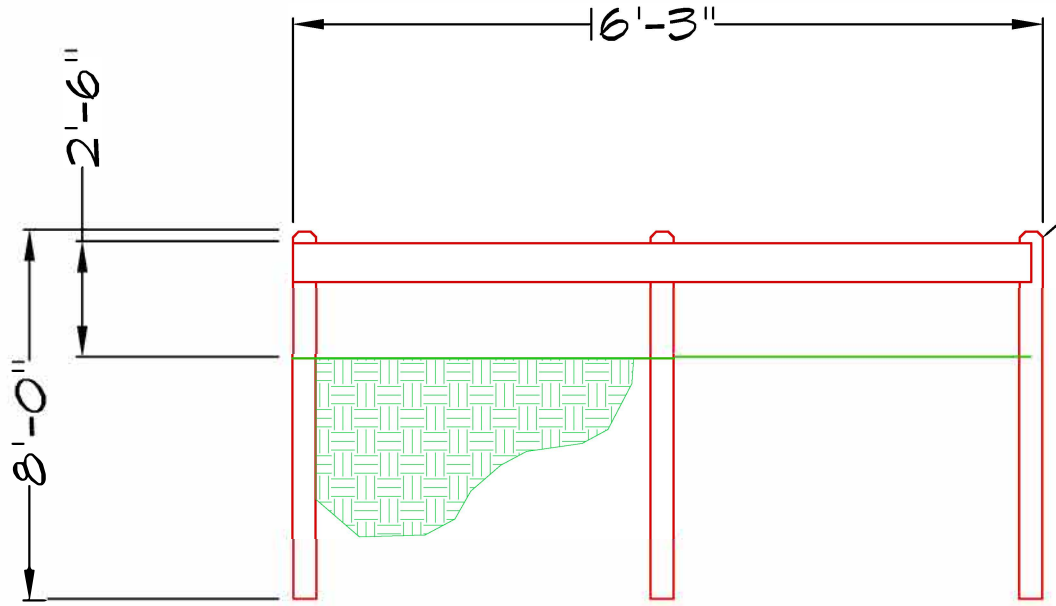
If you are depending on funding from the infrastructure bill, then we need to get Angus & especially Susan on board immediately to key that legislation. I fear the incoming administration will kibosh the funds for grants.

I think your plan will be a major highlight of Brunswick & I'm especially happy to see East Brunswick get some attention (I live in East B'wick & feel it is often ~~&~~ ignored / dumped on)

The name can be "East Brunswick is so much more than Cook's Corner" :)

Mary Fox
841-4749

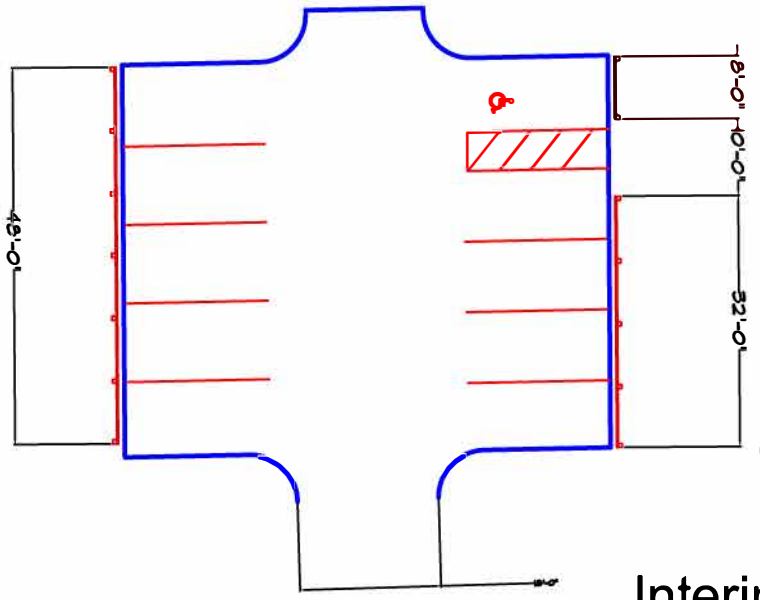
Appendix H
Parks & Recreation Typical Parking Lot Details



1" Chamfer on all 4 sides

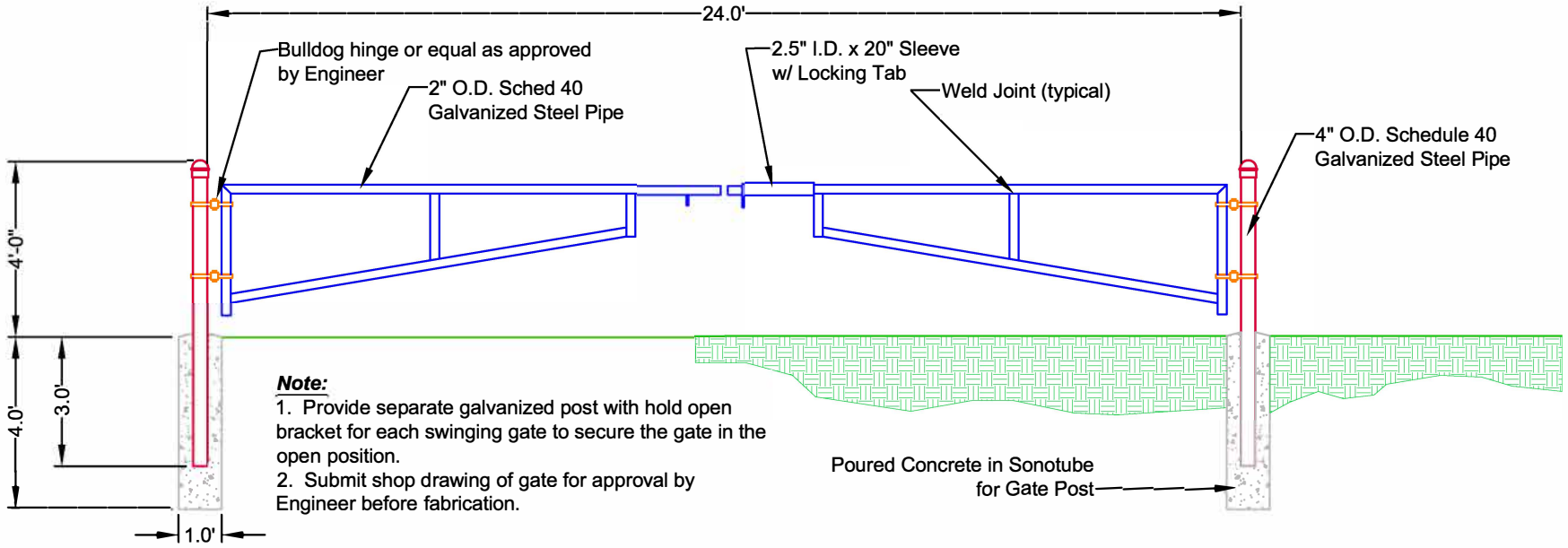
Materials:
14 ea. 6" x 6" x 8 ft PT Posts
5 ea. 2" x 10" x 16 ft PT Rails
1 ea. 2" x 10" x 8 ft PT Rail
34 ea. 8" x 1/2" Galvanized Carriage bolts w/washer & nut

Fence Detail



Scale: 1" = 20 feet
Print Date: 4/29/2025

Town of Brunswick
Sturgeon Lane
Interim Trail Head Parking Area



Proposed Pipe Gate

Town of Brunswick

Sturgeon Lane Trail Head Parking Area

Scale: 1" = 60 feet
Print Date: 4/29/25

WRIGHT-PIERCE
Engineering a Better Environment

11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
207.725.8721 | wright-pierce.com