G Wetland Functional Assessment

Wetland Functional Assessment Report

A Technical Report in Support of the Environmental Impact Statement for the Disposal and Reuse of Naval Air Station Brunswick Brunswick, Maine

June 2009

Prepared for:

U.S. DEPARTMENT OF NAVY
BRAC Project Management Office, Northeast
Philadelphia, Pennsylvania

Table of Contents

Section		Page
1	**Introduction**	**1-1**
2	**Site Description**	**2-1**
3	**Methodology**	**3-1**
3.1	Review of Previous Wetland Surveys	3-1
3.2	Field Methodology	3-2
4	**Wetlands Types**	**4-1**
4.1	Spruce-Fir-Cinnamon Fern Forest	4-1
4.2	Red Maple-Sensitive Fern Swamp	4-2
4.3	Mixed Graminoid-Shrub Marsh	4-2
4.4	Freshwater Tidal Marsh	4-2
4.5	Brackish Tidal Marsh	4-3
4.6	Spartina Salt Marsh	4-3
4.7	Subtidal Estuary	4-3
5	**Wetland Functions and Values**	**5-1**
5.1	Functions and Values Assessed	5-1
5.1.1	Functions	5-1
5.1.2	Values	5-2
5.2	Cluster 1	5-3
5.3	Cluster 2	5-3
5.4	Cluster 3	5-3
5.5	Cluster 4	5-4
5.6	Cluster 5	5-4
5.7	Cluster 6	5-4
5.8	Cluster 7	5-5
5.9	Cluster 8	5-5
5.10	Cluster 9	5-6
5.11	Cluster 10	5-6
5.12	Cluster 11	5-7
5.13	Cluster 12	5-7
5.14	Cluster 13	5-7
5.15	Cluster 14	5-8
5.16	Cluster 15	5-8

Table of Contents (cont.)

Section Page

6 Conclusions and Summary 6-1

7 References 7-1

Attachments

1 Photographs of the Wetlands for Functional Assessment ATT1-1

2 Wetland Functional Assessment Datasheets ATT2-1

3 Wetland Clusters ATT3-1

List of Tables

Table **Page**

3-1 Wetlands Summary, NAS Brunswick 3-3

5-1 Wetland Functions and Values 5-3

List of Figures

Figure		Page
2-1	NAS Brunswick and Outlying Properties, Brunswick, Maine	2-3
2-2	Ecological Communities, NAS Brunswick, Brunswick, Maine	2-5
3-1	Wetlands of NAS Brunswick, Brunswick, Maine	3-15

List of Abbreviations and Acronyms

AMSL	above mean sea level
E & E	Ecology and Environment, Inc.
EIS	Environmental Impact Statement
FHWA	Federal Highway
GPS	Global Positioning System
NAS	Naval Air Station
USACE	U.S. Army Corps of Engineers

1 Introduction

This report has been prepared to support the Environmental Impact Statement (EIS) for the disposal and reuse of Naval Air Station (NAS) Brunswick in Brunswick, Maine. The Navy contracted with Ecology and Environment, Inc. (E & E) to conduct a functional assessment of the wetlands at NAS Brunswick and its outlying properties in the spring of 2009. The United States Army Corps of Engineers (USACE) recommends the use of the Federal Highway Methodology (FHWA method) as a descriptive approach to evaluating wetland functions and values for the Clean Water Act Section 404 Permit Program (USACE 1993). This approach incorporates a qualitative description of the wetland and the identification of wetland functions and values in order to come to conclusions based on wetland science and "best professional judgment."

The following report provides a brief overview of NAS Brunswick and the outlying properties (Section 2). Section 3 describes the methods used to evaluate the functions and values of the wetlands found at NAS Brunswick. Section 4 describes the locations of wetlands assessed on NAS Brunswick and its outlying properties during a reconnaissance field visit and includes a discussion of the wetland types found on the property. Section 5 describes the functions and values of the wetlands assessed on the property during the reconnaissance field visit.

2 Site Description

NAS Brunswick is located on approximately 3,117 acres in the town of Brunswick, Cumberland County, Maine (see Figure 2-1). NAS Brunswick lies between the Androscoggin River and U.S. Route 1, with Maine Route 24 to the north and Casco Bay to the south. Three outlying properties (the McKeen Street Housing Annex, East Brunswick Radio Transmitter Site, and Sabino Hill Rake Station) that are being reviewed in the EIS were initially included as part of this study; however, these properties do not support wetland habitat. The East Brunswick Radio Transmitter Site and Sabino Hill Rake Station are characterized entirely as upland communities and do not contain wetland habitat. The McKeen Street Housing Annex does support the headwaters of Mere Brook on the southern end of the property; however, no wetland habitat was identified during the site survey conducted by E & E biologists in April 2009. Therefore, these three properties are not discussed further in this report.

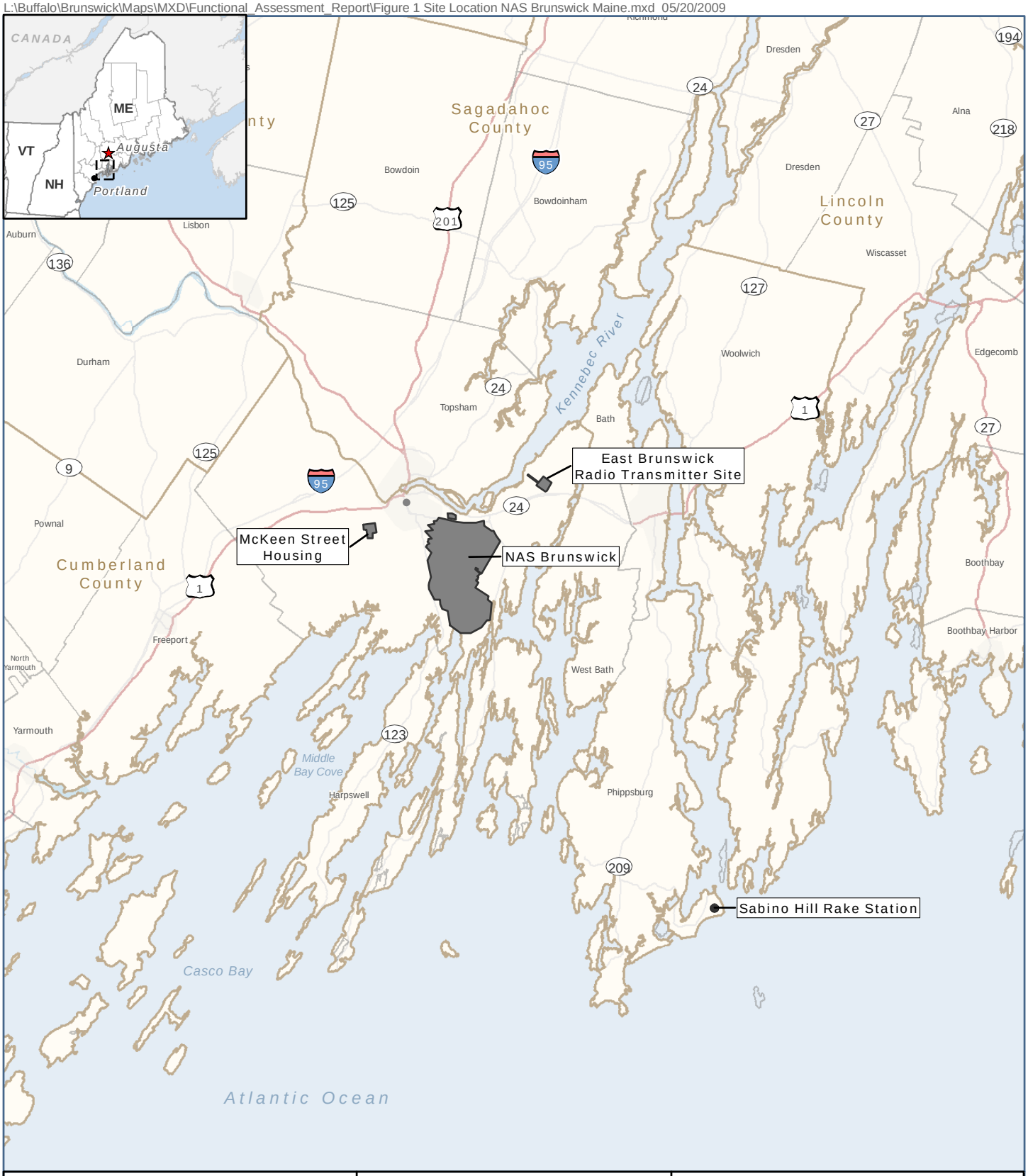
NAS Brunswick is located within the Central Maine Coastal and Interior Ecoregion. This area is comprised of glacially scoured and dissected peneplain, which slopes toward the coast and exhibits glacial features such as kames, eskers, and terraces. The topography is relatively flat to gently rolling, with elevations ranging from sea level to 1,000 feet above mean sea level (AMSL). Forests are the dominant vegetation type and consist of northern hardwood, northern hardwood-spruce, northern coastal spruce-fir, and spruce-fir-northern hardwood communities. Coastal pitch pine communities are known to occur in this ecoregion but are now uncommon. Open communities such as grasslands and tidal marshes also occur, but they do not comprise a large percentage of the overall land cover of this ecoregion (McNab and Avers 1994).

The land surrounding NAS Brunswick is predominately residential with areas of undeveloped forests and wetlands. Upland forests are the dominant vegetation community on the installation, covering approximately 1,336 acres (41%) of the total land area (E & E 2008). Large forested communities are located on the western, southern, and eastern portions of the base. These forested communities are interspersed with wetlands, ponds, and streams. Other vegetation communities at NAS Brunswick include a variety of grasslands, wetlands, and maintained lands. Developed areas occupy the central and north-central portions of the installation. Much of the eastern and western portions of the installation are forested and interspersed with wetlands, streams, and ponds. The southern and sou-

theastern portions of the base are characterized by forest and tidal wetlands associated with Harpswell Cove and Buttermilk Cove. The ecological communities mapped at NAS Brunswick are depicted on Figure 2-2.

NAS Brunswick is located within four watersheds: the Mere Brook/Harpswell Cove watershed, Buttermilk Cove watershed, Middle Bay watershed, and the Androscoggin River watershed. The installation is located within 0.5 mile of the Androscoggin River and Casco Bay. The installation is bisected by Mere Brook, which eventually drains into Harpswell Cove. Numerous streams, wetlands, and permanent freshwater ponds are scattered throughout the installation. Approximately 389 acres of wetlands are present on NAS Brunswick, of which 72% are freshwater and 28% are tidal (E & E 2008). A more detailed discussion of wetland types at NAS Brunswick is provided in Section 4 of this report.

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Figure 1 Site Location NAS Brunswick Maine.mxd 05/20/2009



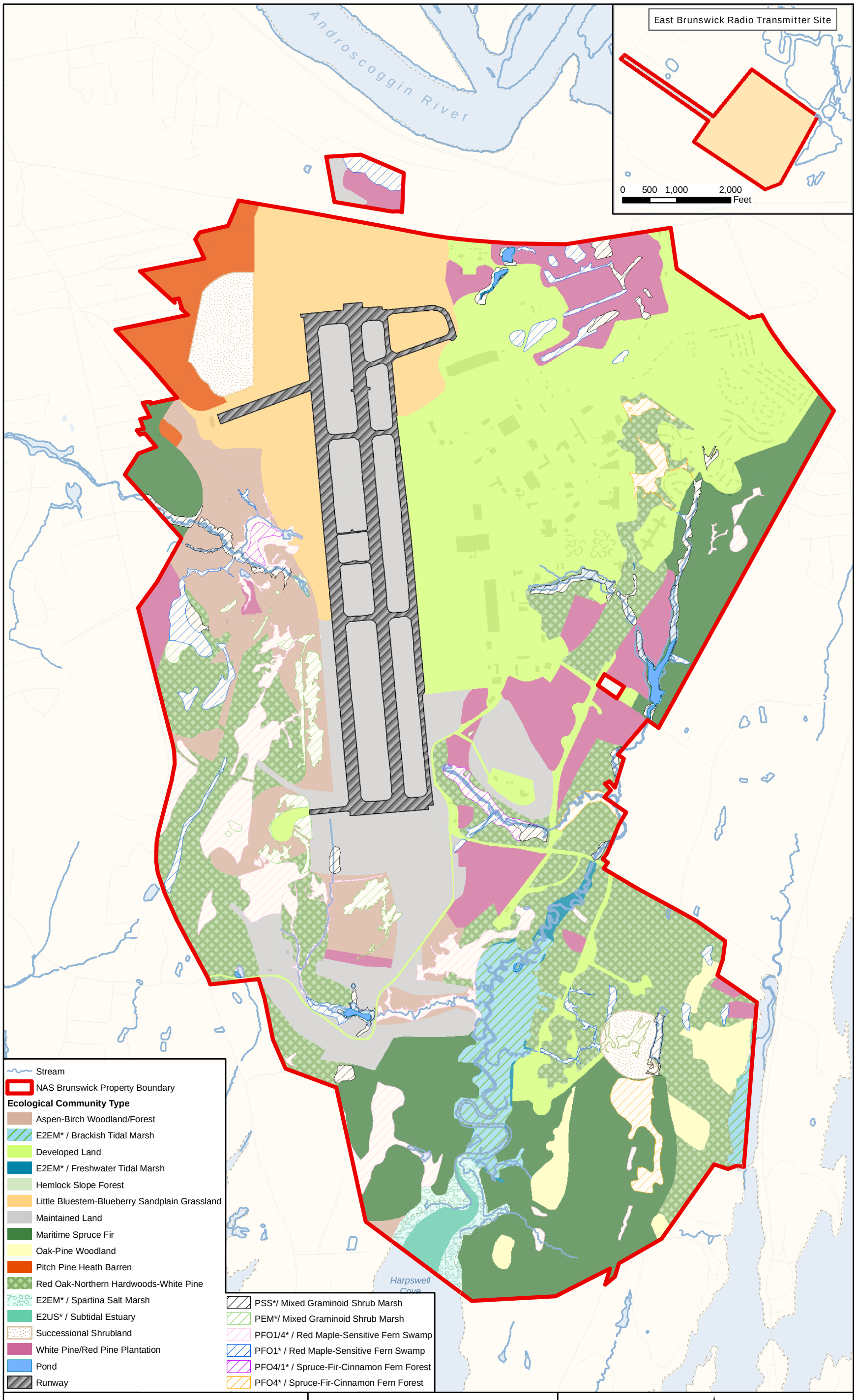
NAS Brunswick
Municipal Boundary
County Boundary

Figure 2-1
NAS Brunswick and
Outlying Properties
Brunswick, Maine

N

0 1 2 4 6 8
Miles

© Ecology & Environment, Inc. GIS Department Project #
\L:\Buffalo\Brunswick\Maps\MXD\DEIS\Draft\May20_2009\Environmental_Resources\Figure 3-1 Ecological Community Map.mxd



Notes: Ecological Communities based on the Natural Landscapes of Maine (Gawler and Cutko 2004).

**Wetland Classification based on Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al 1979).*

Figure 2-2
Ecological Communities
NAS Brunswick
Brunswick, Maine

3 Methodology

Field surveys of the wetlands at NAS Brunswick were conducted by E & E wetland biologists in May 2009. The objective of the field surveys was to conduct an assessment of the functions and values of wetlands previously identified on the base.

3.1 Review of Previous Wetland Surveys

Prior to conducting the field surveys, existing NAS Brunswick studies, plans, and environmental documents were reviewed to obtain information on wetlands at NAS Brunswick.

The Navy conducted a wetland inventory of NAS Brunswick in 1998 for planning-level purposes (Normandeu Associates 1998). The inventory was produced through aerial photo-interpretation and review of existing soils and wetlands data. Brief on-site reconnaissance was conducted to confirm the approximate locations of wetland boundaries. Wetland communities were described according to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). The Cowardin wetland community classification system is used widely throughout the United States for the purpose of inventory, evaluation, and management of wetlands. Under this system, wetlands are classified based on hydrology, soils, and plant communities. The inventory resulted in the mapping of approximately 443 acres of wetlands at NAS Brunswick. Of the 443 acres, approximately 116 acres of estuarine wetland were mapped, most of which are located around Harpswell Cove and Buttermilk Cove. The remaining 327 acres of wetland were classified as palustrine or freshwater wetlands. Under the Cowardin (1979) classification, the palustrine wetlands present at NAS Brunswick are emergent (PEM), scrub-shrub (PSS) and forested (PFO). Freshwater ponds are also included and are classified as PUB.

In addition to the planning-level wetland survey, maps of formally delineated wetland were also reviewed. Formal wetland delineation surveys were conducted at NAS Brunswick in the recent past using the *Corps of Engineers Wetland Delineation Manual* (1987). These field wetland surveys were conducted in support of planning and permitting for a variety of projects; however, formal wetland delineations have not been completed for the entire NAS Brunswick property or its outlying properties. Based on review of wetland delineation reports and associ-

ated mapping, approximately 80 acres of wetlands have been delineated at NAS Brunswick.

In 2008, E & E biologists conducted a reconnaissance survey of wetlands at NAS Brunswick and the outlying properties (E & E 2008). The objective of the survey was to field-verify the location of wetlands identified in the planning-level survey and the previously delineated wetland boundaries. As a result, E & E biologists confirmed the presence of approximately 389 acres of wetlands at NAS Brunswick (see Figure 3-1).

3.2 Field Methodology

Using the methodology outlined in the *Highway Methodology Workbook Supplement* (USACE 1999) and the Modified Functions and Values Assessment for Significant Nexus datasheet (USACE 2007), a functional assessment of previously identified wetlands was completed at NAS Brunswick in May 2009. These wetlands were grouped into clusters based on their geographic proximity and hydrologic connections (see Table 3-1 and Attachment 3). A walkover of each cluster was conducted to assess the function and values of each wetland community type. Previously identified wetlands were located using a Global Positioning System (GPS) unit. Each wetland location was recorded with a single GPS point, and a photograph was taken to document the existing conditions of the site (see Attachment A). For each wetland, a standardized datasheet was completed (see Attachment B), and the dominant vegetation within the wetland and upland border was recorded.

Table 3-1 Wetlands Summary, NAS Brunswick

Wetland ID	Primary Functions and Values	Wetland Community Type[1]	Hydrologic Connection	Additional Comments
Cluster 1				
FA 5	GWR, S&S	PFO	Possible hydrologic connection to Androscoggin River	Red maple (*Acer rubrum*) wetland adjacent to a stream and ponded area originating from a storm water outflow; connected to FA 6 via a culvert under Perimeter Road.
FA 6	GWR	PFO	Possible hydrologic connection to Androscoggin River	Red maple wetland adjacent to ponded area. Originating from FA 5 via culvert under Perimeter Road and connected to FA 7 via culvert before culverted under Bath Road.
FA 7	GWR/D, FFA	PFO	Possible hydrologic connection to Androscoggin River	Small, linear wetland within a forested area along an ephemeral stream; vegetation dominated by red maple. Originating from a stormwater culvert under Perimeter Rd and connected to FA 6 via culvert before culverted under Bath Road.
FA 11	S&TR, NR&R	PSS	Possible hydrologic connection to Androscoggin River	Scrub-shrub wetland formed at the convergence of two man-made ditches through a white pine (*Pinus strobus*) plantation. A ditch flows east from the wetland into a storm water culvert under Perimeter Road.
FA 13	GWR/D, FFA, S&TR, NR&R	PFO	Possible hydrologic connection to Androscoggin River	Small red maple swamp bordered by white pine plantation. Southern portion drains into a ditched area that flows east and likely into the storm water system along Fitch Avenue.
FA 15	GWD, FFA, S&TR, NR&R, PE, WLH	PEM	Possible hydrologic connection to Androscoggin River	Linear wetland within white pine plantation. Adjacent to FA 16 and FA 17; drains west into FA 17.
FA 16	GWD, FFA, S&TR, NR&R	PSS	Possible hydrologic connection to Androscoggin River	Linear wetland within white pine plantation. Drains west to FA 15 and FA 17.
FA 17	GWR, S&TR, NR&R	PFO	Possible hydrologic connection to Androscoggin River	Linear wetland within mixed forest dominated by red maple, white pine, and red oak (*Quercus rubra*). Adjacent to FA 15. Likely drains FA 15 and FA 16 into storm water system at the intersections of Sixth Avenue and Fuel Farm Road with Pegasus Avenue.
FA 18	GWR	PFO	Possible hydrologic connection to Androscoggin River	Forested wetland dominated by red maple, white pine, and red oak, with a drainage ditch running along roadside. Likely drains into storm water system along Pegasus Avenue.
FA 19	GWR	PFO	Possible hydrologic connection to Androscoggin River	Forested wetland dominated by red maple, white pine, and red oak, with a drainage ditch running along roadside. Likely drains into storm water system along Pegasus Avenue and Fuel Farm Road.

Table 3-1 Wetlands Summary, NAS Brunswick

Wetland ID	Primary Functions and Values	Wetland Community Type[1]	Hydrologic Connection	Additional Comments
FA 78	GWD, PE	PFO	Possible hydrologic connection to Androscoggin River	Seepage wetland adjacent to a well-defined perennial stream. Dominated by red maple, skunk cabbage (*Symplocarpus foetidus*), and jewelweed (*Impatiens capensis*).
Cluster 2				
FA 8	GWR, WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Isolated wet depression in mixed forested area dominated by red maple, white pine, and red oak.
FA 9	GWR, S&TR, NR&R WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Isolated wet depression in mixed forested area dominated by red maple, white pine, and red oak.
FA 10	FFA, S&TR, NR&R	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Isolated wet depression in mixed forested area dominated by red maple, white pine, and red oak.
FA 12	S&TR	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Isolated wet depression in white pine plantation bordered by white birch.
Cluster 3				
FA 14	GWR, FFA	PFO	Possible hydrologic connection to an unnamed tributary of Mere Brook	Forested wetland dominated by red maple that drains into a ditch flowing south into the storm water system at the intersection between Avenue B and First Street.
FA 25	GWR, REC, WLH	PFO	Possible hydrologic connection to an unnamed tributary of Mere Brook	Convergence of two small ephemeral streams from culverts originating off the property. Drains into FA 23.
FA 26	FFA, PE, WLH	PEM	Possible hydrologic connection to an unnamed tributary of Mere Brook	Emergent wetland bordering tributary to Mere Brook. Flows south into ponded area – FA 23. Vegetation dominated by grasses, sphagnum moss (*sphagnum* spp.), and steeplebush (*Spiraea tomentosa*).
FA 27	GWR/D, FFA, PE, WLH	PFO	Possible hydrologic connection to an unnamed tributary of Mere Brook	Forested wetland bordering a large stream (a tributary of Mere Brook) and dominated by red maple and sphagnum moss. Drains south into FA 26.

Table 3-1 Wetlands Summary, NAS Brunswick

Wetland ID	Primary Functions and Values	Wetland Community Type[1]	Hydrologic Connection	Additional Comments
FA 32	GWR, FFA, S&TR, NR&R, PE, WLH, S&S	PEM	Possible hydrologic connection to an unnamed tributary of Mere Brook	Emergent wetland surrounding a stream from a storm water detention culvert under First Street. Drains south where it is culverted under Chickadee Circle and converges with FA 36 and into FA 27.
FA 33	S&TR	PFO	Possible hydrologic connection to an unnamed tributary of Mere Brook	Small forested wetland depression between residential development and roadway. Likely drains into storm water system along First Street.
FA 34	S&TR	PFO	Possible hydrologic connection to an unnamed tributary of Mere Brook	Forested wetland dominated by red maple between residential development and roadway. Likely drains into storm water system along First Street.
FA 35	FFA, S&TR	PFO	Possible hydrologic connection to an unnamed tributary of Mere Brook	Forested wetland dominated by red maple, white pine, and red spruce (*Picea rubens*). This wetland connects to FA 36 by a small stream.
FA 36	FFA, S&TR	PEM	Possible hydrologic connection to an unnamed tributary of Mere Brook	Storm water detention pond within a residential area dominated by cattails (*Typha* spp.). Connected to FA 35 by a small stream. Culverted under Neptune Drive.
FA 37	GWD, FFA, S&TR	PEM	Possible hydrologic connection to an unnamed tributary of Mere Brook	Emergent wetland within ROW dominated by soft rush (*Juncus effusus*) and sedges (*Scirpus* spp.). Drains to the east into a forested wetland bordering a small stream – FA 38.
FA 38	Connecting tributary		Possible hydrologic connection to an unnamed tributary of Mere Brook	Small stream draining from FA 37. Dominated by red maple. Culverted under Neptune Drive, where it converges with FA 27.
Cluster 4				
FA 20	GWR	PFO	Hydrologic connection to an unnamed tributary of Mere Brook	Narrow border of forested wetland along an unnamed tributary of Mere Brook. Culverted in several places under roadways, including Neptune Drive, before converging with FA 22 and draining to FA 23.

Table 3-1 Wetlands Summary, NAS Brunswick

Wetland ID	Primary Functions and Values	Wetland Community Type[1]	Hydrologic Connection	Additional Comments
FA 21	GWR, FFA, S&TR, S&S	POW	Hydrologic connection to an unnamed tributary of Mere Brook	Ponded area with some emergent border from culvert on NW side likely from under airfield. Culverted under dirt road where it becomes FA 22.
FA 22	GWR, S&TR, REC, WLH, S&S	PEM	Hydrologic connection to an unnamed tributary of Mere Brook	Emergent marsh bordering a slow, meandering stream. Drains south into a ponded area – FA 23.
FA 23	GWR, F&SH, S&TR, REC, S&S	POW	Hydrologic connection to an unnamed tributary of Mere Brook	Open water area adjacent to FA formed by drainage from FA 22, FA 20, FA 25, and FA 26. Appears degraded – cloudy water, little emergent or submerged vegetation, posted signs indicating no fishing or swimming. Drains via culvert to FA 24.
FA 24	GWR, FFA	PSS	Hydrologic connection to an unnamed tributary of Mere Brook	Wetland bordering perennial stream originating via culvert from FA 23. Scrub-shrub wetland dominated by speckled alder (*Alnus incana*). Flows south into FA 47.
FA 47	GWR, FFA, F&SH, WLH	PEM	Hydrologic connection to an unnamed tributary of Mere Brook	Emergent wetland bordering perennial stream dominated by grasses and sensitive fern (*Onoclea sensibilis*). Stream flows south to its confluence with Mere Brook.
Cluster 5				
FA 28	GWR, WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Isolated wet depression in maritime spruce fir forest dominated by balsam fir (*Abies balsamea*), red spruce, and white pine.
FA 29	GWD	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Isolated wet depression in maritime spruce fir forest dominated by balsam fir, red spruce, and white pine.
FA 30	GWR/D, FFA, WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Isolated wet depression in maritime spruce fir forest dominated by balsam fir, red spruce, and white pine.
FA 31	GWR/D, FFA, WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Isolated wet depression in maritime spruce fir forest dominated by balsam fir, red spruce, and white pine.

Table 3-1 Wetlands Summary, NAS Brunswick

Wetland ID	Primary Functions and Values	Wetland Community Type[1]	Hydrologic Connection	Additional Comments
Cluster 6				
FA 1	FFA, NR&R, PE, WLH	E2EM	Hydrologic connection to Mere Brook	Salt marsh wetland adjacent to a small stream dominated by cordgrass (*spartina* spp).
FA 2	FFA, PE, WLH	E2EM	Hydrologic connection to Mere Brook	Salt marsh wetland adjacent to a small stream.
FA 48	PE, WLH	PEM	Hydrologic connection to Mere Brook	Emergent wetland bordering Mere Creek. Wetland contains significant vernal pool no. 32.
FA 49	PE, WLH	PSS	Hydrologic connection to Mere Brook	Scrub/shrub wetland bordering Mere Creek dominated by meadowsweet (*Spirea latifolia*), steeplebush, and a variety of emergent vegetation.
FA 60	GWD, WLH	PFO	Hydrologic connection to Mere Brook	Forested wetland dominated by red maple, balsam fir, and skunk cabbage. Drains south into brackish tidal marsh along Mere Brook.
FA 61	WLH	PFO	Hydrologic connection to Mere Brook	Forested wetland dominated by red maple, red spruce, balsam fir, cinnamon fern (*Osmunda cinnamomea*), and sphagnum. Connects with FA 60.
FA 63	GWR/D, S&TR, NR&R, PE, WLH	PFO	Hydrologic connection to Mere Brook	Forested wetland dominated by red maple bordering open water with cattails at southern end. Flows into a perennial stream bordered by FA 64.
FA 64	Connecting tributary		Hydrologic connection to Mere Brook	Small stream draining from FA 64. Culverted and draining through Weapons storage compound to Mere Brook.
FA 65	GWR, F&SH, S&TR, PE, WLH	PSS	Hydrologic connection to Mere Brook	Shrub wetland bordering an impounded area of Mere Brook. This is culverted under a road as a perennial stream.
FA 66	Tributary to Mere Brook		Hydrologic connection to Mere Brook	Small stream draining into Mere Brook.
FA 67	Tributary to Mere Brook		Hydrologic connection to Mere Brook	Small stream draining into Mere Brook.

Table 3-1 Wetlands Summary, NAS Brunswick

Wetland ID	Primary Functions and Values	Wetland Community Type[1]	Hydrologic Connection	Additional Comments
Cluster 7				
FA 3	S&TR, NR&R, WLH	PSS	No Apparent Surface Water Connection to Waters of the U.S.	Scrub/shrub swamp
FA 4	GWR, S&TR, WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Forested wetland dominated by balsam fir and spruce.
FA 40	GWR, REC, WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Southern forested portion of isolated wetland. Northern portion is FA 41. Dominated by red maple and balsam fir.
FA 41	GWR, REC, WLH, ED/S	PSS	No Apparent Surface Water Connection to Waters of the U.S.	Northern shrub swamp portion of isolated wetland. Southern portion is FA 40. Dominated by steeplebush, meadowsweet, speckled alder, soft rush, and sedges.
FA 42	GWR, WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Western forested portion of isolated wetland. Eastern portion is FA 43. Dominated by red maple, red oak, and balsam fir.
FA 43	GWR	PSS	No Apparent Surface Water Connection to Waters of the U.S.	Eastern shrub swamp portion of isolated wetland. Western portion is FA 42. Dominated by unknown shrubs, possibly speckled alder.
FA 44	WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Three north/south linear depressions hold water in this forested wetland dominated by red maple, balsam fir, and white pine.
FA 45	WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Southern forested portion of isolated wetland. Northern portion is FA 46. Dominated by red maple, balsam fir, and white pine.
FA 46	WLH	PSS	No Apparent Surface Water Connection to Waters of the U.S.	Northern shrub swamp portion of isolated wetland. Southern portion is FA 40. Dominated by meadowsweet, speckled alder, soft rush, and sedges.
FA 62	S&TR, NR&R, PE	PSS	No Apparent Surface Water Connection to Waters of the U.S.	Shrub swamp adjacent to pond on eastern side of EOD pit. Dominant species include specked alder and meadowsweet.
Cluster 8				
FA 50	F&SH, PE	E2EM	Hydrologic connection to Harpswell Cove	Emergent wetland adjacent to spartina salt marsh. Ponded water upstream drains through a culvert into the wetland before flowing into Harpswell Cove.

Table 3-1 Wetlands Summary, NAS Brunswick

Wetland ID	Primary Functions and Values	Wetland Community Type[1]	Hydrologic Connection	Additional Comments
FA 51	FFA, S&TR, N&RR, WLH	PFO	Hydrologic connection to unnamed tributary to Harpswell Cove	Forested wetland that has been bermed, impounding water, with a culverted outflow. Culvert drains into FA 50. Wetland originates from a small stream draining from FA 52.
FA 52	PE, WLH	PFO	Hydrologic connection to unnamed tributary to Harpswell Cove	Forested wetland dominated by balsam fir, red spruce and red maple. Drains into a small stream flowing into impounded area of FA 51.
Cluster 9				
FA 56	GWD, PE, REC	PFO	Hydrologic connection to unnamed tributary to Mere Brook	Forested wetland bordering perennial stream running through golf course. Groundwater seepage observed. Flows into impounded are that is culverted under roadway.
FA 57	PE, REC	PSS	Hydrologic connection to unnamed tributary to Mere Brook	Scrub/shrub wetland bordering perennial stream running through golf course. Flows into impounded area that is culverted under roadway.
FA 58	PE	PFO	Hydrologic connection to unnamed tributary to Mere Brook	Forested wetland dominated by red maple bordering perennial stream running through golf course. Flows from culvert under roadway.
FA 59	GWR, FFA, S&TR, NR&R, PE, REC, WLH	PEM	Hydrologic connection to unnamed tributary to Mere Brook	Emergent wetland bordering perennial stream flowing into Mere Brook. Wetland dominated by cattails and grasses.
FA 68	GWR/D	PEM	Hydrologic connection to unnamed tributary to Mere Brook	Emergent wetland located in grasslands in the southwest portion of the airfield. Ditched and draining south into a perennial stream.
FA 69	GWD, PE	PSS	Hydrologic connection to unnamed tributary to Mere Brook	Large shrub swamp formed in depressions within forested area. Drains into a tributary of Mere Brook.

Table 3-1 Wetlands Summary, NAS Brunswick

Wetland ID	Primary Functions and Values	Wetland Community Type[1]	Hydrologic Connection	Additional Comments
FA 70	GWR, WLH	PFO	Hydrologic connection to unnamed tributary to Mere Brook	Large forested wetland formed in depressions within forested area.
FA 71	GWR, WLG	PFO	Hydrologic connection to unnamed tributary to Mere Brook	Forested wetland adjacent to a small seasonal stream. Wetland dominated by red maple, skunk cabbage, cinnamon fern.
FA 76	S&TR, NR&R	PEM	Possible hydrologic connection to unnamed tributary to Mere Brook	Emergent wetland at the northern extent of the golf course driving range. Appears to connect to an ephemeral stream course across the dirt road to the east of the driving range.
FA 77	S&TR, PE, WLH, S&S	PFO	Hydrologic connection to unnamed tributary to Mere Brook	Forested wetland narrowly bordering the convergence of an ephemeral stream and a perennial stream that flow south.
FA 79	FFA, S&TR	PEM	Hydrologic connection to unnamed tributary to Mere Brook	Scrub-shrub wetland adjacent to airfield dominated by meadowsweet, nannyberry (*Viburnum lentago*), and steeplebush.
FA 80	GWR, S&TR	PEM	Hydrologic connection to unnamed tributary to Mere Brook	Emergent wetland drainage along the edge of the airfield.
Cluster 10				
FA 53	NR&R, PE, WLH	PSS	Hydrologic connection to unnamed tributary of Middle Bay Cove	Scrub shrub wetland supplemented by runoff from the adjacent golf course and culverted in to a small stream flowing into Middle Bay Cove. Wetland is dominated by speckled alder, willow (*Salix* spp.), grey birch (*Betula populifolia*), and red maple saplings.
FA 55	FFA, S&TR, NR&R, S&S	PUB	Hydrologic connection to unnamed tributary of Middle Bay Cove	Ponded area adjacent to golf course culverted under roadway into a perennial tributary of Middle Bay Cove.

Table 3-1 Wetlands Summary, NAS Brunswick

Wetland ID	Primary Functions and Values	Wetland Community Type[1]	Hydrologic Connection	Additional Comments
Cluster 11				
FA 73	GWR, S&TR, PE, REC, WLH	PFO	Possible hydrological connection to Miller Brook	Forested wetland dominated by red maple bordering seasonal stream flowing south.
FA 74	FFA, WLH	PSS	Possible hydrological connection to Miller Brook	Scrub/shrub wetland dominated by speckled alder bordering seasonal stream flowing south.
Cluster 12				
FA 54	S&TR, NR&R, WLH, ED/S	PEM	No Apparent Surface Water Connection to Waters of the U.S.	This is a large isolated emergent wetland that serves as a significant vernal pool.
FA 72	FFA, S&TR, WLH	PSS	No Apparent Surface Water Connection to Waters of the U.S.	Red maple swamp within forested depression adjacent to Harpswell Road. TRC significant vernal pools 42 & 44.
FA 75	GWR/D, WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Isolated forested wetland within a topographic depression.
FA 82	GWR, WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Small forested wetland area in depression between to upland ridges. Wetland is bisected by dirt road cutting off hydrologic connection to FA 73 and 74.
FA 83	GWR, S&TR	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Small forested wetland in a depression by dirt road. Cut off from a possible hydrologic connection with FA 72 by the roadway.
FA 84	S&TR, NR&R, WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Small forested wetland in a depression within upland forested area.
Cluster 13				
FA 81	GWR, FFA, WLH	PFO	Possible hydrologic connection to Mere Brook	Forested wetland dominated by red maple and cinnamon fern.
FA 86	GWR	PFO	Possible hydrologic connection to Mere Brook	Forested wetland depression dominated by red maple.

Table 3-1 Wetlands Summary, NAS Brunswick

Wetland ID	Primary Functions and Values	Wetland Community Type[1]	Hydrologic Connection	Additional Comments
FA 87	WLH	PFO	Possible hydrologic connection to Mere Brook	Large forested wetland that functions as valuable vernal pool habitat.
FA 88	S&TR	PSS	Possible hydrologic connection to Mere Brook	Scrub-shrub swamp adjacent to airfield.
FA 89	GWD, FFA, PE	PEM	Possible hydrologic connection to Mere Brook	Emergent wetland adjacent to airfield.
FA 90	S&TR	PFO	Possible hydrologic connection to Mere Brook	Forested wetland adjacent to airfield.
Cluster 14				
FA 91	S&TR	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Small isolated linear wetland in a topographic depression along road. Dominated by red maple.
FA 92	FFA, S&TR	PSS	No Apparent Surface Water Connection to Waters of the U.S.	Small isolated wetland in a topographic depression along road. Dominated by willow, meadowsweet, and steeplebush.
FA 93	S&TR, WLH	PSS	No Apparent Surface Water Connection to Waters of the U.S.	Small isolated wetland in a topographic depression within an open field. Maintained areas nearby. Dominated by leatherleaf (*Chamaedaphne calyculata*), willow, meadowsweet, and steeplebush.
FA 99	F&SH, REC, WLH	PSS	No Apparent Surface Water Connection to Waters of the U.S.	Ponded area bordered by scrub-shrub wetland dominated by willow.
Cluster 15				
FA 85	WLH	PFO	Hydrologic connection to unnamed tributary of Mere Brook	Large forested wetland that functions as valuable vernal pool habitat.
FA 94	GWR/D, FFA, PE, WLH	PSS	Hydrologic connection to unnamed tributary of Mere Brook	Forested wetland dominated by red maple. Converges with FA 95 and drains into FA 100.

Table 3-1 Wetlands Summary, NAS Brunswick

Wetland ID	Primary Functions and Values	Wetland Community Type[1]	Hydrologic Connection	Additional Comments
FA 95	GWR/D	PFO	Hydrologic connection to unnamed tributary of Mere Brook	Narrow forested wetland bordering small stream. Dominated by red maple. Small seepage from steeply sloping sides. Drains into FA 100.
FA 96	GWR/D, FFA, S&TR, NR&R, WLH	PEM	Hydrologic connection to unnamed tributary of Mere Brook	Emergent wetland in maintained field with antennae site. Site of TRC Vernal pools 29B and 29C.
FA 97	GWR, FFA, PE, WLH, S&S	PSS	Hydrologic connection to Mere Brook	Scrub-shrub wetland dominated by willow and speckled alder bordering Mere Brook.
FA 100	GWR,/D, F&SH, S&TR, PE, WLH	PFO	Hydrologic connection to unnamed tributary of Mere Brook	Narrow forested wetland bordering small stream. Dominated by red maple, skunk cabbage, and jewelweed. Drains from FA 95 into Mere Brook.
FA 101	GWR/D, FFA. F&SH, S&TR, NR&R, WLH	PFO	Hydrologic connection to unnamed tributary of Mere Brook	Narrow forested wetland bordering small stream. Dominated by red maple and skunk cabbage. Drains in to Mere Brook.
FA 102	GWR/D, FFA, S&TR, PE, WLH, S&S	PSS	Hydrologic connection to Mere Brook	Shrub wetland broadly bordering Mere Brook. Dominated by speckled alder with red maple along the forested edges.
FA 103	GWR, S&TR, PE, WLH	PFO	Hydrologic connection to unnamed tributary of Mere Brook	Forested wetland bordering a small stream. Dominated by red maple, skunk cabbage, and cinnamon fern.
FA 104	GWR, FFA, WLH	PFO	Hydrologic connection to Mere Brook	Forested wetland dominated by red maple.
FA 105	WLH	PFO	Hydrologic connection to Mere Brook	Forested wetland area within a white pine plantation.

Table 3-1 Wetlands Summary, NAS Brunswick

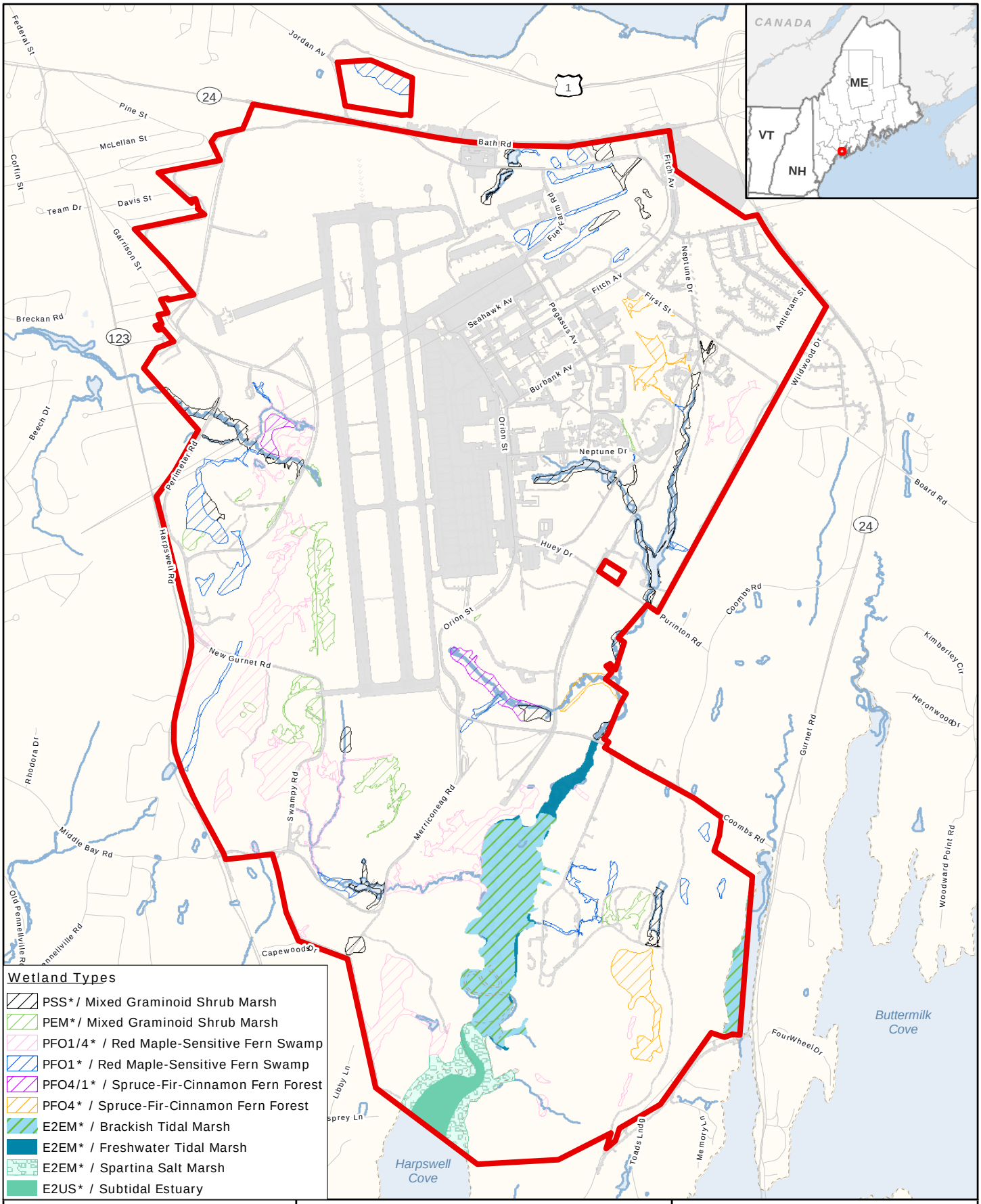
Wetland ID	Primary Functions and Values	Wetland Community Type[1]	Hydrologic Connection	Additional Comments
FA 106	GWR, S&TR, PE, WLH	PSS	Hydrologic connection to unnamed tributary of Mere Brook	Narrow scrub-shrub wetland bordering a tributary to Mere Brook.
FA 107	GWR, S&TR, PE, WLH	PEM	Hydrologic connection to unnamed tributary of Mere Brook	Emergent wetland bordering a tributary draining from the airfield.
FA 108	GWR, FFA, S&TR, WLH,	PSS	Hydrologic connection to unnamed tributary of Mere Brook	Scrub-shrub wetland dominated by speckled alder, willow, and sensitive fern.

Note:
[1] Based on Cowardin et al. 1979.

Key:
Functions and Values

ED/S = Educational/scientific value.
ESH = Endangered species habitat.
F&SH = Finfish habitat.
FFA = Floodflow attenuation.
GWD = Groundwater discharge.
GWR = Groundwater recharge.
NR&R = Nutrient removal/retention/transformation.
PE = Production export.
REC = Recreation.
S&S = Sediment/shoreline stabilization.
S&TR = Sediment/toxicant/pathogen retention.
U/H = Uniqueness/heritage.
WLH = Wildlife habitat.

© Ecology & Environment, Inc. GIS Department Project #
\L:\Buffalo\Brunswick\Maps\MXD\DEIS\Draft\May20_2009\Avian_Study\East_Brunswick_Grassland_Survey_Pts.mxd



Legend

- Stream
- NAS Brunswick
- County Boundary

Figure 3-1
Wetlands of
NAS Brunswick
Brunswick, Maine

N

0 500 1,000 2,000 3,000 4,000
Feet

4 Wetlands Types

According to the 2008 reconnaissance-level survey, there are approximately 280 acres of freshwater wetlands, 109 acres of tidal wetlands, and 9 acres of ponds at NAS Brunswick (E & E 2008). Figure 3-1 identifies the wetland types at NAS Brunswick according to the Cowardin et al. (1979) classification system and the *Natural Landscapes of Maine* (Gawler and Cutko 2004). The Cowardin et al. system classifies wetland vegetation according to the community structure.

The freshwater, or palustrine, wetlands were generally classified as emergent (PEM), shrub-scrub (PSS), and forested (PFO) wetlands. The forested wetlands (PFO) were composed of predominantly deciduous tree species (hardwoods) (PFO1), coniferous species (PFO4), or a mixture of both (PFO1/4 or PFO 4/1). Tidal, or estuarine, wetlands were generally classified as subtidal (E1) or intertidal wetlands (E2). The classification of the wetlands according to Cowardin et al. (1979) was then compared to the descriptions of the ecological communities for freshwater wetlands in *Natural Landscapes of Maine* (Gawler and Cutko 2004). Typically, the Cowardin et al. (1979) classification is broader than Gawler and Cutko (2004) and is not detailed enough for determining species composition of a specific wetland community. Below is a brief description of each of the wetland community types identified by E & E in July 2008. A more detailed description can be found in the Ecological Communities and Wetland Resources Report (E & E 2008).

4.1 Spruce-Fir-Cinnamon Fern Forest

Spruce-fir-cinnamon fern forests are forested wetlands dominated by black spruce (*Picea mariana*) or red spruce and balsam fir. These systems are defined as PFO4, and approximately 40 acres of this wetland type are present on the installation. This community occurs within the maritime spruce-fir forest in the southeastern portion of NAS Brunswick in a long, poorly drained valley between two ridges. This community has pronounced pit and mound topography. The herb layer is productive and dominated by cinnamon fern, but it also contains a variety of sedges, grasses, and other herbs such as three-seeded sedge (*Carex trisperma*), mannagrasses (*Glyceria* spp.), golden thread (*Coptis trifolia*), saxifrage (*Saxifraga pensylvanica*), and skunk cabbage. There are a few scattered shrubs, mainly wild raison (*Viburnum cassinoides*) and winterberry (*Ilex verticillata*). The forest floor is blanketed with sphagnum mosses.

4.2 Red Maple-Sensitive Fern Swamp

Red maple-sensitive fern swamps are a common forested wetland community type in Maine. Red maple-sensitive fern swamps have been identified at NAS Brunswick in several areas, including along the edges of the retention ponds in the eastern portion of the installation; adjacent to Mere Brook in the northwest portion of the installation; in the weapons compound; and in the northern clear zone parcel, north of Bath Road. There are approximately 162 acres of this wetland type at NAS Brunswick, comprising 5% of the installation's area.

The structure of this community varies, with the canopy ranging from open to closed and the shrub layer ranging from prominent to nonexistent. Red maple-sensitive fern swamps with balsam fir as a co-dominant tree species are classified as PFO1/4 or PFO 4/1 in the Cowardin et al. (1979) classification system. Wetlands in which balsam fir is dominant over the deciduous tree species but still comprises approximately less than 75% are classified as PFO4/1. Wetlands in which the deciduous trees species comprise more than 50% of the coverage, with balsam fir comprising enough cover to be considered dominant, are classified as PFO1/4. Red maple-sensitive fern swamps in which balsam fir is not a dominant species are classified as PFO1.

4.3 Mixed Graminoid-Shrub Marsh

Mixed graminoid-shrub marsh, a common community in Maine, is present throughout NAS Brunswick. These areas may be transitional to other wetland types or to open water, or they may occur as a large wetland complex. The plant community structure ranges from containing only herbs and no shrubs to having a dominant shrub layer (Gawler and Cutco 2004). In the Cowardin et al. (1979) classification system, the wetlands with predominately herbaceous cover are classified as PEM wetlands, and those with predominately shrubs as cover are classified as PSS wetlands. At NAS Brunswick, these communities range from being dominated by herbs to dominated by shrubs. There are an estimated 78 acres of mixed graminoid-shrub marsh at NAS Brunswick. Mixed graminoid-shrub marshes dominated by herbs were observed at the southern end of the airfield; in a meadow adjacent to an antenna field on the west side of the airfield; and in a wetland located in the south-central portion of the installation. Mixed graminoid-shrub marshes dominated by shrubs were observed in the weapons compound.

4.4 Freshwater Tidal Marsh

Freshwater tidal marshes are found in the upper reaches of tidal influence and are typically fed by a freshwater stream or river. The salinity is typically less than 0.5 parts per thousand (ppt) (Gawler and Cutco 2004). In the Cowardin et al. (1979) classification system, these wetlands are classified as E2EM. Freshwater tidal marshes are found in small areas where Mere Brook and other smaller tributaries empty into Harpswell Cove and Buttermilk Cove. There are approximately 9 acres of freshwater tidal marshes on NAS Brunswick. This wetland community type is dominated by herbaceous vegetation, including cattails, rice cutgrass (*Leersia oryzoides*), northern water plantain (*Alisma triviale*), and pickerelweed (*Pontederia cordata*).

4.5 Brackish Tidal Marsh

Large expanses of brackish tidal marshes are located along the coastal areas of NAS Brunswick. In the Cowardin et al. (1979) classification system, these wetlands are classified as E2EM. These marshes were identified in the upper portion of Harpswell Cove and Buttermilk Cove, downgradient of the freshwater tidal marsh communities, and were also identified along the edges of the estuaries. Salinity levels within this community can range from 0.5 to 18 ppt (Gawler and Cutko 2004). The vegetation consists of a mixture of saltmeadow cordgrass (*Spartina patens*), smooth cordgrass (*Spartina alternifloria*), and a variety of rushes and sedges. Approximately 77 acres of brackish tidal marsh are located at NAS Brunswick.

4.6 Spartina Salt Marsh

Spartina salt marshes are dominated by smooth cordgrass and are often referred to as "high marshes." In the Cowardin et al. (1979) classification system, these wetlands are classified as E2EM. The name "high marsh" comes from the higher elevation in which the salt marsh forms. They are typically found on elevated plateaus in which organic matter can build up to several meters thick. Spartina salt marshes are able to tolerate high levels of salinity. This coastal wetland community is found on the southern portion of NAS Brunswick, in Harpswell Cove. Approximately 23 acres of spartina salt marshes are located at NAS Brunswick.

4.7 Subtidal Estuary

Brunswick is a coastal area that boarders Casco Bay of the Atlantic Ocean. Harpswell Cove and Buttermilk Cove are subtidal estuaries within Casco Bay. Subtidal estuaries are characterized as open-water areas heavily influenced by the tide. They support submerged and floating plants but, due to the varying conditions, not emergent vegetation. These areas include tidal flats, which serve as important feeding areas for shorebirds and habitat for a variety of fish and crustaceans. The locations of the estuaries were visually noted during the 2008 field surveys, but surveys for plant community composition were not conducted. Approximately 18 acres of subtidal estuaries are located at NAS Brunswick.

5 Wetland Functions and Values

5.1 Functions and Values Assessed

Wetland functions are the dynamic ecological properties provided or performed by a wetland. These functions are developed by biotic and abiotic means within the wetland, with self-sustaining properties that are not gauged or affected by human values. The benefits that society derives from one or more of the wetland functions are the wetland values. The following sections outline the functions and values that the USACE takes into account during the Section 404 permit process. These definitions were taken directly from the *Highway Methodology Workbook* (USACE 1993).

5.1.1 Functions

Groundwater Recharge/Discharge

This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration

This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion- and/or flood-prone areas.

Fish and Shellfish Habitat

This function considers the effectiveness of seasonal watercourses or permanent waterbodies associated with wetlands for fish habitat.

Sediment/Toxicant/Pathogen Retention

This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation

This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of

the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.

Production Export

This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization

This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat

This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

5.1.2 Values

Recreation (Consumptive and Non-consumptive)

This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting, or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland. Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value

This value considers the suitability of the wetland as a site for an “outdoor classroom” or as a location for scientific study or research.

Uniqueness/Heritage

This value considers the effectiveness of the wetland or its associated water bodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, and its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation, and habitat diversity.

Visual Quality/Aesthetics

This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat

This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

In total, 103 wetland areas at NAS Brunswick were assessed for the functions and values listed above (see Table 5-1). Attachment 3 includes a series of figures identifying wetlands assessed by cluster.

Table 5-1 Wetland Functions and Values

Functions	Values
Groundwater Recharge/Discharge	Recreation
Floodflow Alteration	Education/Scientific Value
Fish and Shellfish Habitat	Uniqueness/Heritage
Sediment/Toxicant/Pathogen Retention	Visual Quality/Aesthetics
Nutrient Removal/Retention/Transformation	Endangered Species Habitat
Production Export	
Sediment/Shoreline Stabilization	
Wildlife Habitat	

5.2 Cluster 1

Eleven wetlands (FA 5, 6, 7, 11, 13, 15, 16, 17, 18, 19, 78) in the northern portion of NAS Brunswick have a possible hydrologic connection with the Androscoggin River (see Figure 1 of Attachment 3). These wetlands are predominately classified as forested wetlands (FA 11 and FA 16 are PSS, and FA 15 is PEM) within upland communities of white pine plantation or mixed forest dominated by white pine, red oak, and red maple. Many of these wetlands have been highly impacted by development within and adjacent to NAS Brunswick and the construction of the storm water system on the site and are generally of low quality. Primary functions of these wetlands include groundwater recharge, floodflow alteration, sediment/toxicant/pathogen retention, and nutrient removal/retention/transformation.

5.3 Cluster 2

Four wetlands (FA 8, 9, 10, 12) in the northern portion of NAS Brunswick do not have an apparent surface water connection to waters of the U.S (see Figure 2 of Attachment 3). These isolated wetlands still perform many of the same functions as other wetlands; however, they may not be considered jurisdictional by the USACE and, therefore, would not be regulated under the Clean Water Act. These are forested wetlands formed in topographic depressions dominated by red maple within upland communities of white pine plantation or mixed forest dominated by white pine, red oak, and red maple. These wetlands exhibit many of the functions normally associated with wetlands; however, due to their position in the landscape and the degradation caused by adjacent development, the level of functionality is minimal and these wetlands are therefore of low quality. The primary functions of these wetlands include groundwater recharge, floodflow alteration, sediment/toxicant/pathogen retention, nutrient removal/retention/transformation and limited wildlife habitat.

5.4 Cluster 3

Eleven wetlands (FA 14, 25, 26, 27 32, 33, 34, 35, 36, 37, 38) in the northeastern portion of NAS Brunswick have a hydrologic connection to an unnamed tributary of Mere Brook (see Figure 3 of Attachment 3). These are forested wetlands or emergent wetlands primarily bordering the unnamed tributary of Mere Brook.

Adjacent upland communities are forested areas of red oak-northern hardwoods-white pine, or maritime spruce-fir habitat. Many of these wetlands have been highly impacted by development on the site. The wetlands within the developed areas (FA 14, 32, 33, 34, 35, 36, 37, 38) are generally of low quality due to habitat fragmentation and alteration. Their primary functions include groundwater recharge, floodflow alteration, sediment/toxicant/pathogen retention, nutrient removal and retention, production export, wildlife habitat, and sediment/shoreline stabilization. The wetlands within the forested portions (FA 25, 26, 27) are less impacted and have greater function and value, including groundwater discharge, floodflow alteration, wildlife habitat, recreation, and production export.

5.5 Cluster 4

Six wetlands (FA 20, 21, 22, 23, 24, 47) in the eastern-central portion of NAS Brunswick have a hydrologic connection to an unnamed tributary of Mere Brook (see Figure 4 of Attachment 3). These are forested, emergent, and scrub-shrub wetlands primarily bordering the unnamed tributary of Mere Brook. Adjacent upland communities are forested areas of red oak-northern hardwoods-white pine, white pine plantations, or maritime spruce-fir habitat. These wetlands have been highly impacted by development on the site. The wetlands within the developed areas (FA 20, 21, 22) are generally of low quality due to habitat fragmentation and alteration. Their primary functions include groundwater recharge, floodflow alteration, sediment/toxicant/pathogen retention, and sediment/shoreline stabilization, with some limited functions as wildlife habitat. The wetlands within the forested portions (FA 23, 24, 47) are less impacted and provide greater function and value, including groundwater recharge, floodflow alteration, sediment/toxicant/pathogen retention, wildlife habitat (including finfish habitat), and sediment/shoreline stabilization. The upland forest bordering these wetlands currently provides recreational value with a picnic area, ball fields, and hiking trails; however, activities within the wetlands and open water, such as fishing and swimming, are prohibited.

5.6 Cluster 5

Four wetlands (FA 28, 29, 30, 31) in the eastern portion of NAS Brunswick do not have an apparent surface water connection to waters of the U.S (see Figure 5 of Attachment 3). These are forested wetlands formed in topographic depressions dominated by red maple within upland maritime spruce-fir communities. While these wetlands exhibit many of the functions normally associated with wetlands, the degree of functionality is minimal due to their position in the landscape and degradation caused by nearby development. Primary functions of these wetlands include groundwater recharge, floodflow alteration, sediment/toxicant/pathogen retention, nutrient removal/retention/transformation, and wildlife habitat. In addition, these wetlands serve an important function as vernal pools, providing crucial habitat for breeding amphibians such as spotted salamanders (*Ambystoma maculatum*) and wood frogs (*Rana sylvatica*) (E & E 2009).

5.7 Cluster 6

Eight wetlands in the east-central (FA 48, 49, 60, , 61, 63, 64, 65, 66, 67) and southeastern (FA 1, 2) portions of NAS Brunswick have a surface hydrologic connec-

tion to Mere Brook where it reemerges to the surface from under the eastern side of the airfield (see Figure 6 of Attachment 3). The northern six wetlands are forested, emergent and scrub-shrub wetlands primarily bordering Mere Brook (FA 48, 49, 60, 65) or alternately draining into Mere Brook through an adjacent wetland or small tributary (FA 61, 63, 64, 66, 67). Adjacent upland communities are forested areas of red oak-northern hardwoods-white pine, or maritime spruce-fir habitat. These wetlands provide a variety of functions and values, including groundwater recharge and discharge, floodflow alteration, production export, and wildlife habitat, including vernal pool habitat and potentially finfish habitat (E & E 2009). These wetlands are currently located within a fenced area with restricted access and, therefore, provide limited recreational value. In addition, there are potential safety concerns due their proximity to an explosive ordnance disposal pit.

Two of these wetlands are located adjacent to Mere Brook in the southeastern portion of the site, where they are tidally influenced: FA 1 (a spartina salt marsh) and FA 2 (a brackish tidal marsh). The adjacent upland is maritime spruce-fir forest. The primary functions of these wetlands include floodflow alteration, production export, and wildlife habitat. In addition, this large forested area remains undeveloped and has the potential to provide recreational value for hiking.

5.8 Cluster 7

Ten wetlands (FA 3, 4, 40, 41, 42, 43, 44, 45, 46, 62) in the southeastern portion of NAS Brunswick do not have an apparent surface water connection to waters of the U.S (see Figure 7 of Attachment 3). These are forested and scrub-shrub wetlands formed in topographic depressions within upland communities of mixed red oak-northern hardwoods-white pine, or maritime spruce-fir forest. While these wetlands exhibit many of the functions normally associated with wetlands, the functions they perform may be limited due to the lack of hydrologic connections resulting from their position in the landscape. The primary functions of these wetlands include groundwater recharge, sediment/toxicant/pathogen retention, nutrient removal/retention/transformation, and wildlife habitat (including significant vernal pool habitat) (E & E 2009). In addition, this large forested area remains undeveloped and has the potential to provide recreational value for hiking and educational/scientific value for the study of vernal pools and their inhabitants.

5.9 Cluster 8

Three wetlands (FA 50, 51, 52) in the southern portion of NAS Brunswick are hydrologically connected to each other by a small stream and culverts, which have a hydrologic connection to Harpswell Cove (see Figure 8 of Attachment 3). The adjacent upland community is maritime spruce-fir forest. While these wetlands have been altered (FA 51 is impounded by a berm and outflow is culverted into FA 50), these wetlands provide a variety of functions. Their primary functions include floodflow alteration, sediment/toxicant/pathogen retention, nutrient removal/retention/transformation, production export, and wildlife habitat (including significant vernal pool habitat and potential finfish habitat) (E & E 2009). In addition, this large forested area remains undeveloped and has the potential to

provide recreational value for hiking and educational/scientific value for the study of vernal pools and their inhabitants.

5.10 Cluster 9

Twelve wetlands (FA 56, 57, 58, 59, 68, 69, 70, 71, 76, 77, 79, 80) in the southern portion of NAS Brunswick have a surface hydrologic connection to Mere Brook from the western side of the installation through several unnamed tributaries (see Figure 9 of Attachment 3). Surrounding forested upland communities include mixed red oak, northern hardwoods and white pine, and aspen-birch woodlands. Many of these wetlands border the main tributary that flows through the golf course and have been highly altered to drain runoff from the course. In addition, several impounded areas within the golf course are bordered by wetlands.

Wetlands FA 56, 57, 58, 59, 68, and 77 are relatively narrow, directly bordering unnamed perennial tributaries. These are forested, emergent, and scrub-shrub wetlands. Their primary functions include groundwater recharge and discharge, floodflow attenuation, sediment/toxicant/pathogen retention, production export, and wildlife habitat, and they also provide value for recreation.

Wetlands FA 69, 70, 71, 76, 79, and 80 are larger areas of forested, scrub-shrub and emergent wetlands that drain into unnamed perennial tributaries of Mere Brook. Their primary functions include groundwater discharge, sediment/toxicant/pathogen retention, nutrient removal/retention/transformation, production export, wildlife habitat, and sediment and shoreline stabilization.

In addition, in 2008 and 2009, Cluster 9 wetlands were found to contain 12 vernal pools, some of which are considered significant (TRC 2008; E & E 2009).

5.11 Cluster 10

Two wetlands (FA 53, 55) in the southwestern portion of NAS Brunswick have surface hydrologic connections to unnamed tributaries of Middle Bay Cove (see Figure 10 of Attachment 3). Wetland FA 53 is a large scrub-shrub wetland bordered by forested upland communities, including maritime spruce fir and mixed red oak, northern hardwoods, and white pine. This wetland, which is located adjacent to the golf course, is formed in a depression within the forest landscape and is bisected by a dirt road. It is connected to an ephemeral tributary of Middle Bay Cove by a system of culverts. While this wetland is highly altered, its primary functions include nutrient removal/retention/transformation, production export, and wildlife habitat, including significant vernal pool habitat (E & E 2009).

FA 55 is a large ponded area within a mixed red oak, northern hardwoods, and white pine forest. Located adjacent to the golf course, this area is culverted under the roadway into a perennial tributary of Middle Bay Cove. Due to its highly altered condition, this area provides limited wetland functions, but does provide some level of floodflow alteration, sediment/toxicant/pathogen retention, nutrient removal/retention/transformation, production export, and sediment/shoreline stabilization.

5.12 Cluster 11

Two wetlands (FA 73, 74) in the southwestern portion of NAS Brunswick have a potential surface hydrologic connection to Miller Brook (located outside of the installation boundaries) were it flows from an impoundment on the western side of Harpswell Road (see Figure 11 of Attachment 3). Both wetlands border a seasonal stream that is culverted under the roadway. Wetland FA 73 is a forested wetland dominated by red maple and speckled alder. Wetland FA 74 is a scrub-shrub wetland dominated by speckled alder. The surrounding upland is red oak, mixed hardwoods, and white pine forest. These wetlands appear to be of high quality due to limited impacts resulting from the development at NAS Brunswick; however, construction of a roadway to the north of these wetlands appears to have isolated FA 82 from this drainage. The primary functions of these wetlands are groundwater recharge, floodflow alteration, wildlife habitat, production export. These wetlands have the potential for recreational value by providing hiking opportunities.

5.13 Cluster 12

Six wetlands (FA 54, 72, 75, 82, 83, 84) in the southwestern and western portions of NAS Brunswick do not have an apparent surface water connection to waters of the U.S (see Figure 12 of Attachment 3). These wetlands are primarily forested wetlands (FA 54 is emergent and FA 72 is scrub-shrub) formed in topographic depressions dominated by red maple within upland communities of maritime spruce fir. While these wetlands exhibit many of the functions normally associated with wetlands, the level of functionality is minimal due to their position in the landscape and degradation caused by adjacent development; therefore, these wetlands are of low quality. Though limited, the primary functions these wetlands provide include groundwater recharge, floodflow attenuation, sediment/toxicant/pathogen retention, nutrient removal/retention/transformation, production export, and wildlife habitat. In addition, this cluster of wetlands serves an important function in terms of wildlife habitat and were found to contain significant vernal pool habitat (TRC 2008; E & E 2009). These wetlands also have potential value for recreation and educational opportunities.

5.14 Cluster 13

Six wetlands (FA 81, 86, 87, 88, 89, 90) in the western portion of NAS Brunswick have a potential hydrologic connection to Mere Brook (see Figure 13 of Attachment 3). These wetlands are located in low-laying areas to the west of the airfield and, based on topography, appear to drain northward and converge at a location that either links underground to Cluster 12 or drains under the airfield into Mere Brook. These wetlands are predominantly forested (FA 88 is scrub-shrub and FA 89 is emergent) surrounded by upland forested communities of red oak-northern hardwoods-white pine, or aspen-birch forest. These wetlands have been altered and degraded due to the development of the airfield and other facilities at NAS Brunswick. However, they do provide the primary functions of groundwater recharge, floodflow alteration, sediment/toxicant/pathogen retention, production export, and wildlife habitat. In addition, these wetland provide valuable vernal pool habitat for breeding amphibians (TRC 2008).

5.15 Cluster 14

Four wetlands (FA 91, 92, 93, 99) in the western portion of NAS Brunswick do not have an apparent surface water connection to waters of the U.S (see Figure 14 of Attachment 3). These isolated wetlands still perform many of the same functions as other wetlands; however, they are not considered jurisdictional by the USACE and are not protected by the Clean Water Act. These wetlands are predominantly scrub-shrub wetlands (FA 91 is forested) formed in topographic depressions within upland communities of white pine plantation or aspen-birch woodland. While these wetlands exhibit many of the functions normally associated with wetlands, the level of functionality is minimal due to their position in the landscape and degradation caused by adjacent development; therefore, these wetlands are of low quality. The primary functions they provide include floodflow alteration, sediment/toxicant/pathogen retention, and wildlife habitat. In addition, FA 99 surrounds a pond that may provide finfish habitat and limited opportunities for recreation.

5.16 Cluster 15

Fourteen wetlands (FA 85, 94, 95, 96, 97, 100, 101, 102, 103, 104, 105, 106, 107, 108) in the western portion of NAS Brunswick have a surface hydrologic connection to unnamed tributaries of Mere Brook or directly to Mere Brook (see Figure 15 of Attachment 3). Many of these wetlands have been highly impacted by development of the airfield. Mere Brook flows under the airfield and reemerges on the eastern side. The primary functions of these wetlands include groundwater recharge and discharge, floodflow alteration, sediment/toxicant/pathogen retention, production export, and wildlife habitat. In addition, in 2008 this cluster of wetlands was found to contain a significant vernal pool (TRC 2008).

6 Conclusions and Summary

Considering these wetlands as individual units or smaller groupings would minimize their functionality and reduce their value to the ecosystem. Alternatively, considering all of the site's wetlands as one large unit with tidal and non-tidal components, including forested, scrub-shrub, and emergent cover types and the interspersed upland communities, would unnecessarily increase their assessed value to the ecosystem. Therefore, it was concluded that assessing these wetlands in functionally related clusters based on their degree of hydrologic connection/ interdependence and/or physical location and proximity within the landscape was the most effective way in which to assess the functionality of the site's wetlands.

Owing to the unique nature of the site as a limited-access naval base, the site's wetlands do not currently provide recreational or educational value. However, following redevelopment of the installation, several areas could provide high recreational or educational value.

No known endangered or threatened species are known to utilize the wetlands on the installation. However, many of the wetland areas provide valuable wildlife habitat, including significant vernal pools that serve as primary breeding habitat for amphibians (TRC 2008; and E & E 2009).

At many locations the visual/aesthetic appeal of the landscape has been compromised by significant site development. In addition, many wetlands have been highly altered to provide for the storm water detention and drainage system on the site. These alterations, while necessary for prior development on the site, have limited the ability of many wetlands to provide functions such as groundwater recharge and discharge, sediment/toxicant/pathogen retention, nutrient removal/retention/transformation, production export, and wildlife habitat by channelizing drainages and artificially directing the flow of water on the site.

The primary wetland functions identified include groundwater recharge, floodflow alteration, sediment/toxicant/pathogen retention, nutrient removal/retention/transformation, production export, wildlife habitat, and sediment/shoreline stabilization. All of these functions are served to some extent by the installation's wetlands. Future site development that would impact site wetland functions may require further analysis and quantification of wetland functions.

7 References

Cowardin, L.M., V. Carter, F.C. Golet, E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

Ecology and Environment (E & E). 2008. *Ecological Communities and Wetland Resource Report for the Environmental Impact Statement for the Disposal and Reuse of NAS Brunswick*. Prepared for Naval Air Station Brunswick, Brunswick, Maine. December 2008.

Ecology and Environment, Inc (E & E). 2009. Vernal Pool Survey Report. May 2009.

Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual*. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Gawler, S.C. and A.R. Cutko. 2004. *Natural Landscapes of Maine: A Classification of Vegetated Natural Communities and Ecosystems*. Maine Natural Areas Program, Maine Department of Conservation. Augusta, Maine.

McNab, W.H. and E.A. Avers. 1994. *Ecological Subregions of the United States*. Washington, DC. USDA Forest Service, Washington Office.

Normandeu Associates. 1998. *Naval Air Station Brunswick Wetland Survey*. Report No. P-16674.0000. Yarmouth, Maine.

TRC Environmental Corporation (TRC). 2008. *Naval Air Station Brunswick Vernal Pool Summary Report*. Prepared for Bowdoin College. May 2008.

U.S. Army Corps of Engineers (USACE). 1993. *The Highway Methodology Workbook: Integrating Corps Section 404 Permit Requirements with Highway Planning and Engineering and the NEPA EIS Process*. United States Army Corps of Engineers, New England Division. NAEEP-360-1-30. Concord, Massachusetts.

U.S. Army Corps of Engineers (USACE). 1999. *Highway Methodology Workbook Supplement: Wetland Functions and Values, a Descriptive Approach*. U.S. Army Corps of Engineers, New England Division. NAEEP-360-1-30a. Concord, Massachusetts.

U.S. Army Corps of Engineers (USACE). 2007. Modified Functions and Values Assessment for Significant Nexus. Retrieved May 15, 2009, from U.S. Army Corps of Engineers, New York Division, Web site: http://www.nan.usace.army.mil/business/buslinks/regulat/formdocs/functions.pdf.

1 Photographs of the Wetlands for Functional Assessment

Wetland 1 – Photo 251 Southwest

Wetland 2 – Photo 183 Northwest

Wetland 3 – Photo 184 North

Wetland 4 – Photo 185 East

Wetland 5 – Photo 192 Southwest

Wetland 6 – Photo 193 Southwest

Wetland 7 – Photo 194 Northwest

Wetland 8 – Photo 195 North

Wetland 9 – Photo 196 North

Wetland 10 – Photo 197 North

Wetland 11 – Photo 198 East

Wetland 12 – Photo 199 North northwest

Wetland 13 – Photo 200 South southwest

Wetland 14 – Photo 201 Northwest

Wetland 15 – Photo 202 North

Wetland 16 – Photo 203 Southwest

Wetland 17 – Photo 204 Southwest

Wetland 18 – Photo 205 South

Wetland 19 – Photo 206 Southeast

Wetland 20 – Photo 207 South

Wetland 21 – Photo 208 East

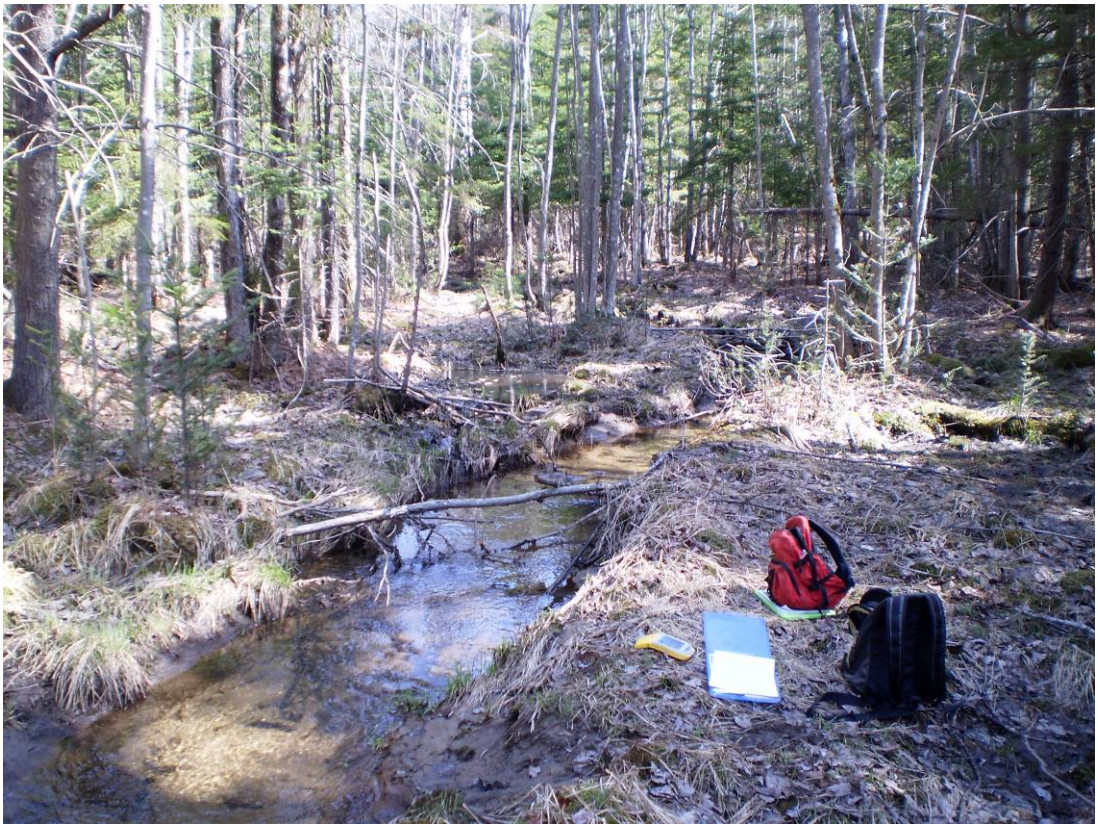
Wetland 22 – Photo 209 South

Wetland 23 – Photo 210 Northeast

Wetland 24 – Photo 211 Southwest

Wetland 25 – Photo 212 West

Wetland 26 – Photo 213 North



Wetland 27 – Photo 214 Northeast

Wetland 28a – Photo 215 Northeast

Wetland 28b – Photo 216 Southwest

Wetland 29 – Photo 217 Northwest

Wetland 30 – Photo 218 Northeast

Wetland 31 – Photo 219 East

Wetland 32 – Photo 220 Northeast

Wetland 33 – Photo 221 South

Wetland 34 – Photo 222 South

Wetland 35 – Photo 223 South southeast

Wetland 36 – Photo 224 Southeast

Wetland 37 – Photo 225 South

Wetland 38 – Photo 226 North northwest

Wetland 39 – Photo 227 North

Wetland 40 – Photo 228 South

Wetland 41 – Photo 229 North

Wetland 42 – Photo 230 South

Wetland 43 – Photo 231 South

Wetland 44 – Photo 232 South

Wetland 45 – Photo 233 South

Wetland 46 – Photo 234 North northeast

Wetland 47 – Photo 235 Southeast

Wetland 48 – Photo 236 West

Wetland 49 – Photo 237 West

Wetland 50 – Photo 238 Southwest

Wetland 51 – Photo 239 Northwest

Wetland 52 – Photo 240 North

Wetland 53 – Photo 241 South

Wetland 54 – Photo 242 East

Wetland 55 – Photo 243 North

Wetland 56 – Photo 244 Northwest

Wetland 57 – Photo 245 North

Wetland 58 – Photo 246 East

Wetland 59 – Photo 247 Northwest

Wetland 60 – Photo 248 North

Wetland 61 – Photo 249 Southeast

Wetland 62 – Photo 256 North

Wetland 63 – Photo 257 North

Wetland 64 – Photo 258 West

Wetland 65 – Photo 259 Northwest

Wetland 66 – Photo 260 East

Wetland 67 – Photo 262 West

Wetland 68 – Photo 263 North

Wetland 69 – Photo 264 Southwest

Wetland 70 – Photo 265 South

Wetland 71 – Photo 266 East

Wetland 72 – Photo 267 Southwest

Wetland 73 – Photo 268 Northeast

Wetland 74 – Photo 269 Southwest

Wetland 75 – Photo 270 West

Wetland 76 – Photo 271 Northwest

Wetland 77 – Photo 272 North northeast

Wetland 78 – Photo 274

Wetland 79 – Photo 275 North northeast

Wetland 80 – Photo 276 East

Wetland 81 – Photo 277 Northeast

Wetland 82 – Photo 278 Northeast

Wetland 83 – Photo 279 North

Wetland 84 – Photo 280 Northeast

Wetland 85 – Photo 281 South

Wetland 86 – Photo 282 Northeast

Wetland 87 – Photo 283 South

Wetland 88 – Photo 284 North

Wetland 89 – Photo 285 North

Wetland 90 – Photo 286 Southwest

Wetland 91 – Photo 287 Southwest

Wetland 92 – Photo 288 Northwest

Wetland 93 – Photo 289 West

Wetland 94 – Photo 290 Northeast

Wetland 95 – Photo 291 South southwest

Wetland 96 – Photo 292 Southwest

Wetland 97 – Photo 293 Southeast

Wetland 98 – Photo 294 Northwest

Wetland 99 – Photo 295 Northwest

Wetland 100 – Photo 296 Southwest

Wetland 101 – Photo 297 West

Wetland 102 – Photo 298 Southeast

Wetland 103 – Photo 299 East

Wetland 104 – Photo 300 Southwest

Wetland 105 – Photo 301 Southwest

Wetland 106 – Photo 302 North

Wetland 107 – Photo 303 Northwest

Wetland 108 – Photo 304 Northwest

2 Wetland Functional Assessment Datasheets

Photo # 251 Direction: SW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 1 Zone 7 **Date:** 4/16 N/A **Functional Unit:** **Weather:** Sunny N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub Salt-marsh, tidal influence
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs NA Herbs S Grass S
sight/mod./Dense

Soils: BuC2 - Buxton silt loam

Leaf litter: Well developed | Moderately well developed | Absent

Cover objects: Logs | Bark | Boulders | Rocks

Evidence of Erosion: No | Yes (Explain) Stream incised along bank

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land-use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	Tidal
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Insects + birds
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	Some erosion

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	No recreation allowed
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes F		No	
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	To estuary
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)	H + LL			
Wetland plant species diversity	High Mod Low			
Vernal pool	Yes		No	
Edge diversity (List types)				Mature forest - softwood
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant SE		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)			No	
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	No public access
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Airplanes
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No
Degree of Function	High	Mod	Low

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
MOD/High	High	/	Mod	High	High	Low	High	Low	Low	Mod	Low

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo 183 Northwest

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA2 Zone 7 4/16 **Date:** N/A **Functional Unit:** **Weather:** Sunny N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☒ TBD ☒

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub Tidally influenced
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation: 0

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs M Grass

BuC2 - Buxton silt loam

Leaf litter: Well developed | Moderately well developed | Absent

Cover objects: Logs | Bark | Boulders | Rocks

Evidence of Erosion: No | Yes (Explain) Veg covered banks

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+		Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	Absent
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	No public access
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	M Tidal
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)	H, LL			
Wetland plant species diversity	High Mod Low			
Vernal pool	Yes		No	
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	Logs
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	No public access
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Mod	High	Low	Mod	Mod	High	Low	High	Low	Low	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo 184

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA3 2-7 **Date:** 4/16 N/A **Functional Unit:** **Weather:** Sunny N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / ~~Wet Meadow~~	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - 4" maximum - 7"

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn → Adj. to weapons area Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs M Herbs S Grass D

WrB - Woodbridge sandy loam

Leaf litter: Well developed Moderately well developed Absent

Cover objects: Logs Bark Boulders Rocks

Evidence of Erosion: No Yes (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+			Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge		
Wetland associated w/ perennial or seasonal watercourse	Yes	No		
Slope	Gentle	Moderate or Steep		
Function Present	Yes No			
Degree of Function	High	Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+		-	Comments
Soils	Hardpan, shallow ledge			
Seeps, springs observed?	Yes		No	
Wetland microrelief	Well developed		Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes		No	Both an inlet and outlet
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-		Comments
Wetland size in relation to watershed	Large	Small		
Amount of impervious surface in wetland watershed	Large	Small		
Wetland Slope	Gentle	Moderate	Steep	
Wetland characterized by variable water level?	Yes	No		
Wetland in floodplain of adjacent watercourse	Yes	No		
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No		
Watershed has a history of economic loss due to flooding	Yes	No		
Wetland outlet restricted	Yes	No		
Wetland vegetation density	High	Low		
Wetland microrelief	Well developed	None/Poorly developed		

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land-use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	Northern end
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	NA
Indicators of erosion or high water velocities are present	No	Yes	NA
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	Egg masses
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes F/L		No	
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)	SH, S, H, LL			
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	Snags + Logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	Logs/branches
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	No public access
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Airfield
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/Mod	Mod	No	High	High	High	No	High	Low	No	No	NO

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA4-zone 7 **Date:** 4/16 N/A **Functional Unit:** **Weather:** Sunny N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen conifers				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs S Herbs S Grass

WrB - Woodbridge sandy loam

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	Weapons Area
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Insects, Birds
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes F		No	
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High W		Low	
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)	T, S, H, LL			
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant L		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant L		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	Wooded swamp
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
High/mod	Low	—	High	Mod	Mod	—	High	—	—	—	—

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA5 Zone **Date:** N/A **Functional Unit:** **Weather:** Sunny N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings M Shrubs S Herbs Grass D

Soil: 30D - Udorthents - Adams Complex

Leaf litter: Well developed | Moderately well developed | Absent

Cover objects: Logs | Bark | Boulders | Rocks

Evidence of Erosion: No | Yes (Explain) Stable banks around pond

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	Ponded Area

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	Inlet & Outlet
Function Present	Yes	No	
Degree of Function	High / Mod	Low	Ponded Area

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	
% of pond covered by submerged or emergent vegetation	15-40%	Other	No emergent veg
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	Potential runoff from fuel field
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	Ponded
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	Some leaf litter at bottom
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	Potentially
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	Road/culverts
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	Mostly open water
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)		T	
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	Snags/fallen logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	Logs
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	Birds, waterfowl stopover
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest, M=Meadow S=Sapling/shrub thicket, A=Agriculture)	High		Low	Forest / mowed fields-roadways
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	Pond
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	Limited access

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	Seen from road
Views absent trash, debris, sign of degradation	Yes		No	Litter
Low noise level	Yes		No	Road noise / airplanes
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
High/No	Mod	Mod	Mod	Low	Mod	/	Mod	No	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA6 Zone **Date:** 4/16 N/A **Functional Unit:** **Weather:** Sunny N/A **Time Start:** N/A **Time Stop:** N/A

Site Investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings S Shrubs S Herbs Grass

Soil: 30D - Udorthents - Adams Complex

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No Yes	(Explain)		

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	Ponded Area
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	
% of pond covered by submerged or emergent vegetation	15-40%	Other	No emergent veg.
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	
Function Present	Yes	No	Culverts.
Degree of Function	High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	Roadway / Airfield / Fuel field
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	WF egg mass, green frog tadpoles / Red-spotted newts.
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	Potentially.
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	Ponded area
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	culverting
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	Through culverts
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	OW
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			T/S/SH
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			T/S/SH/LL
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	F/S
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
High/No	Mod	Mod	Mod	Mod	Mod	No	Mod	No	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA7 Zone **Date:** N/A 4/16 **Functional Unit:** **Weather:** Sunny N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings M Shrubs S Herbs M Grass

Soil: 30D - Udorthents - Adams Complex

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain) Stream is somewhat incised.

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	Along stream
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	Relatively small area

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	Also near roadway
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream) Seasonal stream

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	Roadway
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	Insects
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	Water not clear
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	Stormwater culvert at end
Wetland fragmentation by development	Little or None	Moderate to High	Road ways / culverts
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	
Buffer width	Good to Excellent	Fair to Poor	Narrow border -
Connectivity with other wetlands	Yes	No	Culverted
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	M
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Sh/H
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	Logs/branches
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	F/S
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Airplanes / Roadway
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+		Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No
Degree of Function	High	Mod	Low

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
mod/mod	Mod	/	Low	Low	Low	/	Low	/	/	low	NO

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 8 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen	mixed			
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings Shrubs Herbs Grass

Soil: 11A - Haplaquents - Finch complex

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+		-	Comments
Soils	Sand/gravel outwash		Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes		No	
Slope	Gentle		Moderate or Steep	
Function Present	Yes	No		
Degree of Function	High	Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+		-	Comments
Soils	Hardpan, shallow ledge			
Seeps, springs observed?	Yes		No	
Wetland microrelief	Well developed		Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-		Comments
Wetland size in relation to watershed	Large	Small		
Amount of impervious surface in wetland watershed	Large	Small		
Wetland Slope	Gentle	Moderate	Steep	
Wetland characterized by variable water level?	Yes	No		
Wetland in floodplain of adjacent watercourse	Yes	No		
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No		
Watershed has a history of economic loss due to flooding	Yes	No		Unknown
Wetland outlet restricted	Yes	No		No inlet/outlet
Wetland vegetation density	High	Low		
Wetland microrelief	Well developed	None/Poorly developed		

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	**+**		**-**	**Comments**
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				
Wetland plant species diversity	High Mod Low			
Vernal pool	Yes		No	
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No
Degree of Function	High	Mod	Low

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	No	No	No	No	No	No	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA9 zone 1 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen	mixed conifer			
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings S Shrubs Herbs Grass

Soil : WmB - Windsor Loamy Sand

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	No obs. inlet or outlet
Function Present	Yes	No	Isolated wetland?
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	No outlet
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	(No)		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land-use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	Roadway
Duration of water retention in wetland	Long	Short	No outlet
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No low	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	Seasonally ponded
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	Forested wetland
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	Birds / insects
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	No public access

WLH/WILDLIFE HABITAT

Criteria	+		Comments
Wetland degradation by human activity	Little or None	Moderate to High	Roadways / Pipeline area
Wetland fragmentation by development	Little or None	Moderate to High	Roadways
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	
Buffer width	Good to Excellent	Fair to Poor	Fragmented
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	No access
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Roadway
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/NO	NO	No	Low	Low	No	NO	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Zone1 **MODIFIED FUNCTIONS AND VALUES ASSESSMENT**

Project Name: Brunswick NAS **Wet Id#:** FA 10 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
~~PSS / Shrub Swamp~~	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Wa - Walpole fine sandy loam - hydric

Similar to FA9

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	Isolated, no inlet or outlet
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown.
Wetland outlet restricted	Yes	No	No outlet
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	Runoff from roadways
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Wooded swamp + shrub swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, sapling, shrub, herb, leaf litter
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Tree, sapling, herb
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	Fallen logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	Logs/branches
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest,
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/No	Mod	No	High	High	NO	NO	Low	NO	NO	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Zone 1

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 11 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic	Speckled Alder	
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings Shrubs Herbs Grass

plantation

Soil - 11A - Haplaquents - Finch Complex - sandy

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	Ditch system
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	Hummocks
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	Into another ditch
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	Roadway
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	Ditching / Plantation
Wetland fragmentation by development	Little or None	Moderate to High	Roadways & Ditching
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			SH - Speckled Alder
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	Fallen logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Plantation
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Road / Airplanes
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Low	Mod	No	High	High	Mod	No	Low	No	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** Zone 1 FA 12 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings Shrubs Herbs Grass

white pine plantation

Soil: Sz Swanton fine sandy loam

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	Isolated
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	No outlet present
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	P
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10'-deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high-culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	Road runoff
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	Planted white pines surround
Wetland fragmentation by development	Little or None	Moderate to High	Roadways / Pine Plantation
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes Forest	No	
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	No open water
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			LL, H
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/NO	No	No	Mod	Low	NO	No	Low	No	No	NO	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 13 Zone1 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen	Red maple, speckled Alder			
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings Shrubs Herbs Grass

white pine plantation

Soil: DeA - Deerfield loamy sand

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	Ditch at SE end.
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	White Pine Plantation
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	SE end drains east
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	**Comments**
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	**Comments**
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	**Comments**
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	White Pine Plantation
Wetland fragmentation by development	Little or None	Moderate to High	White Pine Plantation/Housing
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			T, S, SH, H, LL
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/mod	Mod	No	Mod	Mod	Low	NO	Low	NO	No	No	NO

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 14 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen Mixed Forest
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings Shrubs Herbs Grass

Soil: 12A - Haplaquents - Naumburg Complex Sandy

Leaf litter: Well developed | Moderately well developed | Absent

Cover objects: Logs | Bark | Boulders | Rocks

Evidence of Erosion: No | Yes | (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream) Seasonal drainage

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No (Low)	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	Drainage ditches in PFO - drain into stormwater system
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Wooded swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, herb, Leaf litter
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	Logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	Logs
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest, mowed fields
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	Drainage ditch
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Near airfield + road
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	mod	No	No	No	No	No	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 15 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*–

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings Shrubs Herbs Grass

white pine

Soil: DeA - Deerfield loamy sand

Leaf litter: . Well developed Moderately well developed Absent

Cover objects: Logs Bark Boulders Rocks

Evidence of Erosion: No Yes (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	SW end ditched
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Birds / Insects
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	Slopes SW
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	White pine plantation, ditching
Wetland fragmentation by development	Little or None	Moderate to High	Baseball field & Fuel field/Roadway
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	White pine
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			T, S, SH, H, LL
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			T, S, SH
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/mod	mod	No	mod	Mod	mod	No	mod	No	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 16 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS/Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings Shrubs Herbs Grass

White Pine Plantation

Soil: DeA - Deerfield loamy sand -

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+			-	Comments
Soils	Sand/gravel outwash			Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes			No	
Slope	Gentle			Moderate or Steep	
Function Present	Yes	No			
Degree of Function	High		Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+		-		Comments
Soils	Hardpan, shallow ledge				
Seeps, springs observed?	Yes		No		
Wetland microrelief	Well developed		Non/Poorly developed		
Wetland contains an outlet, no inlet	Yes		No		
Function Present	Yes		No		
Degree of Function	High	Mod		Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-		Comments
Wetland size in relation to watershed	Large	Small		
Amount of impervious surface in wetland watershed	Large	Small		
Wetland Slope	Gentle	Moderate	Steep	
Wetland characterized by variable water level?	Yes	No		
Wetland in floodplain of adjacent watercourse	Yes	No		
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No		
Watershed has a history of economic loss due to flooding	Yes	No		Unknown
Wetland outlet restricted	Yes	No		
Wetland vegetation density	High	Low		
Wetland microrelief	Well developed	None/Poorly developed		

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	No watercourse
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		Comments
Wetland degradation by human activity	Little or None	Moderate to High	Roadways + Pine Plantation
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	White Pine Plantation
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)	SH, H		
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (E=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest - White Pine
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/mod	Mod	No	Mod	Mod	Low	No	Low	No	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo 204-SW

Zone 1

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 17 **Date:** N/A **Functional Unit:** **Weather:** Sunny N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings S Shrubs S Herbs Grass

Soil: 10A - Udorthents-croghan complex

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, light fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	No inlet or outlet
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	Runoff from roads
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	**Comments**
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	Fragmented by roadways & ball field
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	FA 15 + FA 16
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)	T, S, SH, H, LL			
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	Snags, Logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Low	Low	No	Mod	Mod	Low	NO	Low	No	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 10 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings Shrubs Herbs Grass

Soil: 30A - Udorthents-Adams complex

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	None/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	**Comments**
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	**Comments**
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	**Comments**
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Wooded swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, leaf litter
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	Fallen logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	Logs/branches
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Baldwin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	NO	NO	No	NO	NO	No	Low	No	NO	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 19 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings S Shrubs Herbs Grass

Soil: 30A - Udorthents - Adams Complex

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	None/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, leaf litter
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	Fallen logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	Logs/branches
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin college
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	No	No	No	No	No	No	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo 207-5 Zone 1 **MODIFIED FUNCTIONS AND VALUES ASSESSMENT**

Project Name: Brunswick NAS **Wet Id#:** FA 20 **Date:** N/A 4/20 **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Soil: 25A - Adams loamy fine sand

Leaf litter: Well developed | Moderately well developed | Absent

Cover objects: Logs | Bark | Boulders | Rocks

Evidence of Erosion: No | Yes | (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	Stream culverted in several places
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	Culverted in several places
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	-
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Wooded swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, sapling, leaf litter
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	Fallen logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	logs/branches
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	Low	Low	Low	Low	Low	No	Low	No	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA21 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated (Non-Vegetated)
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

(Permanently flooded (H) - *water covers land surface throughout year in all years*)

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: (Yes) No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: (Inundated) Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well (Moderately Well) Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level (Gentle) Moderate Steep

Upland Border:

Slope: Nearly level (Gentle) Moderate Steep

Cover Types: (Mature forest) Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): (Trees) M Saplings Shrubs Herbs Grass

Soil: DeA - Deerfield loamy sand

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	culverted under dirt road
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	
% of pond covered by submerged or emergent vegetation	15-40%	Other	<15%
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No (Low)	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	Booms in place to contain
Degree of Function	High	Mod	Low	input of unknown substance

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No	
Degree of Function	High	Mod	Low

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		(No)	
Boating or canoeing feasible in wetland	Yes		(No)	
Off-road public parking near wetland available	Yes		(No)	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	**Comments**
Wetland degradation by human activity	Little or None	(Moderate to High)	
Wetland fragmentation by development	Little or None	(Moderate to High)	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	(Yes)	No	Forest
Buffer width	Good to Excellent	(Fair to Poor)	
Connectivity with other wetlands	(Yes)	No	
Size of landscape block in which wetland is located	Large	(Small)	
Wildlife food sources in wetland	Abundant	(Few)	
Interspersion of vegetation and open water	High	(Low)	
Upland islands	Present	(Absent)	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	(Low)	Wooded swamp, open water
Vegetation density	High	(Low)	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, leaf litter, herb
Wetland plant species diversity	High Mod (Low)		
Vernal pool	Yes	(No)	
Edge diversity (List types)			
Water regime	(Wetter)	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	(Few)	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	(Few)	
Flat rocks in/near watercourse (stream salamanders)	Present	(Absent)	
Sphagnum hummocks next to shallow pools	Present	(Absent)	
Bare well drained sandy soils near wetland (turtle nest site)	Present	(Absent)	
Abundance of invasive exotic flora	(None or Low)	High	
Function Present	(Yes)	No	
Degree of Function	High Mod	(Low)	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Near airfield/roadways
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Low	Mod	Low	Mod	Low	Low	NO	Low	NO	NO	Mod	NO

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo 209 S Zone 2 **MODIFIED FUNCTIONS AND VALUES ASSESSMENT**

Project Name: Brunswick NAS **Wet Id#:** ~~FA22~~ 4120 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity--*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings S Shrubs Herbs Grass

Soil: DeA - Deerfield loamy sand

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	Culverted under road from ponded Area FA21
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	+Development
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	Logs
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Cloudy - Ponded area had a spill

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	Silty water in stream
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	Picnic Area
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	Stream system
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			H, LL
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	S L
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	L
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/low	Low	Low	Mod	Low	Low	Mod	Mod	No	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 23 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings Shrubs Herbs Grass

Soil: BgC2 - Belgrade very fine sandy loam

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	Outflow into adj. stream
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	
% of pond covered by submerged or emergent vegetation	15-40%	Other	<15%
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	
Function Present	Yes	No	Fish present, but degraded habitat
Degree of Function	High Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	Some fish in pond
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	Signs posted w/ no fishing + swimming
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	**Comments**
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	OW
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Forest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	Mod	Mod	Mod	Low	Low	Mod	Low	Low	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS - **Wet Id#:** FA 24 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*–

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings S Shrubs Herbs Grass

Soil: BgC2 - Belgrade fine sandy loam

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	Culverted from FA 23 + into FA 47
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	Moderate
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	Culvert, riprap.
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	Shrubs
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		(No)	
Boating or canoeing feasible in wetland	Yes		(No)	
Off-road public parking near wetland available	(Yes)		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	(Yes)		No	
Degree of Function	High	Mod	(Low)	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		(Moderate to High)	
Wetland fragmentation by development	Little or None		(Moderate to High)	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	(Yes)		No	Forest
Buffer width	Good to Excellent		(Fair to Poor)	
Connectivity with other wetlands	(Yes)		No	
Size of landscape block in which wetland is located	(Large)		Small	
Wildlife food sources in wetland	(Abundant)		Few	
Interspersion of vegetation and open water	High		(Low)	
Upland islands	Present		(Absent)	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		(Low)	Shrub Swamp
Vegetation density	(High)		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				shrub, herb,
Wetland plant species diversity	High	Mod	(Low)	
Vernal pool	Yes		(No)	
Edge diversity (List types)				Forest
Water regime	Wetter		(Drier)	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		(Few)	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		(Few)	
Flat rocks in/near watercourse (stream salamanders)	Present		(Absent)	
Sphagnum hummocks next to shallow pools	Present		(Absent)	
Bare well drained sandy soils near wetland (turtle nest site)	Present		(Absent)	
Abundance of invasive exotic flora	(None or Low)		High	
Function Present	(Yes)		No	
Degree of Function	High	Mod	(Low)	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Low	Mod	Low	Low	Low	Low	Low	Low	Low	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 25 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings Shrubs Herbs Grass

Soil: BuB - Buxton silt Loam

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	Comments
Sources of sediments or toxicants upstream	Yes		No	Unknown
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	Unknown
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	unknown
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	**+**		**-**	**Comments**
Wetland degradation by human activity	Little or None		Moderate to High	Culverts
Wetland fragmentation by development	Little or None		Moderate to High	Culverts
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	PFO
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, leaflitter
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Forest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	Logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	Logs
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/NO	NO	NO	NO	NO	NO	Low	Low	NO	NO	NO	NO

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 26 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings S Shrubs Herbs Grass

Soil: WmC - Windsor Sandy loam

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	Culverts upstream
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	Shrubs
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	Unknown
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	unknown
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	**+**		**-**	**Comments**
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Shrub swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Shrub, herb
Wetland plant species diversity	High	Mod Low		
Vernal pool	Yes		No	
Edge diversity (List types)				Forest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	Shrub swamp
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin college
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Na	High	Mod	Mod	Mod	High	Low	High	No	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 27 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen Mixed
Bog	Compact shrub Bushy shrub ~~Wooded~~ Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings S Shrubs Herbs Grass

WmC - Windsor sandy loam

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+		-	Comments
Soils	Sand/gravel outwash		Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes		No	
Slope	Gentle		Moderate or Steep	
Function Present	Yes	No		
Degree of Function	High	Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+		-	Comments
Soils	Hardpan, shallow ledge			
Seeps, springs observed?	Yes		No	
Wetland microrelief	Well developed		Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-		Comments
Wetland size in relation to watershed	Large	Small		
Amount of impervious surface in wetland watershed	Large	Small		
Wetland Slope	Gentle	Moderate	Steep	
Wetland characterized by variable water level?	Yes	No		
Wetland in floodplain of adjacent watercourse	Yes	No		
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No		
Watershed has a history of economic loss due to flooding	Yes	No		Unknown
Wetland outlet restricted	Yes	No		
Wetland vegetation density	High	Low		
Wetland microrelief	Well developed	None/Poorly developed		

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	Trees
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	Trees
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	Unknown
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	W
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			T, H, LL
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/mod	Mod	Low	Low	Low	Mod	NO	Mod	NO	No	No	NO

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 28 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings Shrubs Herbs Grass

WmB - Windsor loamy sand

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No Yes	(Explain)		

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+		-	Comments
Soils	Sand/gravel outwash		Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes		No	
Slope	Gentle		Moderate or Steep	
Function Present	Yes No			
Degree of Function	High	Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+		-	Comments
Soils	Hardpan, shallow ledge			
Seeps, springs observed?	Yes		No	
Wetland microrelief	Well developed		Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-		Comments
Wetland size in relation to watershed	Large	Small		
Amount of impervious surface in wetland watershed	Large	Small		
Wetland Slope	Gentle	Moderate	Steep	
Wetland characterized by variable water level?	Yes	No		
Wetland in floodplain of adjacent watercourse	Yes	No		
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No		
Watershed has a history of economic loss due to flooding	Yes	No		Unknown
Wetland outlet restricted	Yes	No		
Wetland vegetation density	High	Low		
Wetland microrelief	Well developed	None/Poorly developed		

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream) Seasonal stream - photo 288

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, sapling
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	F
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	Low	No	Low	Low	Low	No	Mod	No	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 29 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

WmB - Windsor loamy sand

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	No watercourse
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	**+**		**-**	**Comments**
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Wooded Swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				T, S, LL
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Forest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin college
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/Med	Low	No	No	No	No	No	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health,,recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA30 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings Shrubs Herbs Grass

Soil: WmB - Windsor loamy sand

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	No inlet or outlet
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	No outlet
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	No inputs
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		No input
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded Swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, herb, Leaf Litter
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	Moderate
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/mod	Mod	No	Low	Low	No	No	Mod	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 31 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings Shrubs Herbs Grass

Soil: WmB - Windsor loamy sand

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	No inlet or outlet
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	No outlet
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	No watercourse
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, herb, Leaf litter
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	Moderate
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/mod	Mod	No	Low	Low	No	No	Mod	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 32 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site Investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

WmB - Windsor loamy sand

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	Input from stormwater system - culverted from residential area
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	Culverted under road
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	Trees
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High	Mod / Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Mallards & spotted sal. egg masses
Fish or shellfish develop/occur in wetland	Yes	No	Unknown
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	Directly adj. to development

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	PEM
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Herb
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	But spotted sal. egg masses present
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	School/daycare across street
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Adj. to road
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	Mod	No	Mod	Mod	Mod	No	Mod	No	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 33 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings M Shrubs Herbs Grass

Soil: Sd - Saugatuck loamy sand - hydric soil

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	None/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	No outlet
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	Low
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	(No)		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		(No)	
Potential sediment sources upstream or upslope	(Yes)		No	Salt/sand from treating road
Wetland border >10' adjacent to pond or water	Yes		(No)	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		(No)	
Boating activity present	Yes		(No)	
Floodplain stabilizing trees and shrubs present	(Yes)		No	
Indications of erosion or siltation present	Yes		(No)	
Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	(No)	
Fishing is available in or from the wetland	Yes	(No)	
Hunting is permitted in wetland	Yes	(No)	
Hiking occurs or has potential to occur in wetland	Yes	(No)	
Wetland is a valuable wildlife habitat	Yes	(No)	

Wetland has high visual/aesthetic quality	Yes		(No)	
Boating or canoeing feasible in wetland	Yes		(No)	
Off-road public parking near wetland available	Yes		(No)	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	**Comments**
Wetland degradation by human activity	Little or None		(Moderate to High)	
Wetland fragmentation by development	Little or None		(Moderate to High)	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	(Yes)		No	
Buffer width	Good to Excellent		(Fair to Poor)	Narrow Forested strip one side
Connectivity with other wetlands	Yes		(No)	
Size of landscape block in which wetland is located	Large		(Small)	
Wildlife food sources in wetland	Abundant		(Few)	
Interspersion of vegetation and open water	High		(Low)	
Upland islands	Present		(Absent)	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		(Low)	Wooded swamp
Vegetation density	High		(Low)	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, leaf litter
Wetland plant species diversity	High	Mod	(Low)	
Vernal pool	Yes		(No)	
Edge diversity (List types)				
Water regime	Wetter		(Drier)	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	(Abundant)		Few	Fallen logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	(Abundant)		Few	Logs/branches
Flat rocks in/near watercourse (stream salamanders)	Present		(Absent)	
Sphagnum hummocks next to shallow pools	Present		(Absent)	
Bare well drained sandy soils near wetland (turtle nest site)	Present		(Absent)	
Abundance of invasive exotic flora	(None or Low)		High	
Function Present	Yes		(No)	Very small wetland - likely drains into stormwater system.
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest + development
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
NO / No	No	No	Low	No	No	No	No	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 34 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen Mixed
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings M Shrubs Herbs Grass

Soil: 12A - Haplaquents - Naumburg complex

Leaf litter: Well developed | Moderately well developed | Absent

Cover objects: Logs | Bark | Boulders | Rocks

Evidence of Erosion: No | Yes | (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	No obs. outlet - likely drains into stormwater system
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	Runoff from road.
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High	Mod / Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	Sand/salt runoff from road
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	No nearby water
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	wooded swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, leaf litter
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Forest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin college
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	Roadway
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Near road
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
No/No	No	No	Low	No	No	No	No	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 35 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings S Shrubs Herbs Grass

Soil: Sd - Sangatuck loamy sand - hydric

Leaf litter: Well developed Moderately well developed Absent

Cover objects: Logs Bark Boulders Rocks

Evidence of Erosion: No Yes (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High	Mod / Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Common forest dwelling birds/squirrels.
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, sapling, herb, Leaf litter
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
No/No	Mod	No	Mod	No	No	No	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 36 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings Shrubs Herbs M Grass D

Soil: WmB - Windsor loamy sand

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No Yes	(Explain) Highly altered stormwater detention pond		

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	culverted
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	
% of pond covered by submerged or emergent vegetation	15-40%	Other	
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	Unknown
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Spotted Sal. egg masses obs.
Fish or shellfish develop/occur in wetland	Yes	No	Unknown
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Nearby school / playground
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	**Comments**
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	Culverted stormwater system
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Lawn
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	WM
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Herb.
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	Unnatural
Edge diversity (List types)				Lawn, Forest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest, lawn
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin / School / playground
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/No	High	No	High	Mod	Low	Low	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 37 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

~~Seasonally saturated (Y)~~ - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings M Shrubs Herbs Grass

Soil: Sd - Saugatuck loamy sand - hydric

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	No watercourse
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Vernal pool
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	Slight
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	WM
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Herb, leaf litter
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	Low
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
No/High	High	NO	High	mod	Mod	No	Low	No	NO	NO	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FM40 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen Mixed
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs M Herbs Grass

Soil: BuB - Buxton silt loam

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+		-	Comments
Soils	Sand/gravel outwash		Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes		No	
Slope	Gentle		Moderate or Steep	
Function Present	Yes	No		
Degree of Function	High	Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+		-	Comments
Soils	Hardpan, shallow ledge			
Seeps, springs observed?	Yes		No	
Wetland microrelief	Well developed		Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-		Comments
Wetland size in relation to watershed	Large	Small		
Amount of impervious surface in wetland watershed	Large	Small		
Wetland Slope	Gentle	Moderate	Steep	
Wetland characterized by variable water level?	Yes	No		
Wetland in floodplain of adjacent watercourse	Yes	No		
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No		
Watershed has a history of economic loss due to flooding	Yes	No		Unknown
Wetland outlet restricted	Yes	No		No outlet - isolated
Wetland vegetation density	High	Low		
Wetland microrelief	Well developed	None/Poorly developed		

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	No inputs
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		No inputs
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	Isolated wetland
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	Potential for recreation
Degree of Function	High	Mod	Low	Large area undeveloped

WLH/WILDLIFE HABITAT

Criteria	+	-	**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	isolated
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	No open water
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	moderate
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			T, S, SH, H, LL
Wetland plant species diversity	High Mod	Low	
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	Moderate
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin college
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No
Degree of Function	High	Mod	Low

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	NO	No	Low	Low	NO	Mod	Mod	Low	NO	NO	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA41 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Soil: BuB - Buxton silt loam

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+		-	Comments
Soils	Sand/gravel outwash		Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes		No	Isolated wetland
Slope	Gentle		Moderate or Steep	
Function Present	Yes	No		
Degree of Function	High	Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+		-	Comments
Soils	Hardpan, shallow ledge			
Seeps, springs observed?	Yes		No	
Wetland microrelief	Well developed		Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes		No	Isolated wetland
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-		Comments
Wetland size in relation to watershed	Large	Small		
Amount of impervious surface in wetland watershed	Large	Small		
Wetland Slope	Gentle	Moderate	Steep	
Wetland characterized by variable water level?	Yes	No		
Wetland in floodplain of adjacent watercourse	Yes	No		
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No		
Watershed has a history of economic loss due to flooding	Yes	No		Unknown
Wetland outlet restricted	Yes	No		No outlet
Wetland vegetation density	High	Low		
Wetland microrelief	Well developed	None/Poorly developed		

Function Present	Yes	(No)		surface
Degree of Function	High	Mod	Low	No hydrologic connections

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	
% of pond covered by submerged or emergent vegetation	15-40%	Other	
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	(No)	
Duration of water retention in wetland	(Long)	Short	
Evidence of sediment trapping in wetland	Yes	(Low)	
Vegetation density	(High)	No	
Wetland edge broad and intermittently aerobic	(Yes)	Low	
Drainage ditches in wetland	(No)	Yes	
Water flow through wetland	(Diffuse)	Channelized	
Ponded water present	(Yes)	No	
Wetland basin topographic gradient	(Low)	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	(No)	Yes	
Function Present	(Yes)	No	
Degree of Function	High / Mod	(Low)	No inputs

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	(Small)	
Potential sources of excess nutrients upstream	Yes	(No)	
Wetland is saturated most of the season	(Yes)	No	
Emergent vegetation and/or dense woody stems are dominant	(Yes)	No	
Water flow through wetland	(Diffuse)	Channelized	
Vegetation density	(High)	Low	
Potential for sediment trapping exists	(Yes)	No	
Deep or open water habitat is present	Yes	(No)	Some ponded water
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	(Low)	High	
Wetland microrelief	(Well developed)	None, poorly developed	

Function Present	Yes	No		No inputs
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	Isolated wetland
Degree of Function	High / Mod	Low	no surface hydrologic connections

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	Sig. Vernal Pool #36

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	No current access
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	Isolated
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Shrub swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Shrub, Herb, Leaf Litter
Wetland plant species diversity	High	Mod Low		
Vernal pool	Yes		No	SVP #36
Edge diversity (List types)				Forest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	Shrub swamp
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	Potential exists.
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	No	No	Low	Low	No	Mod	High	Mod	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 42 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings S Shrubs Herbs Grass

Soil: BuB - Buxton Silt loam

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+		-	Comments
Soils	Sand/gravel outwash		Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes		No	Isolated wetland
Slope	Gentle		Moderate or Steep	
Function Present	Yes	No		
Degree of Function	High	Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+		-	Comments
Soils	Hardpan, shallow ledge			
Seeps, springs observed?	Yes		No	
Wetland microrelief	Well developed		Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes		No	No inlet or outlet
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-		Comments
Wetland size in relation to watershed	Large	Small		
Amount of impervious surface in wetland watershed	Large	Small		
Wetland Slope	Gentle	Moderate	Steep	
Wetland characterized by variable water level?	Yes	No		
Wetland in floodplain of adjacent watercourse	Yes	No		
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No		
Watershed has a history of economic loss due to flooding	Yes	No		Unknown
Wetland outlet restricted	Yes	No		No outlet
Wetland vegetation density	High	Low		
Wetland microrelief	Well developed	None/Poorly developed		

Function Present	Yes	(No)		No surface hydrologic connection
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land-use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	No watercourse
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	No inputs, low veg. denity

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	(No)		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (~~Excluding Condition: No Outlet~~)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	(No)	Isolated wetland
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	(No)	
Fishing is available in or from the wetland	Yes	(No)	
Hunting is permitted in wetland	Yes	(No)	
Hiking occurs or has potential to occur in wetland	(Yes)	No	
Wetland is a valuable wildlife habitat	Yes	(No)	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	Potential for hiking, no access currently
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	Isolated
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, sapling, leaf litter
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin college
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	Potential.
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	No	No	No	No	No	Low	Mod	Low	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA43 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity--*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings Shrubs Herbs Grass

Soil: BuB - Buxton silt loam.

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	Isolated wetland
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	Isolated
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	No surface hydrologic connection

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	
% of pond covered by submerged or emergent vegetation	15-40%	Other	
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	No inputs
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		No inputs
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	Isolated wetland
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		(No)	
Boating or canoeing feasible in wetland	Yes		(No)	
Off-road public parking near wetland available	Yes		(No)	
Safety Hazards (if present list them)	Yes		(No)	
Function Present	(Yes)		No	Potential for hiking
Degree of Function	High	Mod	(Low)	

WLH/WILDLIFE HABITAT

Criteria	+		-	**Comments**
Wetland degradation by human activity	(Little or None)		Moderate to High	
Wetland fragmentation by development	(Little or None)		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	(Yes)		No	Forest
Buffer width	(Good to Excellent)		Fair to Poor	
Connectivity with other wetlands	Yes		(No)	isolated
Size of landscape block in which wetland is located	(Large)		Small	
Wildlife food sources in wetland	Abundant		(Few)	
Interspersion of vegetation and open water	High		(Low)	
Upland islands	Present		(Absent)	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		(Low)	Shrub swamp
Vegetation density	(High)		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Shrubs, leaf litter
Wetland plant species diversity	High	Mod	(Low)	
Vernal pool	Yes		(No)	
Edge diversity (List types)				Forest
Water regime	Wetter		(Drier)	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		(Few)	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		(Few)	
Flat rocks in/near watercourse (stream salamanders)	Present		(Absent)	
Sphagnum hummocks next to shallow pools	Present		(Absent)	
Bare well drained sandy soils near wetland (turtle nest site)	Present		(Absent)	
Abundance of invasive exotic flora	(None or Low)		High	
Function Present	(Yes)		No	
Degree of Function	High	Mod	(Low)	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	No	No	Low	Low	No	Low	Low	Low	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 44 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen Mixed forest
Bog	Compact shrub Bushy shrub ~~Wooded~~ Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings S Shrubs S Herbs Grass

Soil: HrB - Hollis fine sandy loam

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	Isolated wetland
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	No outlet - isolated wetland
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	3 North/South depressions - old farm
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	No inputs.
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	(No)		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		(No)	Isolated wetland
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	(No)	
Fishing is available in or from the wetland	Yes	(No)	
Hunting is permitted in wetland	Yes	(No)	
Hiking occurs or has potential to occur in wetland	(Yes)	No	Potential - large area
Wetland is a valuable wildlife habitat	Yes	(No)	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	Potential
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, Sapling, shrub, herb, leaf litter
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	Logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	Logs/branches
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	Moderate
Wetland class diversity	High		Low	Wooded swamp
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/No	No	NO	Low	No	No	Low	Mod	NO	No	NO	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 45 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen Mixed
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs S Herbs Grass

Soil: BuB – Buxton silt loam

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	Isolated wetland
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	No outlet - isolated wetland
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	No inputs

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	Low
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	(No)		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		(No)	Isolated wetland
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	(No)	
Fishing is available in or from the wetland	Yes	(No)	
Hunting is permitted in wetland	Yes	(No)	
Hiking occurs or has potential to occur in wetland	(Yes)	No	Potential - large area
Wetland is a valuable wildlife habitat	Yes	(No)	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	Potential
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, sapling, herb, leaf litter
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	Moderate
Wetland class diversity	High		Low	Wooded Swamp
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin college
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/No	No	No	Low	No	No	Low	mod	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 46 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs S Herbs Grass

Soil: BuB - Buxton silt loam

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	Isolated wetland
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	No outlet - isolated wetland
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	No outlet

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	No inputs

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	low
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		No inputs
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	Isolated wetland
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential - large area
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	Potential
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Shrub swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Shrub, Tree, Herb
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	Shrub swamp
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/No	No	No	Low	Low	No	Low	Mod	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 47 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Soil: S_n - Scantic silt loam

Leaf litter: Well developed | Moderately well developed | Absent

Cover objects: Logs | Bark | Boulders | Rocks

Evidence of Erosion: No | Yes | (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	Culverted from under airfield & under road
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	Moderate -
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant	Mostly tolerant	Unknown
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	Swiftly moving stream
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	low - no inputs
Deep or open water habitat is present	Yes	No	Not in wetland
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wet meadow
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Sapling, shrub, herb, leaf litter
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	Mod	Mod	Low	No	Low	Low	Mod	Low	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 48 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub ~~Wooded~~ ~~Emergent~~

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated ~~Saturated in upper 12"~~ Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings Shrubs Herbs Grass

Soil: Ru - Rumney fine sandy loam

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark Boulders	Rocks
Evidence of Erosion:	No Yes	(Explain) Unstable banks	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+		Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	None/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	
% of pond covered by submerged or emergent vegetation	15-40%	Other	
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	Mere Brook from under airfield
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	islands
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	Moderate
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	Fish obs. in stream
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	Comments
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	Swiftly moving stream, trees down near bank.
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Sig. vernal pool #32
Fish or shellfish develop/occur in wetland	Yes	No	Unknown
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	Trees down along bank
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	Sig. vernal pool #32

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	Potential
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forrest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	wet meadow
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				shrub, Herb,
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	Sig. vernal pool #32
Edge diversity (List types)				Forrest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	Sig. vernal pool #32
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	Mod	Mod	Low	Low	High	Low	High	Mod	Mod	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 49 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings Shrubs Herbs Grass

Soil: BuB - Buxton silt loam

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No Yes	(Explain)		

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	None/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (~~Excluding condition: Not associated with pond/lake~~)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	Mere Brook from under airfield
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	Many down trees along edges
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	Fish observed
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+			-	Comments
Wildlife food sources in wetland	Abundant			Few	
Vegetation density	High			Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes			No	
Wetland has high degree of plant community structure and species diversity	Yes			No	
Detritus development is present within this wetland	Yes			No	
Flowering plants used by nectar gatherers present	Yes			No	
Evidence of wildlife use in wetland	Yes			No	Great Blue Heron present
Fish or shellfish develop/occur in wetland	Yes			No	Unknown
Function Present	Yes			No	
Degree of Function	High	Mod	Low		

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+			-	Comments
Topographical gradient in wetland	Yes			No	
Potential sediment sources upstream or upslope	Yes			No	
Wetland border >10' adjacent to pond or water	Yes			No	
Distinct shoreline or bank evident between wetland and water	No			Yes	
Open water fetch present	Yes			No	
Boating activity present	Yes			No	
Floodplain stabilizing trees and shrubs present	Yes			No	Moderate - shrubs.
Indications of erosion or siltation present	Yes			No	Many downed trees along edge
Function Present	Yes			No	
Degree of Function	High	Mod	Low		

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	Potential
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	Culverted along reach.
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Shrub / Meadow
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Shrub swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Shrub, herb, leaf litter
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	Fallen logs, snags
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	Logs/branches
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	Mod	Mod	Low	Low	High	Mod	High	Mod	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 50 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class E2EM - emergent	**Subclass**
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed frees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Soil: SuD2 - Suffield silt loam

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils.	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	Both inlet + outlet
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	Culverted above
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	Fish present in pooled areas
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	No inputs
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	potential
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Emergent marsh
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Herb, leaf litter
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/NO	Mod	High	Mod	Mod	High	Mod	Mod	Low	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 51 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees Saplings Shrubs Herbs Grass

Soil: BuC2 - Buxton silt Loam

Leaf litter: Well developed Moderately well developed Absent

Cover objects: Logs Bark Boulders Rocks

Evidence of Erosion: No Yes (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	None/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	Inlet + outlet
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		Water impounded by berm - culveted
Degree of Function	High	Mod	Low	into Harpswell Cove.

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	Impounded by berm
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	Potential
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	W
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, leaf litter, herb
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	Moderate
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
No	Mod	No	Mod	Mod	Low	Low	Mod	Low	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 52 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings D Shrubs Herbs Grass

Soil: BuC2 - Buxton silt loam

Leaf litter: Well developed | Moderately well developed | Absent

Cover objects: Logs | Bark | Boulders | Rocks

Evidence of Erosion: No | Yes | (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No	
Degree of Function	High	Mod	Low

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High	Mod	Low

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Vernal pools
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	Potential
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Wooded swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, Sapling, Herb, leaf litter
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Forest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/mod	Low	No	mod	Mod	High	Low	High	Low	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo # 241 Direction: S

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 53 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M/D Saplings D Shrubs Herbs Grass

Soil: Sn - Scantic silt loam - Hydric soil

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow-ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well-developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	Culverted into stream
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	
% of pond covered by submerged or emergent vegetation	15-40%	Other	
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	Golf course
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	Culverted under dirt Rd.
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	Golf course
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	Vernal pool
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	Adj. to golf course, trails
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	Altered with culverts
Wetland fragmentation by development	Little or None	Moderate to High	Bisected by dirt rd.
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest + shrub thicket
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Shrub swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Sapling, shrub, herb, leaf litter
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	Some Japanese knotweed at S. end
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest, Sapling/shrub, Golf course
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin college
Wetland contains perennial watercourse	Yes		No	Culverted into stream
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Near airfield
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/mod	Mod	No	Mod	High	High	Mod	High	Mod	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #242 Direction: E

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 54 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs S Herbs S Grass S

Soil: 27A - Lamoine silt loam

013

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	Somewhat poorly drained soils
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	Soils could allow some groundwater recharge

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		Somewhat poorly drained soils
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	Semi-permanently flooded
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	unknown
Wetland outlet restricted	Yes	No	No outlet observed
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		Wetland does hold water for a significant period of time.
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	Forest
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	
% of pond covered by submerged or emergent vegetation	15-40%	Other	>40% emergent
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	No inlet observed
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	None observed
Function Present	Yes	No	Only semi-permanently flooded. No fish observed.
Degree of Function	High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		(No)	
Duration of water retention in wetland	(Long)		Short	
Evidence of sediment trapping in wetland	Yes		(Low)	
Vegetation density	(High)		No	
Wetland edge broad and intermittently aerobic	(Yes)		Low	
Drainage ditches in wetland	(No)		Yes	
Water flow through wetland	(Diffuse)		Channelized	
Ponded water present	(Yes)		No	
Wetland basin topographic gradient	(Low)		High	
Fine grained mineral or organic soils present	(Yes)		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	No watercourse present
Indicators of erosion or high water velocities are present	(No)		Yes	
Function Present	(Yes)		No	If sediments were present, long retention time & no outlet would prevent runoff.
Degree of Function	(High)	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	(Large)	Small	
Potential sources of excess nutrients upstream	Yes	(No)	
Wetland is saturated most of the season	(Yes)	No	
Emergent vegetation and/or dense woody stems are dominant	(Yes)	No	
Water flow through wetland	(Diffuse)	Channelized	
Vegetation density	(High)	Low	
Potential for sediment trapping exists	(Yes)	No	
Deep or open water habitat is present	(Yes)	No	
Soil type	Organic/high clay content	Sand/gravel	Lamoine silt loam
Wetland basin topographic gradient	(Low)	High	
Wetland microrelief	(Well developed)	None, poorly developed	

Function Present	(Yes)	No		If excess nutrient were present, retention time & no outlet would prevent runoff
Degree of Function	(High)	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	(No)	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	(No)	
Fishing is available in or from the wetland	Yes	(No)	
Hunting is permitted in wetland	Yes	(No)	
Hiking occurs or has potential to occur in wetland	(Yes)	No	Some logging roads
Wetland is a valuable wildlife habitat	(Yes)	No	

Wetland has high visual/aesthetic quality	Yes		(No)	
Boating or canoeing feasible in wetland	Yes		(No)	
Off-road public parking near wetland available	Yes		(No)	
Safety Hazards (if present list them)	Yes		(No)	
Function Present	Yes		(No)	Not used for recreation.
Degree of Function	High	(Mod)	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	(Little or None)		Moderate to High	
Wetland fragmentation by development	(Little or None)		Moderate to High	Old logging road at SW end.
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	(Yes)		No	Forest
Buffer width	(Good to Excellent)		Fair to Poor	
Connectivity with other wetlands	Yes		(No)	
Size of landscape block in which wetland is located	Large		(Small)	Near golfcourse and residential development
Wildlife food sources in wetland	(Abundant)		Few	
Interspersion of vegetation and open water	(High)		Low	
Upland islands	Present		(Absent)	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Open water and emergent marsh
Vegetation density	(High)		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Shrubs + herbaceous vegetation
Wetland plant species diversity	High	(Mod)	Low	Cattails dominant
Vernal pool	(Yes)		No	wood frog and spotted salamander egg masses
Edge diversity (List types)				Forest
Water regime	(Wetter)		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	(Abundant)		Few	Snags + fallen logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	(Abundant)		Few	Logs + branches
Flat rocks in/near watercourse (stream salamanders)	Present		(Absent)	
Sphagnum hummocks next to shallow pools	(Present)		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		(Absent)	
Abundance of invasive exotic flora	(None or Low)		High	None observed.
Function Present	(Yes)		No	
Degree of Function	(High)	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		(No)	
Wetland provides valuable wildlife habitat	(Yes)		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		(Low)	Forest
Off-road parking near wetland available	(Yes)		No	Golf course
Proximity to schools	(Near)		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		(No)	
Wetland contains pond/lake	(Yes)		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		(No)	
Function Present	(Yes)		No	Vernal pool habitat
Degree of Function	(High)	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		(No)	
Wetland identified as exemplary natural community	Yes		(No)	
Wetland locally/regionally significant	Yes		(No)	
Function Present	Yes		(No)	Not a unique site.
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		(No)	
Views absent trash, debris, sign of degradation	(Yes)		No	
Low noise level	Yes		(No)	Near airfield
Visual landuse contrast with wetland	(Yes)		No	
Function Present	(Yes)		No	Not highly accessible.
Degree of Function	High	(Mod)	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	(No)	
Wetland contains critical habitat for state or federal listed species	Yes	(No)	
Area appears in state or national database	Yes	(No)	

Function Present	Yes		(No)	No listed spp. present.
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Mod	Mod	Low	High	High	NO	Mod	High	High	No	NO	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo # 243 Direction: N

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 55 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated; Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody; Shrub; Sub-shrub; Robust; Narrow-leaved; Broad-leaved
PAB/ Shallow Marsh	Robust; Narrow-leaved; Broad-leaved; Floating leaved
PFL / Seasonally Flooded Flats	Emergent; Shrub
PEM / Wet Meadow	Ungrazed; Grazed
PSS / Shrub Swamp	Sapling; Bushy; Compact; Aquatic
PFO / Wooded Swamp	Deciduous; Evergreen
Bog	Compact shrub; Bushy shrub; Wooded; Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm white pine/red maple/red oak

Vegetation Density(S/M/D): Trees D Saplings M Shrubs S Herbs S Grass S

Soil: No Value

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	Culverted under road
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	Golf course, roadways
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	<15%
Direct stormwater discharge via culvert?	No		Yes	Under roadway into perennial stream
Sandbar present at inlet?	No		Yes	No inlet
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	Fertilizers from golf course
Pond size ≥0.5 acre	Yes		No	21175 sq. ft = 0.49 acres
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	Unknown, none observed
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	Runoff from roadway or golf course
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	Little vegetation within ponded area
Wetland edge broad and intermittently aerobic	Yes	Low	Narrow wetland edge
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	Fertilizer from golf course
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	Narrow wetland border

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	Birds
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	Not a highly productive wetland or pond.
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	Narrow wetland edge
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	Water is not clear
Function Present	Yes		No	Ponded area is culverted under road into stream and may provide some stabilization to the stream.
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	Adjacent to golf course
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		(No)	
Boating or canoeing feasible in wetland	Yes		(No)	
Off-road public parking near wetland available	(Yes)		No	At golf course
Safety Hazards (if present list them)	Yes		(No)	
Function Present	(Yes)		No	while ponded area is adjacent to a golf course, it does not provide a recreational value
Degree of Function	High	(Mod)	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	(Moderate to High)	Area is highly altered by culvert and
Wetland fragmentation by development	Little or None	(Moderate to High)	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	(Yes)	No	Forest
Buffer width	Good to Excellent	(Fair to Poor)	while some forested buffer exists, ponded area is also adjacent to roadway.
Connectivity with other wetlands	Yes	(No)	Ponded area culverted into stream
Size of landscape block in which wetland is located	Large	(Small)	
Wildlife food sources in wetland	Abundant	(Few)	
Interspersion of vegetation and open water	High	(Low)	Open water with a narrow wetland border
Upland islands	Present	(Absent)	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	(Low)	Narrow shrub edge
Vegetation density	High	(Low)	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	(No)	
Edge diversity (List types)			
Water regime	(Wetter)	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	(Few)	Some logs and branches
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	(Few)	"
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	(Absent)	
Bare well drained sandy soils near wetland (turtle nest site)	Present	(Absent)	
Abundance of invasive exotic flora	None or Low	(High)	Japanese knotweed present approx 200ft away
Function Present	(Yes)	No	
Degree of Function	High Mod	(Low)	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		(No)	
Wetland provides valuable wildlife habitat	Yes		(No)	
Wetland class diversity	High		(Low)	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		(Low)	Forest
Off-road parking near wetland available	(Yes)		No	At golf course
Proximity to schools	(Near)		Far	Bowdoin College
Wetland contains perennial watercourse	(Yes)		No	Ponded area culverted into stream
Wetland contains pond/lake	(Yes)		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		(No)	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		(No)	
Wetland identified as exemplary natural community	Yes		(No)	
Wetland locally/regionally significant	Yes		(No)	
Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	(Yes)		No	
Views absent trash, debris, sign of degradation	Yes		(No)	Trash along roadway
Low noise level	Yes		(No)	Near airfield and roadway
Visual landuse contrast with wetland	(Yes)		No	
Function Present	(Yes)		No	
Degree of Function	High	Mod	(Low)	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	(No)	
Wetland contains critical habitat for state or federal listed species	Yes	(No)	
Area appears in state or national database	Yes	(No)	

Function Present	Yes		(No)	No listed spp.
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/No	Mod	Low	Mod	Mod	Low	Mod	Low	No	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 244 Direction: NW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 56 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass D

Soil: 15A - Haplaquents - Lamoline complex

Leaf litter: Well developed | Moderately well developed | Absent

Cover objects: Logs | Bark | Boulders | Rocks

Evidence of Erosion: No | Yes | (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	Adj. to golf course
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral-zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	Ponded + culverted
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	Moderate - golf course + Forest
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	Potential runoff from golf course
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Birds
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	Golf course
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, sapling, shrub, herb, leaf litter
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest, golf course
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest, golf course
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				Golf balls
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
No/High	Mod	Mod	Mod	Mod	High	High	Mod	Mod	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 245 Direction: N

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 57 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass D

Soil: 15A - Haplaquents - Lamoline complex

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+		-		Comments
Soils	Sand/gravel outwash		Hardpan, tight fine-grained soils, shallow ledge		
Wetland associated w/ perennial or seasonal watercourse	Yes		No		
Slope	Gentle		Moderate or Steep		
Function Present	Yes	No			
Degree of Function	High	Mod		Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+		-	Comments
Soils	Hardpan, shallow ledge			
Seeps, springs observed?	Yes		No	
Wetland microrelief	Well developed		Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-		Comments
Wetland size in relation to watershed	Large	Small		
Amount of impervious surface in wetland watershed	Large	Small		
Wetland Slope	Gentle	Moderate	Steep	
Wetland characterized by variable water level?	Yes	No		
Wetland in floodplain of adjacent watercourse	Yes	No		
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No		
Watershed has a history of economic loss due to flooding	Yes	No		Unknown
Wetland outlet restricted	Yes	No		
Wetland vegetation density	High	Low		
Wetland microrelief	Well developed	None/Poorly developed		

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	Ponded & culverted along road
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	Channelized
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High	Mod	Low

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Birds
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Shrub Swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Shrub, herb, leaf litter
Wetland plant species diversity	High	Mod Low		
Vernal pool	Yes		No	
Edge diversity (List types)				Forest, golf course
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+	-	Comments
Wetland contains listed species	Yes	No	
Wetland provides valuable wildlife habitat	Yes	No	
Wetland class diversity	High	Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High	Low	Forest, golf course
Off-road parking near wetland available	Yes	No	
Proximity to schools	Near	Far	Bowdoin
Wetland contains perennial watercourse	Yes	No	
Wetland contains pond/lake	Yes	No	
Safety hazards (if present list them)			
Site currently used for educational/scientific purposes	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+	-	Comments
Wetland contains listed species	Yes	No	
Wetland identified as exemplary natural community	Yes	No	
Wetland locally/regionally significant	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+	-	Comments
Visible from primary viewing locations	Yes	No	
Views absent trash, debris, sign of degradation	Yes	No	
Low noise level	Yes	No	
Visual landuse contrast with wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/mod	Mod	Mod	Mod	mod	High	High	Mod	Mod	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 246 Direction: E

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 58 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm Near / Golf course

Vegetation Density(S/M/D): Trees Saplings Shrubs M Herbs D Grass D

Soil: 15A - Haplaquents - Lamoline complex

Leaf litter:	Well developed	Moderately well developed		Absent in golf course areas
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	Inflow & outflow culverted
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	mod.
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Birds
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	Golf course
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Wooded swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				T, S, SH, H, LL
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Golf course, fields
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Golfcourse & fields
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				Golf balls
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/No	Low	Low	mod	Mod	High	Low	Mod	Low	No	mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 247 Direction: NW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 59 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site Investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees Saplings Shrubs M Herbs M Grass D

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+		-	Comments
Soils	Sand/gravel outwash		Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes		No	
Slope	Gentle		Moderate or Steep	
Function Present	Yes	No		
Degree of Function	High	Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+		-	Comments
Soils	Hardpan, shallow ledge			
Seeps, springs observed?	Yes		No	
Wetland microrelief	Well developed		Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes		No	Borders stream
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-		Comments
Wetland size in relation to watershed	Large	Small		
Amount of impervious surface in wetland watershed	Large	Small		
Wetland Slope	Gentle	Moderate	Steep	
Wetland characterized by variable water level?	Yes	No		
Wetland in floodplain of adjacent watercourse	Yes	No		
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No		
Watershed has a history of economic loss due to flooding	Yes	No		Unknown
Wetland outlet restricted	Yes	No		Culverted under golf course walkway
Wetland vegetation density	High	Low		
Wetland microrelief	Well developed	None/Poorly developed		

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	
% of pond covered by submerged or emergent vegetation	15-40%	Other	
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	Emergent veg
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	Not a lot of spp diversity
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Great blue heron
Fish or shellfish develop/occur in wetland	Yes	No	Unknown
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes	No	
Boating or canoeing feasible in wetland	Yes	No	
Off-road public parking near wetland available	Yes	No	
Safety Hazards (if present list them)	Yes	No	Golf balls
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Sapling / Shrub thicket
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wm
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb Lt=Leaf litter)			Herb,
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Shrub thicket, mowed lawn
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	S, mowed lawn
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				Golf balls
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Near airfield
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Low	Mod	Low	Mod	Mod	Mod	Mod	Mod	Low	Low	Low	NO

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 248 Direction: N

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 60 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub ~~Wooded~~ Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity--*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: ~~Yes~~ No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Soil: 26A - Gouldsboro silt loam

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	Potential
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, Sapling
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Near airfield
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
No/High	No	No	Low	Low	Low	Low	Mod	Low	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo#: 249 Direction: SE

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 61 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded ~~Emergent~~

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings D Shrubs Herbs M Grass

Leaf litter: Well developed Moderately well developed Absent

Cover objects: Logs Bark Boulders Rocks

Evidence of Erosion: No Yes (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	No inputs

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	Potential

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	Weapons facility
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	No open water
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Wooded swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, Sapling, herb, LL
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Forest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	Near weapons facility
Low noise level	Yes		No	Near airfield
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Mod	Low	No	Mod	Low	No	Mod	High	Low	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 256 Direction: N

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 62 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm Adjacent to EOD pit.

Vegetation Density(S/M/D): Trees M Saplings M Shrubs Herbs Grass

Soil: WrB - Woodbridge fine sandy loam

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+		-	Comments
Soils	Sand/gravel outwash		Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes		No	
Slope	Gentle		Moderate or Steep	
Function Present	Yes	No		
Degree of Function	High	Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+		-	Comments
Soils	Hardpan, shallow ledge			
Seeps, springs observed?	Yes		No	
Wetland microrelief	Well developed		Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-		Comments
Wetland size in relation to watershed	Large	Small		
Amount of impervious surface in wetland watershed	Large	Small		
Wetland Slope	Gentle	Moderate	Steep	
Wetland characterized by variable water level?	Yes	No		
Wetland in floodplain of adjacent watercourse	Yes	No		
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No		
Watershed has a history of economic loss due to flooding	Yes	No		
Wetland outlet restricted	Yes	No		
Wetland vegetation density	High	Low		
Wetland microrelief	Well developed	None/Poorly developed		

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	EOD Pit
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	unknown
% of pond covered by submerged or emergent vegetation	15-40%	Other	
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	Unknown
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	EOD Pit?
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	Unknown
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	Birds
Fish or shellfish develop/occur in wetland	Yes		No	Potential
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	Adj. to EOD pit
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	EOD Pit
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Shrub thicket, Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Shrub swamp, Open water
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Sh, H, LL
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forrest, shrubs
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	EOD Pit
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest, shrub
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				EOD Pit
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
No/Mod	No	Mod	High	High	High	No	Mod	No	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 267 Direction: N

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 63 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen Mixed
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	Culverted under dirt road
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Significant vernal pool
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	Next to EOD Pit
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Wooded swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Sapling, Shrub, Herb, LL
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Forest, EOD roadways
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest, EOD pit
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				EOD Pit
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Near airfield
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Mod	Low	No	Mod	Mod	Mod	No	Mod	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 259 Direction: NW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 65 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Leaf litter: Well developed Moderately well developed Absent

Cover objects: Logs Bark Boulders Rocks

Evidence of Erosion: No Yes (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	Culverted under road
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	
% of pond covered by submerged or emergent vegetation	15-40%	Other	
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	Unknown
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	Unknown
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	In restricted area.
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest, Lawn.
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Shrub swamp, open water
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Shrub, herb
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest, lawn
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest, Lawn
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				In restricted area
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	No	Mod	Mod	Low	Mod	Mod	Mod	Low	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 263 Direction: N

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 68 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees Saplings Shrubs Herbs D Grass D

Soil-27A - Lamoine silt Loam -

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	Golf course
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	Culverted
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	Next to airfield
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Lawn
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	PEM
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Herb
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Grassland
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Grassland
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				Next to airfield
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Mod	Low	No	Low	Low	Low	NO	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 264 Direction: SW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 69 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *~~soils saturated to surface, especially~~ early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees S Saplings M Shrubs M Herbs Grass

20A - Naumburg loamy fine sand - Hydric

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	Golf course
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High	Mod	Low

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Vernal pools
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	Potential

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Shrub swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Sapling, shrub, Herb, LL
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Forest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
No/High	Mod	No	Mod	Low	High	Mod	Mod	Low	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo#: 265 Direction: S

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 70 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen Mixed
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity--*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Soil: 20A - Naumburg loamy fine sand - Hydric

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+		-	Comments
Soils	Sand/gravel outwash		Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes		No	
Slope	Gentle		Moderate or Steep	
Function Present	Yes	No		
Degree of Function	High	Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+		-	Comments
Soils	Hardpan, shallow ledge			
Seeps, springs observed?	Yes		No	
Wetland microrelief	Well developed		Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-		Comments
Wetland size in relation to watershed	Large	Small		
Amount of impervious surface in wetland watershed	Large	Small		
Wetland Slope	Gentle	Moderate	Steep	
Wetland characterized by variable water level?	Yes	No		
Wetland in floodplain of adjacent watercourse	Yes	No		
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No		Golf course
Watershed has a history of economic loss due to flooding	Yes	No		
Wetland outlet restricted	Yes	No		
Wetland vegetation density	High	Low		
Wetland microrelief	Well developed	None/Poorly developed		

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	Comments
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Vernal pools
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	Vernal pools

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, sapling, herb, leaf litter
Wetland plant species diversity	High Mod	Low	
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	Low	No	Low	No	Low	Low	Mod	Low	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 266 Direction: E

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 71 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

34c - Tunbridge fine sandy loam

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+		-	Comments
Soils	Sand/gravel outwash		Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes		No	
Slope	Gentle		Moderate or Steep	
Function Present	Yes	No		
Degree of Function	High	Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+		-	Comments
Soils	Hardpan, shallow ledge			
Seeps, springs observed?	Yes		No	
Wetland microrelief	Well developed		Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-		Comments
Wetland size in relation to watershed	Large	Small		
Amount of impervious surface in wetland watershed	Large	Small		
Wetland Slope	Gentle	Moderate	Steep	
Wetland characterized by variable water level?	Yes	No		
Wetland in floodplain of adjacent watercourse	Yes	No		
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No		
Watershed has a history of economic loss due to flooding	Yes	No		Unknown
Wetland outlet restricted	Yes	No		
Wetland vegetation density	High	Low		
Wetland microrelief	Well developed	None/Poorly developed		

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	Unknown
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	1 sw
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	Unknown
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential
Wetland is a valuable wildlife habitat	Yes	No	Moderate

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, Sapling, Herb, LL
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	seasonal
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	Low	No	No	No	Low	No	Mod	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 267 Direction: SW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 72 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity--*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No Depth to free water:

If Present: Slope or Depressional Depth to saturation:

Surface water depth: average - maximum - Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Soil: WmB - Windsor loamy sand

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	Inundated culvert @ Northern end - inlet
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	Comments
Sources of sediments or toxicants upstream	Yes		No	Runoff from roads
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	Potential
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	Roadway to north
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	Near Harpswell Rd.
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Wooded swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, Sapling, Shrub
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	TRC pool #42
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Road noise
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
No/No	High	No	High	Mod	No	Mod	High	Mod	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 268 Direction: NE

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 73 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site Investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Soil: DeB - Deerfield loamy sand

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	None/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No	
Degree of Function	High	Mod Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	
% of pond covered by submerged or emergent vegetation	15-40%	Other	
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream) Ephemeral stream

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	**Comments**
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	wooded swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, sapling, shrub, herb, LL
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Forest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	Low	No	Mod	Low	Mod	Mod	Mod	Low	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 269 Direction: SW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 74 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Soil: DeB - Deerfield loamy sand

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	Residential
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	Culverted under Road
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream) Seasonal Stream

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	Comments
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		No inputs
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	Potential

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Shrub swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, sapling, shrub, herb, LL
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Mod	High	No	Mod	Low	Mod	Low	High	Low	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 270 Direction: W

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 75 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings S Shrubs S Herbs Grass

DeB - Deerfield loamy sand

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	No apparent inlet or outlet - isolated
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	Isolated - no outlet
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	~~Low~~ No	
Vegetation density	High	~~No~~ Low	
Wetland edge broad and intermittently aerobic	Yes	~~Low~~ No	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse present
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	No sources of sediments, water present from ground water discharge.
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		No sources of excess nutrients, water present from groundwater discharge.
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet) No apparent outlet - isolated wetland - no surface hydrologic connection

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	No watercourse present
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	Not associated w/ watercourse. Isolated wetland
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	No public access
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	No public access
Degree of Function	High	Mod	Low	Potential

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Leaf litter, herb, sapling, tree
Wetland plant species diversity	High Mod Low		Red maple, sphagnum
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	Fallen logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	Logs/branches
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	High quality wetland, small size.
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	No public access
Proximity to schools	Near		Far	↓ Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	No public access
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	No public access
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Near airfield
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	No public access
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/mod	No	No	Low	Low	No	Low	Mod	Low	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 271 Direction: NW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 76 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes - No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs S Herbs S Grass

Soil: 27A - Lamoine silt loam

Leaf litter: Well developed | Moderately well developed | Absent

Cover objects: Logs | Bark | Boulders | Rocks

Evidence of Erosion: No | Yes | (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	Golf Course
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	Relatively small size

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	Golf course
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	No watercourse present
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	Golf course
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	Relatively small wetland area
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	Willow spp.
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	Not directly associated w/ watercourse. stream across dirt rd. from wetland
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	Golf course
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	Relatively small, adj. to golf course

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	Golf course parking lot
Safety Hazards (if present list them)	Yes		No	Edge of driving range
Function Present	Yes		No	Not a likely area for recreation in wetland
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	**Comments**
Wetland degradation by human activity	Little or None		Moderate to High	Altered by golf course development
Wetland fragmentation by development	Little or None		Moderate to High	⇓
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest to north, Mowed lawn to south.
Buffer width	Good to Excellent		Fair to Poor	Wooded border
Connectivity with other wetlands	Yes		No	Connected under dirt road to stream system
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	wet meadow
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Herbaceous
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Lawn + forest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	Relatively small wetland, adjacent to driving range.
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	Moderate
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest + mowed lawn
Off-road parking near wetland available	Yes		No	Golf course parking lot
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	Drains under dirt rd into ephemeral stream
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				Adj. to driving range
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	Golf balls
Low noise level	Yes		No	Near airfield
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Mod	Mod	No	High	High	Mod	Low	Mod	No	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo # : 272 Direction: N/NE

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 77 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season,*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings M Shrubs S Herbs S Grass

Soil: 10A - Udorthents - Croghan complex
Sandy

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	Moderately steep stream course

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	Moderately steep stream course
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	Narrow border along stream
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	Golf course
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	Moderately steep stream w/ seasonal flow

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land-use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	Culverted downstream
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	Forested
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	Golf course, airfield
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	Relatively perm. watercourse, but high flow most likely seasonal & high precipitation events.
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	Airfield
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	Narrow wetland border
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	Stream course
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	Water flow channelized w/in stream
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	Moderate ability for sediment retention. Flow is seasonal + during high precipitation events
Degree of Function	High	Mod / Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		No inputs of excess nutrients. Flow is seasonal or due to high precip. events.
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	Impatiens spp.
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	Narrow wetland border
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	No public access.
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	Separated from FA 76 by dirt road.
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	Downstream & upstream
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp.
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, sapling, herb, leaf litter
Wetland plant species diversity	High Mod Low		Red maple, impatiens sp., sensitive fern
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	Fallen logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	Logs & branches
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		(No)	
Wetland provides valuable wildlife habitat	Yes		No	Moderate
Wetland class diversity	High		(Low)	Forested stream edge
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		(Low)	Forest
Off-road parking near wetland available	Yes		(No)	
Proximity to schools	(Near)		Far	Bowdoin College
Wetland contains perennial watercourse	(Yes)		No	
Wetland contains pond/lake	Yes		(No)	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		(No)	
Function Present	Yes		No	
Degree of Function	High	Mod	(Low)	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		(No)	
Wetland identified as exemplary natural community	Yes		(No)	
Wetland locally/regionally significant	Yes		(No)	
Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		(No)	
Views absent trash, debris, sign of degradation	(Yes)		No	
Low noise level	Yes		(No)	Near airfield
Visual landuse contrast with wetland	(Yes)		No	
Function Present	(Yes)		No	No public access.
Degree of Function	High	Mod	(Low)	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	(No)	
Wetland contains critical habitat for state or federal listed species	Yes	(No)	
Area appears in state or national database	Yes	(No)	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/No	Low	Low	Mod	Low	Mod	No	Mod	Low	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 274 Direction: NE

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 78 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen mixed forest
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs S Herbs M Grass

Soil: WmC + WmD - windsor loamy sand

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	Seepage wetland adjacent to small stream.
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	Unknown
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	Trees
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	Fallen logs
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	Runoff from road potentially
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		No sources of excess nutrients
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Birds, insects
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	No recreation in area.
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	Bordered by Roads/highway
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, sapling, herb, leaf litter
Wetland plant species diversity	High Mod Low		Red maple, skunk cabbage, impatiens spp.
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	Fallen logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	Logs/branches
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	Wooded swamp
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	No public access
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Near roads + airfield
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
No/High	No	Low	Mod	Mod	High	No	Mod	Low	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 275 Direction: N/NE

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 79 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees S Saplings D Shrubs M Herbs Grass

Soil: 27A - Lamoyne silt loam

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	Golf course
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High	Mod / Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		No inputs
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	Nearly level
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	Adj. to runway
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Lawn
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Shrub swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Sapling, tree, shrub, Herb,
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest, lawn
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				Near airfield
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/No	Mod	No	Mod	Low	Low	No	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo#: 27b Direction: E

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 80 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings D Shrubs D Herbs M Grass M

Soil: 29 A - Haplaquents - Scantic complex

Leaf litter: Well developed Moderately well developed Absent

Cover objects: Logs Bark Boulders Rocks

Evidence of Erosion: No Yes (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	**Comments**
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	**Comments**
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	(No)		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		(Few)	
Vegetation density	(High)		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		(No)	
Wetland has high degree of plant community structure and species diversity	Yes		(No)	
Detritus development is present within this wetland	Yes		(No)	
Flowering plants used by nectar gatherers present	(Yes)		No	
Evidence of wildlife use in wetland	Yes		(No)	
Fish or shellfish develop/occur in wetland	Yes		(No)	
Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	(No)	
Fishing is available in or from the wetland	Yes	(No)	
Hunting is permitted in wetland	Yes	(No)	
Hiking occurs or has potential to occur in wetland	Yes	(No)	
Wetland is a valuable wildlife habitat	Yes	(No)	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	Next to airfield
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	PEM
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Herb
Wetland plant species diversity	High Mod	Low	
Vernal pool	Yes	No	
Edge diversity (List types)			Forest, grassland, airfield
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest, grassland
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				Next to airfield
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/No	No	No	Mod	No	No	No	No	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo#: 277 Direction: NE

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 81 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes . No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings M Shrubs Herbs Grass

Soil: Sn - Scantic silt loam

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	Unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+	-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow	Lawn	
Shallow littoral zone with emergent vegetation present?	Yes	No	
Waterbody at least 10' deep	Yes	No	
% of pond covered by submerged or emergent vegetation	15-40%	Other	
Direct stormwater discharge via culvert?	No	Yes	
Sandbar present at inlet?	No	Yes	
Water transparency	High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No	Yes	
Pond size ≥0.5 acre	Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High	Mod	Low

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	Moderate

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	Culveted from under road
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded Swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, Sapling, herb, LL
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	Moderate
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Boudoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	Mod	No	Low	Low	No	NO	Mod	Low	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 278 Direction: N

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 82 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings S Shrubs Herbs Grass

Soil: DeB - Deerfield loamy sand

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	None/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	Isolated wetland
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High	Mod	Low

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	**Comments**
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	**Comments**
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	**Comments**
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	Possible connection w/ FA 73+74 before road
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded Swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, herb, LL
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/No	No	No	No	No	No	No	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo: 279 Direction: N

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 83 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Soil: WmB - Windsor loamy sand

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	Isolated
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	Isolated
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	Road runoff
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	Roadway cut it off from FA 72
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, sapling, shrub, herb, LL
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	No	No	Mod	Low	No	No	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 280 Direction: NE

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 84 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings S Shrubs Herbs Grass

Soil: WnB - Windsor loamy sand

Leaf litter: Well developed Moderately well developed Absent

Cover objects: Logs Bark Boulders Rocks

Evidence of Erosion: No Yes (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	Isolated
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	Potential
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, sapling, herb, LL
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	TRC Pool - 11A - vp
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes	-	No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/Low	No	No	Mod	mod	No	Low	Mod	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 281 Direction: S

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 85 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*–

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs S Herbs Grass

Soil: 34c Tunbridge fine sandy loam

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No Yes	(Explain)		

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+		-	Comments
Sources of sediments or toxicants upstream	Yes		No	
Duration of water retention in wetland	Long		Short	
Evidence of sediment trapping in wetland	Yes		Low	
Vegetation density	High		No	
Wetland edge broad and intermittently aerobic	Yes		Low	
Drainage ditches in wetland	No		Yes	
Water flow through wetland	Diffuse		Channelized	
Ponded water present	Yes		No	
Wetland basin topographic gradient	Low		High	
Fine grained mineral or organic soils present	Yes		No	
Watercourse, if present, has visible velocity decreases in wetland	Yes		No	
Indicators of erosion or high water velocities are present	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	Vernal pools
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	Potential

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Wooded swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, Sapling, Shrub, herb, LL
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	TRC- Sig Vernal Pools - 19+20
Edge diversity (List types)				Forest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	Potential
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/mod	Mod	No	Low	Low	Low	Low	High	Low	No	NO	NO

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 282 Direction: NE

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 86 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site Investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings M Shrubs Herbs Grass

Soil: Sn - Scantic

Leaf litter: Well developed | Moderately well developed | Absent

Cover objects: Logs | Bark | Boulders | Rocks

Evidence of Erosion: No | Yes | (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present.	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present		Yes	No	
Degree of Function		High	Mod	Low

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria		+	-	Comments
Dominant land use adjacent to Waterbody		Forest, Shrub, Meadow	Lawn	
Shallow littoral zone with emergent vegetation present?		Yes	No	
Waterbody at least 10' deep		Yes	No	
% of pond covered by submerged or emergent vegetation		15-40%	Other	
Direct stormwater discharge via culvert?		No	Yes	
Sandbar present at inlet?		No	Yes	
Water transparency		High	Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?		No	Yes	
Pond size ≥0.5 acre		Yes	No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?		No	Yes	
Function Present		Yes	No	
Degree of Function		High / Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria		+	-	Comments
Channel shaded by riparian trees and/or shrubs		Yes	No	
Gravel spawning areas present		Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach		No	Yes	
Dominant bottom substrate		Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt		Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)		High	Low	
Channel alterations (channelization, islands or point bars)		Absent or Few	Numerous	
Bank stability		Stable	Unstable, eroding	
Bank vegetative cover		High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)		Many	Absent/few	
Riparian zone		Wide	Narrow	
Watershed development		Low	High	
Water quality		Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, Sapling, Herb, LL
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Low	Low	No	Low	No	Low	No	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 283 Direction: S

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 87 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow.*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Soil: 29A - Haplaquents - Scantic Complex

Leaf litter: Well developed Moderately well developed Absent

Cover objects: Logs Bark Boulders Rocks

Evidence of Erosion: No Yes (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low.	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	Airfield runoff
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Significant vernal pool
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	Potential
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	wooded swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	Sig vernal Pool #8 (TRC)
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	Potential
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/No	Mod	No	Mod	Low	Mod	Low	High	Low	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 284 Direction: N

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 88 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees Saplings Shrubs M Herbs D Grass D

Soil: 29A - Haplaquents - Scantic Complex

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	Airfield
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	airfield runoff
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		No inputs
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Birds
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	Adj. to airfield
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	**Comments**
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Shrubs, grassland
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Shrub swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Shrub, Herb, LL
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Shrubs, grassland
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Shrubs, grassland
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)			-	Adj. to airfield
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
No/No	Low	No	High	Low	Mod	No	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 285 Direction: N

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 89 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation: N/A** Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated ~~(Y) - soils~~ *saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees Saplings Shrubs D Herbs D Grass D

Soil: 29A - Haplaquents - Scantic complex

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+		-	Comments
Soils	Sand/gravel outwash		Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes		No	
Slope	Gentle		Moderate or Steep	
Function Present	Yes	No		
Degree of Function	High	Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+		-	Comments
Soils	Hardpan, shallow ledge			
Seeps, springs observed?	Yes		No	
Wetland microrelief	Well developed		Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-		Comments
Wetland size in relation to watershed	Large	Small		
Amount of impervious surface in wetland watershed	Large	Small		
Wetland Slope	Gentle	Moderate	Steep	
Wetland characterized by variable water level?	Yes	No		
Wetland in floodplain of adjacent watercourse	Yes	No		
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No		Airfield
Watershed has a history of economic loss due to flooding	Yes	No		
Wetland outlet restricted	Yes	No		
Wetland vegetation density	High	Low		
Wetland microrelief	Well developed	None/Poorly developed		

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	Birds
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	Adj. to airfield
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	grassland, shrub
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	PEM
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Shrub, herb
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Grassland, Shrub
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
No/Mod	Mod	No	Low	Low	Mod	No	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 286 Direction: SW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 90 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site Investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings M Shrubs Herbs Grass

Soil: 34B - Tunbridge fine sandy loam

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	Adj. to airfield
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Wooded
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				T, S, Sh, H, LL
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				Forest
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species.	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/No	No	No	Mod	Low	Low	No	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 287 Direction: SW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 91 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees M Saplings S Shrubs Herbs Grass

Soil: Sz - Swanton fine sandy loam

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	**Comments**
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	**Comments**
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High	Mod / Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION Isolated

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	Edge of road
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, Shrub, herb, LL
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/No	Low	No	Mod	Low	No	No	Low	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 288 Direction: NW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 92 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site Investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees Saplings Shrubs Herbs M Grass D

Soil: Sz - swanton fine sandy loam

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High	Mod / Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION Isolated

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	**Comments**
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	Road adj to wetland
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	grassland
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Shrub swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Sh, H,
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Grassland
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Boudoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
No/No	Low	No	Low	No	No	No	No	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 289 Direction: W

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 93 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees Saplings Shrubs M Herbs M Grass D

Soil: 22B - Adams-Lyman Complex

Leaf litter: Well developed Moderately well developed Absent

Cover objects: Logs Bark Boulders Rocks

Evidence of Erosion: No Yes (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION Isolated

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Grassland, shrubs
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	SS
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Sh, H,
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Shrubs, grassland
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No
Degree of Function	High	Mod	Low

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Low/Low	Low	NO	Mod	Low	No	Low	Mod	No	No	NO	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 290 Direction: NE

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 94 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity~*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Soil: 25A - Adams loamy fine sand.

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No Yes	(Explain)		

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream) Seasonal

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	Potential

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	Forest
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	Wooded swamp
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Tree, sapling, shrub, Herb, LL
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	
Edge diversity (List types)				
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Mod	Mod	No	Low	Low	Mod	Low	Mod	Low	No	Low	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 291 Direction: S/SW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 95 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed				
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Soil: Au - Au Gres loamy sand

Leaf litter: Well developed Moderately well developed Absent

Cover objects: Logs Bark Boulders Rocks

Evidence of Erosion: No Yes (Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes No		
Degree of Function	High Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, herb, LL
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Mod	Low	Low	No	No	No	No	Low	Low	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 292 Direction: SW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 96 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site Investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass					
POW/ Open water	Vegetated	Non-Vegetated				
PEM/PSS Deep Marsh	Dead Woody	Shrub	Sub-shrub	Robust	Narrow-leaved	Broad-leaved
PAB/ Shallow Marsh	Robust	Narrow-leaved	Broad-leaved	Floating leaved		
PFL / Seasonally Flooded Flats	Emergent	Shrub				
PEM / Wet Meadow	Ungrazed	Grazed	Maintained by mowing			
PSS / Shrub Swamp	Sapling	Bushy	Compact	Aquatic		
PFO / Wooded Swamp	Deciduous	Evergreen				
Bog	Compact shrub	Bushy shrub	Wooded	Emergent		

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity--*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees Saplings Shrubs Herbs Grass D

Soil: WmB - Windsor loamy sand

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	**Comments**
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High	Mod	Low

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	**Comments**
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	TRC Vernal Pools
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		-	Comments
Wetland degradation by human activity	Little or None		Moderate to High	
Wetland fragmentation by development	Little or None		Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes		No	
Buffer width	Good to Excellent		Fair to Poor	
Connectivity with other wetlands	Yes		No	
Size of landscape block in which wetland is located	Large		Small	
Wildlife food sources in wetland	Abundant		Few	
Interspersion of vegetation and open water	High		Low	
Upland islands	Present		Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High		Low	wm
Vegetation density	High		Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)				Herb
Wetland plant species diversity	High	Mod	Low	
Vernal pool	Yes		No	Tec Pool 29B + 29C VPs
Edge diversity (List types)				maintained grass
Water regime	Wetter		Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant		Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant		Few	
Flat rocks in/near watercourse (stream salamanders)	Present		Absent	
Sphagnum hummocks next to shallow pools	Present		Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present		Absent	
Abundance of invasive exotic flora	None or Low		High	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	Vernal pools
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	mowed grass
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Mod	Mod	No	Mod	Mod	Low	No	Mod	Low	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

4294

Photo #: 293 Direction: SE

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 97498 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12 Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees Saplings D Shrubs D Herbs Grass

Soil: 25A - Adams loamy fine sand.

Leaf litter:	Well developed	Moderately well-developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees, shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	Unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	
Degree of Function	High	Mod	Low	Culverted

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	Potential
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	Potential
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+		**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Shrubs
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Shrub swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, shrub, sapling, herb,
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Shrubs
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Shrub thicket
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No
Degree of Function	High	Mod	Low

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Low	Mod	Low	Low	Low	Mod	Low	Mod	Low	No	Mod	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 295 Direction: NW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 99 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site Investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity--*

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores* *Polymorphic leaves* *Buttressed trees* *Hypertrophied lenticels* *Stooling* *Inflated leaves, stems, or roots* *Adventitious roots* *Rhizospheric oxidation* *Shallow root systems* *Floating leaves* *Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees S Saplings S Shrubs D Herbs Grass

Soil: 10B - Udorthents - Croghan Complex

Leaf litter:	Well developed	Moderately well developed		Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)	

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	
Watershed has a history of economic loss due to flooding	Yes	No	
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	No	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+		-	Comments
Wildlife food sources in wetland	Abundant		Few	
Vegetation density	High		Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes		No	
Wetland has high degree of plant community structure and species diversity	Yes		No	
Detritus development is present within this wetland	Yes		No	
Flowering plants used by nectar gatherers present	Yes		No	
Evidence of wildlife use in wetland	Yes		No	
Fish or shellfish develop/occur in wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION Isolated

Criteria	+		-	Comments
Topographical gradient in wetland	Yes		No	
Potential sediment sources upstream or upslope	Yes		No	
Wetland border >10' adjacent to pond or water	Yes		No	
Distinct shoreline or bank evident between wetland and water	No		Yes	
Open water fetch present	Yes		No	
Boating activity present	Yes		No	
Floodplain stabilizing trees and shrubs present	Yes		No	
Indications of erosion or siltation present	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	Comments
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	S
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	SS, OW
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			T, S, SH, H
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Shrub thicket + Forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	F, S
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		(No)	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
No/No	No	Mod	Low	Low	No	Mod	Mod	Low	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

Photo #: 296 Direction: SW

MODIFIED FUNCTIONS AND VALUES ASSESSMENT

Project Name: Brunswick NAS **Wet Id#:** FA 100 **Date:** N/A **Functional Unit:** **Weather:** N/A **Time Start:** N/A **Time Stop:** N/A

Site investigator: Amy Goodstine & Chris Akios **Recent Precipitation:** N/A Below average ☐ Average ☐ Above Average ☐ Don't Know ☐ TBD ☐

Wildlife Investigation Method: Cover search ☒ Dip netting ☐ Auditory ☒ Scat ☒ Tracks ☒ Minnow Traps ☐ Electro-shocking ☐

Wetland Types(s) Cowardin/Golet Classification

Class	Subclass
POW/ Open water	Vegetated Non-Vegetated
PEM/PSS Deep Marsh	Dead Woody Shrub Sub-shrub Robust Narrow-leaved Broad-leaved
PAB/ Shallow Marsh	Robust Narrow-leaved Broad-leaved Floating leaved
PFL / Seasonally Flooded Flats	Emergent Shrub
PEM / Wet Meadow	Ungrazed Grazed
PSS / Shrub Swamp	Sapling Bushy Compact Aquatic
PFO / Wooded Swamp	Deciduous Evergreen
Bog	Compact shrub Bushy shrub Wooded Emergent

Water Regimes (Cowardin Modifier):

Permanently flooded (H) - *water covers land surface throughout year in all years*

Intermittently Exposed (Z) -*surface water present throughout the year except in years of extreme drought*

Semi-permanently flooded (F) - *surface water persists throughout growing season in most years*

Seasonally flooded (C) - *surface water present for extended periods especially early in growing season, but is absent by end of season in most years*

Seasonally saturated (Y) - *soils saturated to surface, especially early in growing season, but are unsaturated by end of season in most years; surface water absent except for ground water seepage and overland flow*

Temporarily flooded (A) - *surface water present for brief periods during growing season, but water table usually lies well below soil surface for most of the season*

Intermittently flooded (J) - *substrate usually exposed, but surface water is present for variable periods without detectable seasonal periodicity*–

Artificially flooded (K) - *amount/duration of flooding controlled by dikes dams, pumps, etc*

Hydrology:

Ground water discharges present: Yes No

If Present: Slope or Depressional

Surface water depth: average - maximum -

Depth to free water:

Depth to saturation:

Signs of altered hydrology? Yes No

Hydrology indicators: Inundated Saturated in upper 12" Water marks Drift lines Sediment deposits Drainage patterns within wetlands Other

Plant Adaptations to Hydrology: *Pneumatophores Polymorphic leaves Buttressed trees Hypertrophied lenticels Stooling Inflated leaves, stems, or roots Adventitious roots Rhizospheric oxidation Shallow root systems Floating leaves Floating stems*

Soil Drainage classes: Well Moderately Well Somewhat Poorly Poorly Very Poorly Mapped Hydric Soil

Slope: Nearly level Gentle Moderate Steep

Upland Border:

Slope: Nearly level Gentle Moderate Steep

Cover Types: Mature forest Sapling forest Shrub thicket Meadow Mowed lawn Farm

Vegetation Density(S/M/D): Trees D Saplings M Shrubs Herbs Grass

Soil: 30A · Udorthents - Adams Complex - Sandy

Leaf litter:	Well developed	Moderately well developed	Absent
Cover objects:	Logs	Bark	Boulders	Rocks
Evidence of Erosion:	No	Yes	(Explain)

GWR/GROUNDWATER RECHARGE (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Soils	Sand/gravel outwash	Hardpan, tight fine-grained soils, shallow ledge	
Wetland associated w/ perennial or seasonal watercourse	Yes	No	
Slope	Gentle	Moderate or Steep	
Function Present	Yes / No		
Degree of Function	High / Mod	Low	

GWD/GROUNDWATER DISCHARGE

Criteria	+	-	Comments
Soils	Hardpan, shallow ledge		
Seeps, springs observed?	Yes	No	
Wetland microrelief	Well developed	Non/Poorly developed	
Wetland contains an outlet, no inlet	Yes	No	
Function Present	Yes	No	Seepage from hillside indicates groundwater dishcharge
Degree of Function	High / Mod	Low	

FFA/FLOODFLOW ALTERATION (Excluding condition: Slope Wetland)

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Amount of impervious surface in wetland watershed	Large	Small	
Wetland Slope	Gentle	Moderate / Steep	
Wetland characterized by variable water level?	Yes	No	
Wetland in floodplain of adjacent watercourse	Yes	No	
Valuable properties, structures, or resources located in or near floodplain downstream from wetland	Yes	No	Airfield
Watershed has a history of economic loss due to flooding	Yes	No	unknown
Wetland outlet restricted	Yes	No	
Wetland vegetation density	High	Low	
Wetland microrelief	Well developed	None/Poorly developed	

Function Present	Yes	No		
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: POND &LAKE (Excluding condition: Not associated with pond/lake)

Criteria	+		-	Comments
Dominant land use adjacent to Waterbody	Forest, Shrub, Meadow		Lawn	
Shallow littoral zone with emergent vegetation present?	Yes		No	
Waterbody at least 10' deep	Yes		No	
% of pond covered by submerged or emergent vegetation	15-40%		Other	
Direct stormwater discharge via culvert?	No		Yes	
Sandbar present at inlet?	No		Yes	
Water transparency	High		Low	
Significant nutrient source (fertilizers, waterfowl) present in watershed?	No		Yes	
Pond size ≥0.5 acre	Yes		No	
Pond experiences dense algal blooms, nuisance aquatic vegetation or duckweed?	No		Yes	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

F&SH/FINFISH HABITAT: STREAMS/RIVERS (Excluding condition: Not associated with perennial stream)

Criteria	+	-	Comments
Channel shaded by riparian trees and/or shrubs	Yes	No	
Gravel spawning areas present	Yes	No	
Barriers to anadromous fish (dams/high culverts) present in stream reach	No	Yes	
Dominant bottom substrate	Gravel/cobbles	Sand/silt	
Substrate embeddedness by sand & silt	Low	High	
Instream habitat diversity (riffle, run, pool, shallow, deep)	High	Low	
Channel alterations (channelization, islands or point bars)	Absent or Few	Numerous	
Bank stability	Stable	Unstable, eroding	
Bank vegetative cover	High (trees. shrubs)	Low	Trees
Cover objects (fallen logs, boulders, undercut banks)	Many	Absent/few	Fallen logs
Riparian zone	Wide	Narrow	
Watershed development	Low	High	
Water quality	Good	Poor	unknown

Pollution tolerance of benthic macro-invertebrate taxa	Mostly intolerant		Mostly tolerant	Unknown
Function Present	Yes		No	Some potential habitat present
Degree of Function	High	Mod	Low	

S&TR/SEDIMENT/TOXICANT/PATHOGEN RETENTION

Criteria	+	-	Comments
Sources of sediments or toxicants upstream	Yes	No	
Duration of water retention in wetland	Long	Short	
Evidence of sediment trapping in wetland	Yes	Low	
Vegetation density	High	~~No~~ Low	
Wetland edge broad and intermittently aerobic	Yes	Low	
Drainage ditches in wetland	No	Yes	
Water flow through wetland	Diffuse	Channelized	
Ponded water present	Yes	No	
Wetland basin topographic gradient	Low	High	
Fine grained mineral or organic soils present	Yes	No	
Watercourse, if present, has visible velocity decreases in wetland	Yes	No	
Indicators of erosion or high water velocities are present	No	Yes	
Function Present	Yes	No	Narrow wetland border along stream,
Degree of Function	High / Mod	Low	Little/no input of sediment

N&RR/NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Criteria	+	-	Comments
Wetland size in relation to watershed	Large	Small	
Potential sources of excess nutrients upstream	Yes	No	
Wetland is saturated most of the season	Yes	No	
Emergent vegetation and/or dense woody stems are dominant	Yes	No	
Water flow through wetland	Diffuse	Channelized	
Vegetation density	High	Low	
Potential for sediment trapping exists	Yes	No	
Deep or open water habitat is present	Yes	No	
Soil type	Organic/high clay content	Sand/gravel	
Wetland basin topographic gradient	Low	High	
Wetland microrelief	Well developed	None, poorly developed	

Function Present	Yes	No		No sources of excess nutrients, short retention time
Degree of Function	High	Mod	Low	

PE/PRODUCTION EXPORT (Excluding Condition: No Outlet)

Criteria	+	-	Comments
Wildlife food sources in wetland	Abundant	Few	
Vegetation density	High	Low	
Nutrients and/or organic matter flushed out of wetland into watercourse	Yes	No	
Wetland has high degree of plant community structure and species diversity	Yes	No	
Detritus development is present within this wetland	Yes	No	
Flowering plants used by nectar gatherers present	Yes	No	
Evidence of wildlife use in wetland	Yes	No	
Fish or shellfish develop/occur in wetland	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

S&SS/SEDIMENT/SHORELINE STABILIZATION

Criteria	+	-	Comments
Topographical gradient in wetland	Yes	No	
Potential sediment sources upstream or upslope	Yes	No	
Wetland border >10' adjacent to pond or water	Yes	No	
Distinct shoreline or bank evident between wetland and water	No	Yes	
Open water fetch present	Yes	No	
Boating activity present	Yes	No	
Floodplain stabilizing trees and shrubs present	Yes	No	
Indications of erosion or siltation present	Yes	No	
Function Present	Yes	No	
Degree of Function	High / Mod	Low	

REC/RECREATION

Criteria	+	-	Comments
Wetland is part of recreation area, park, refuge, etc.	Yes	No	
Fishing is available in or from the wetland	Yes	No	
Hunting is permitted in wetland	Yes	No	
Hiking occurs or has potential to occur in wetland	Yes	No	
Wetland is a valuable wildlife habitat	Yes	No	

Wetland has high visual/aesthetic quality	Yes		No	
Boating or canoeing feasible in wetland	Yes		No	
Off-road public parking near wetland available	Yes		No	
Safety Hazards (if present list them)	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

WLH/WILDLIFE HABITAT

Criteria	+	-	**Comments**
Wetland degradation by human activity	Little or None	Moderate to High	
Wetland fragmentation by development	Little or None	Moderate to High	
Buffer exists (F=forest M=Meadow S=Sapling/shrub thicket L=Lawn A=Agriculture)	Yes	No	Forest
Buffer width	Good to Excellent	Fair to Poor	
Connectivity with other wetlands	Yes	No	
Size of landscape block in which wetland is located	Large	Small	
Wildlife food sources in wetland	Abundant	Few	
Interspersion of vegetation and open water	High	Low	
Upland islands	Present	Absent	
Wetland class diversity (W=Wooded swamp SS=Shrub swamp M=Marsh WM=Wet meadow OW=Open water)	High	Low	Wooded swamp
Vegetation density	High	Low	
Vegetation strata (T=Tree S=Sapling SH=Shrub V=Vine H=Herb LL=Leaf litter)			Tree, sapling, herb, leaf litter
Wetland plant species diversity	High Mod Low		
Vernal pool	Yes	No	
Edge diversity (List types)			Mature forest
Water regime	Wetter	Drier	
Habitat features (S=Snags L=Fallen logs SE=seep/spring)	Abundant	Few	Snags, fallen logs
Cover objects (L=Logs/branches R=Rocks B=Bark)	Abundant	Few	Logs/branches
Flat rocks in/near watercourse (stream salamanders)	Present	Absent	
Sphagnum hummocks next to shallow pools	Present	Absent	
Bare well drained sandy soils near wetland (turtle nest site)	Present	Absent	
Abundance of invasive exotic flora	None or Low	High	
Function Present	Yes	No	
Degree of Function	High Mod	Low	

E&SV/EDUCATIONAL/SCIENTIFIC VALUE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland provides valuable wildlife habitat	Yes		No	
Wetland class diversity	High		Low	PFO
Adjacent upland cover types (F=forest M=Meadow S=Sapling/shrub thicket A=Agriculture)	High		Low	Forest
Off-road parking near wetland available	Yes		No	
Proximity to schools	Near		Far	Bowdoin College
Wetland contains perennial watercourse	Yes		No	
Wetland contains pond/lake	Yes		No	
Safety hazards (if present list them)				
Site currently used for educational/scientific purposes	Yes		No	No public access
Function Present	Yes		No	No public access
Degree of Function	High	Mod	Low	

U/H/UNIQUENESS/HERITAGE

Criteria	+		-	Comments
Wetland contains listed species	Yes		No	
Wetland identified as exemplary natural community	Yes		No	
Wetland locally/regionally significant	Yes		No	
Function Present	Yes		No	
Degree of Function	High	Mod	Low	

VQA/VISUAL QUALITY/AESTHETICS

Criteria	+		-	Comments
Visible from primary viewing locations	Yes		No	
Views absent trash, debris, sign of degradation	Yes		No	
Low noise level	Yes		No	Near airfield
Visual landuse contrast with wetland	Yes		No	
Function Present	Yes		No	No access
Degree of Function	High	Mod	Low	

ESH/ENDANGERED SPECIES HABITAT

Criteria	+	-	Comments
Wetland contains or known to contain federal listed species or habitat	Yes	No	
Wetland contains critical habitat for state or federal listed species	Yes	No	
Area appears in state or national database	Yes	No	

Function Present	Yes		No	
Degree of Function	High	Mod	Low	

CONCLUSION: SUMMARY TABLE (X=present, P=Principle Wetland Function)

GWR/D	FFA	F&SH	S&TR	NR&R	PE	REC	WLH	ED/S	U/H	S&S	ESH
Mod/Mod	Low	Mod	Mod	No	Mod	No	Mod	No	No	No	No

SUMMARY OF FUNCTIONS

Groundwater Recharge/Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area and refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodflow Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas

Fish and Shellfish Habitat: For freshwater systems, this function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or TNW such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

Recreation (Consumptive and Non-consumptive): This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting or other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals or other resources that are intrinsic to the wetland Non-consumptive opportunities do not consume or diminish the resources of the wetland.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

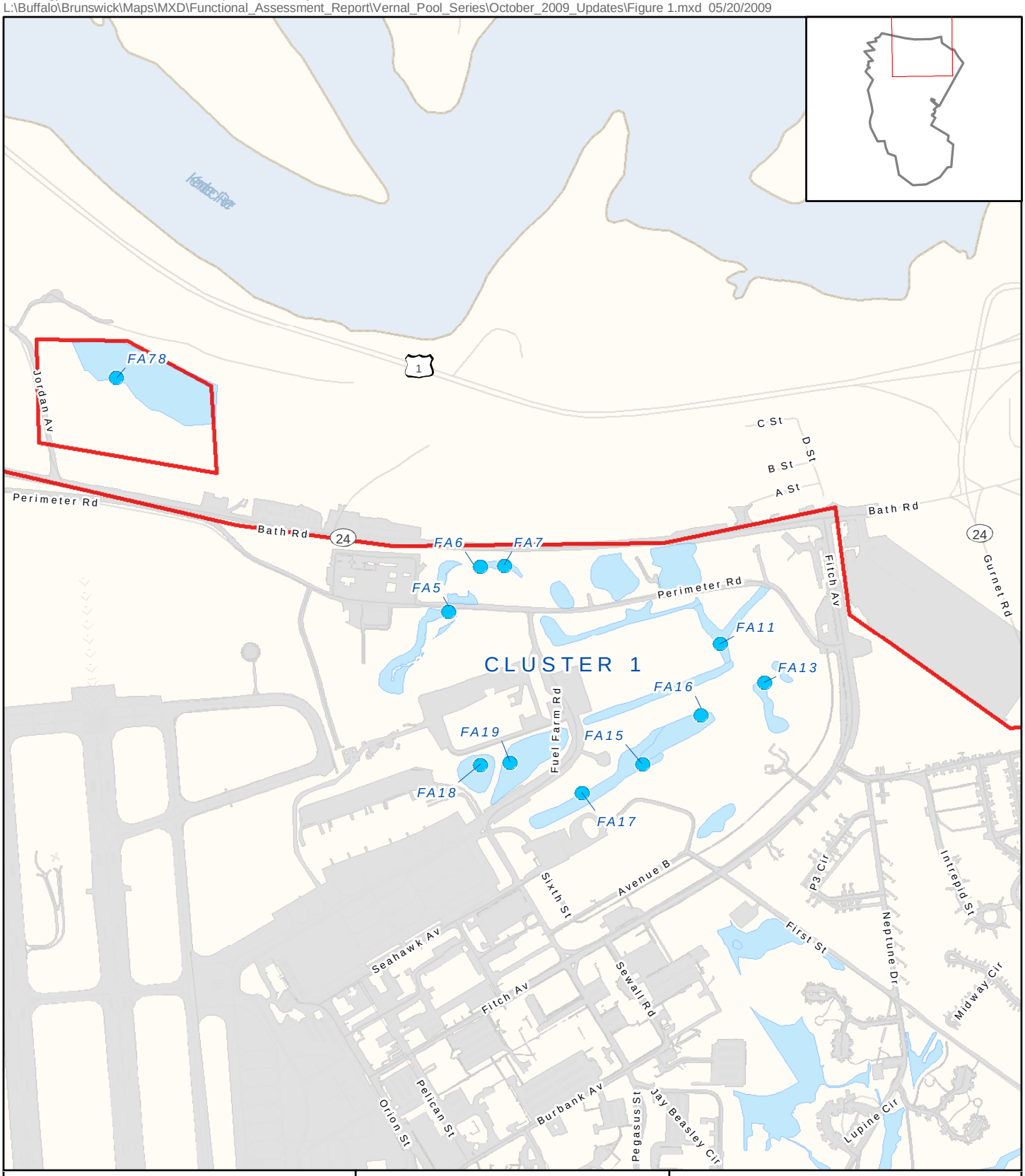
Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation and habitat diversity.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species (either federal or state listed).

3 Wetland Clusters

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Vernal_Pool_Series\October_2009_Updates\Figure 1.mxd 05/20/2009



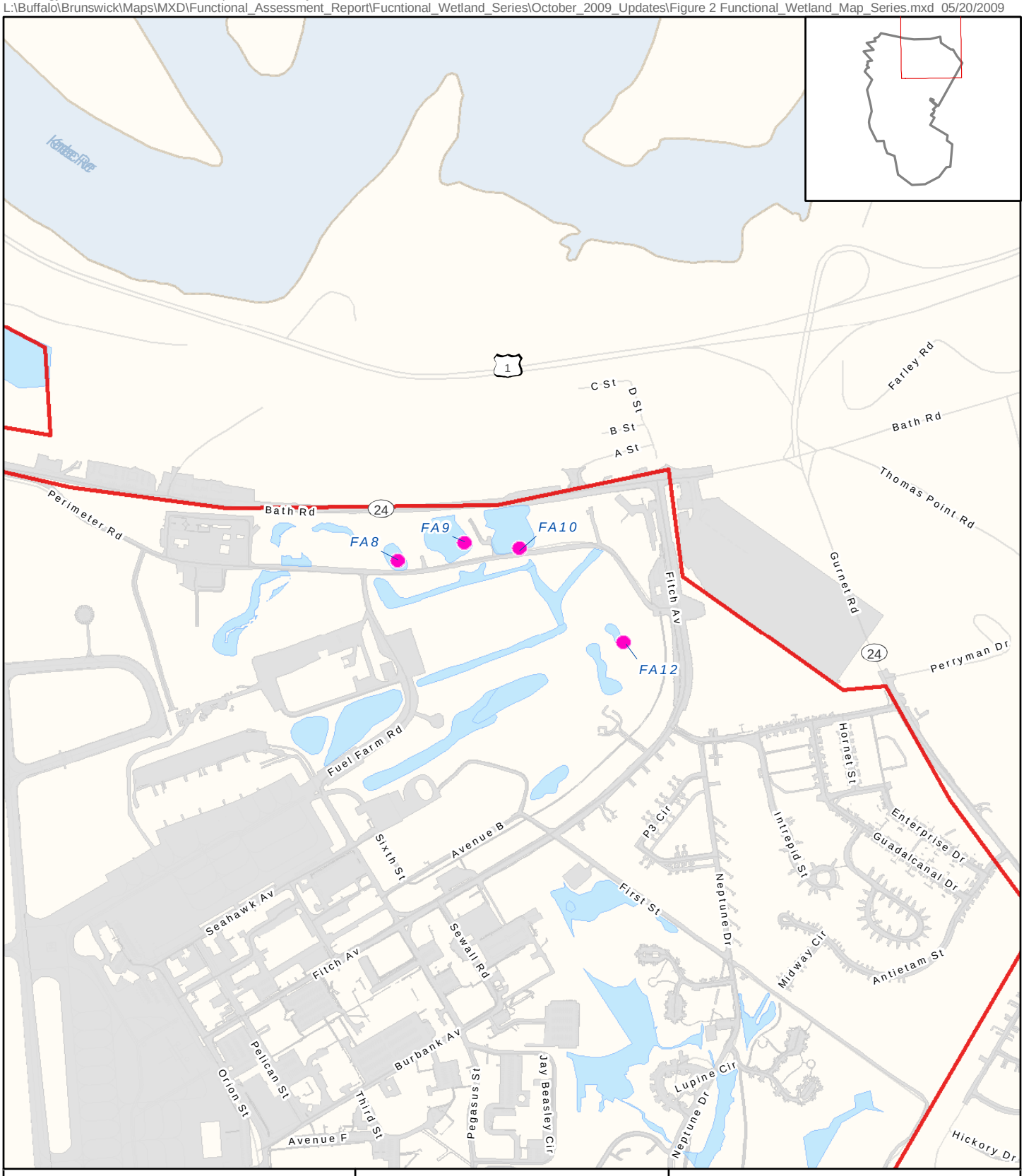
Data Point
Wetlands
NAS Brunswick Property Boundary

Figure 1 of Attachment 3
Cluster 1
NAS Brunswick
Brunswick, Maine

N

0 500 1,000 2,000
Feet

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Fucntional_Wetland_Series\October_2009_Updates\Figure 2 Functional_Wetland_Map_Series.mxd 05/20/2009



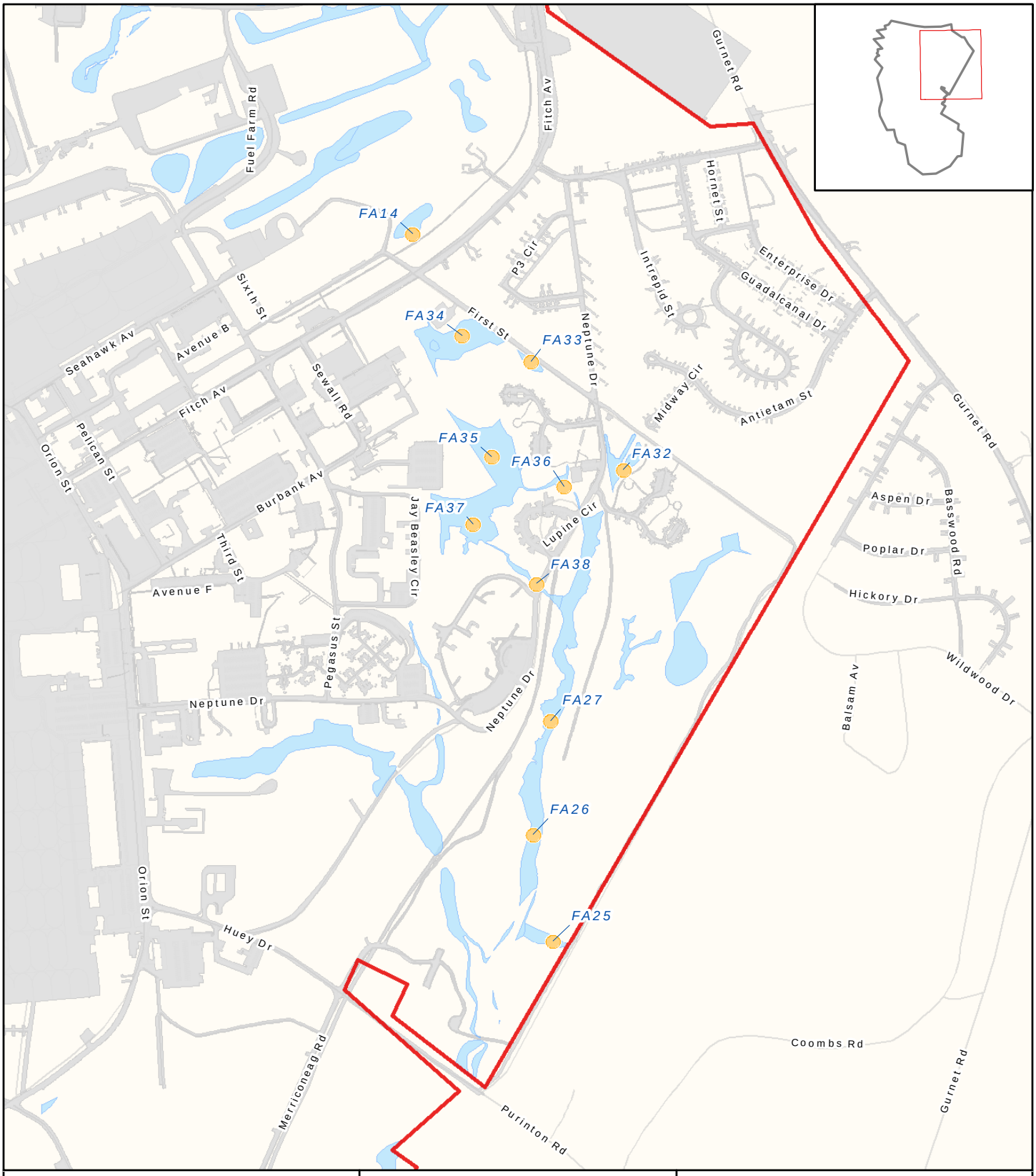
Cluster Data Points
Wetlands
NAS Brunswick Property Boundary

Figure 2 of Attachment 3
Cluster 2
NAS Brunswick
Brunswick, Maine

N

0 500 1,000 2,000
Feet

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Fucntional_Wetland_Series\October_2009_Updates\Figure 3 Functional_Wetland_Map_Series.mxd 05/20/2009

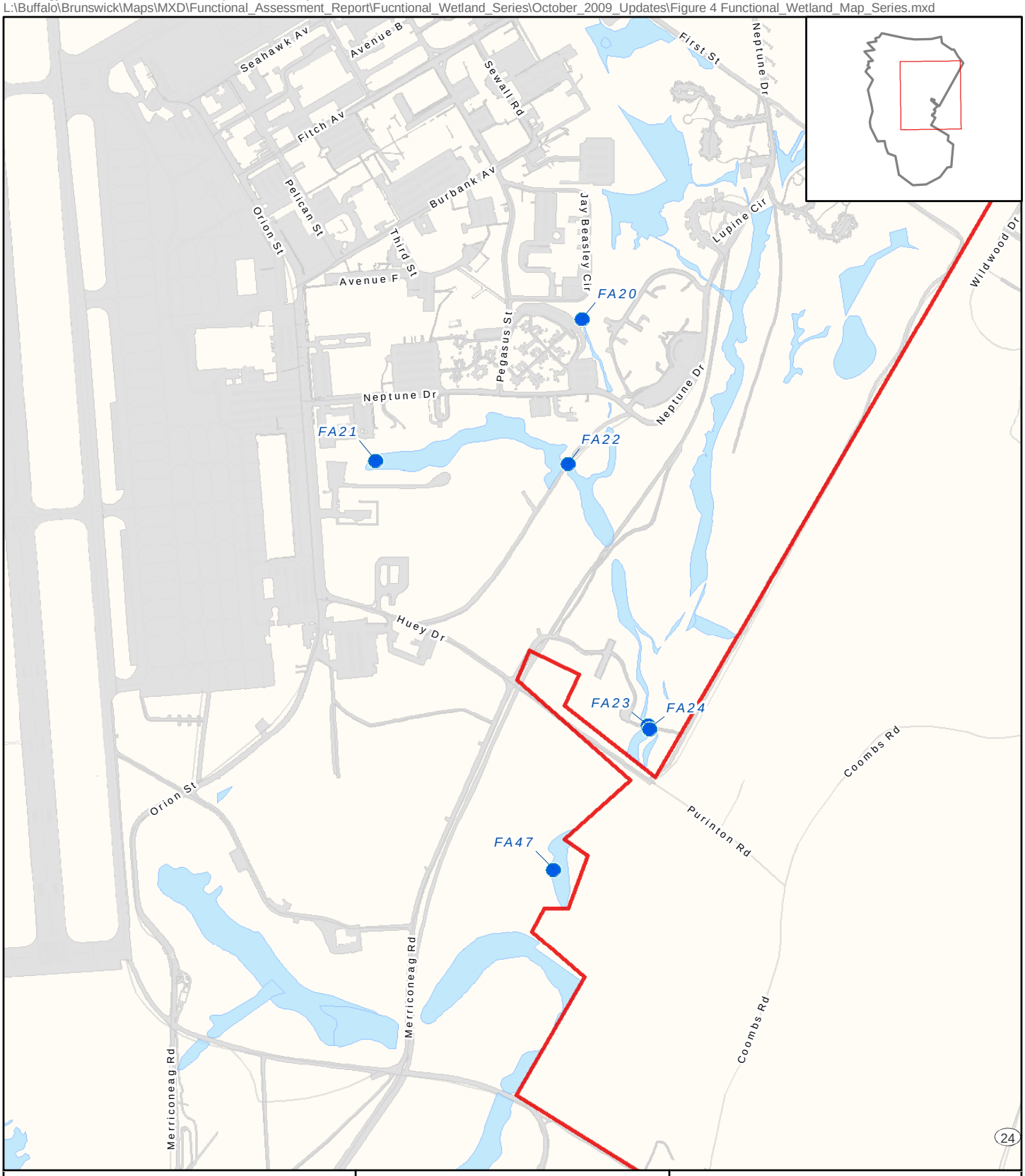


Cluster Data Points
Wetlands
NAS Brunswick Property Boundary

Figure 3 of Attachment 3
Cluster 3
NAS Brunswick
Brunswick, Maine

0 500 1,000 2,000
Feet

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Fucntional_Wetland_Series\October_2009_Updates\Figure 4 Functional_Wetland_Map_Series.mxd



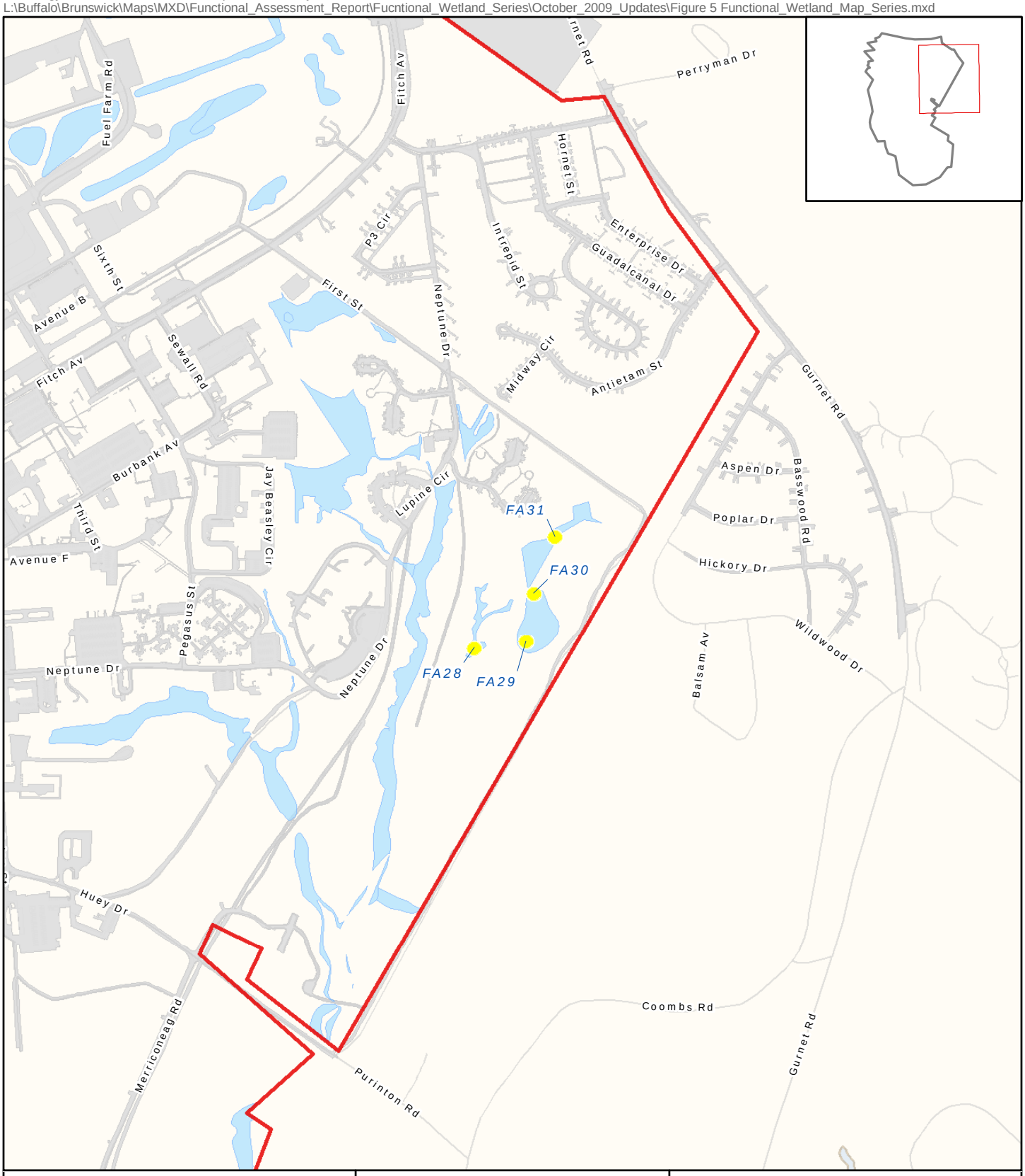
Cluster Data Points
Wetlands
NAS Brunswick Property Boundary

Figure 4 of Attachment 3
Cluster 4
NAS Brunswick
Brunswick, Maine

N

0 500 1,000 2,000
Feet

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Fucntional_Wetland_Series\October_2009_Updates\Figure 5 Functional_Wetland_Map_Series.mxd



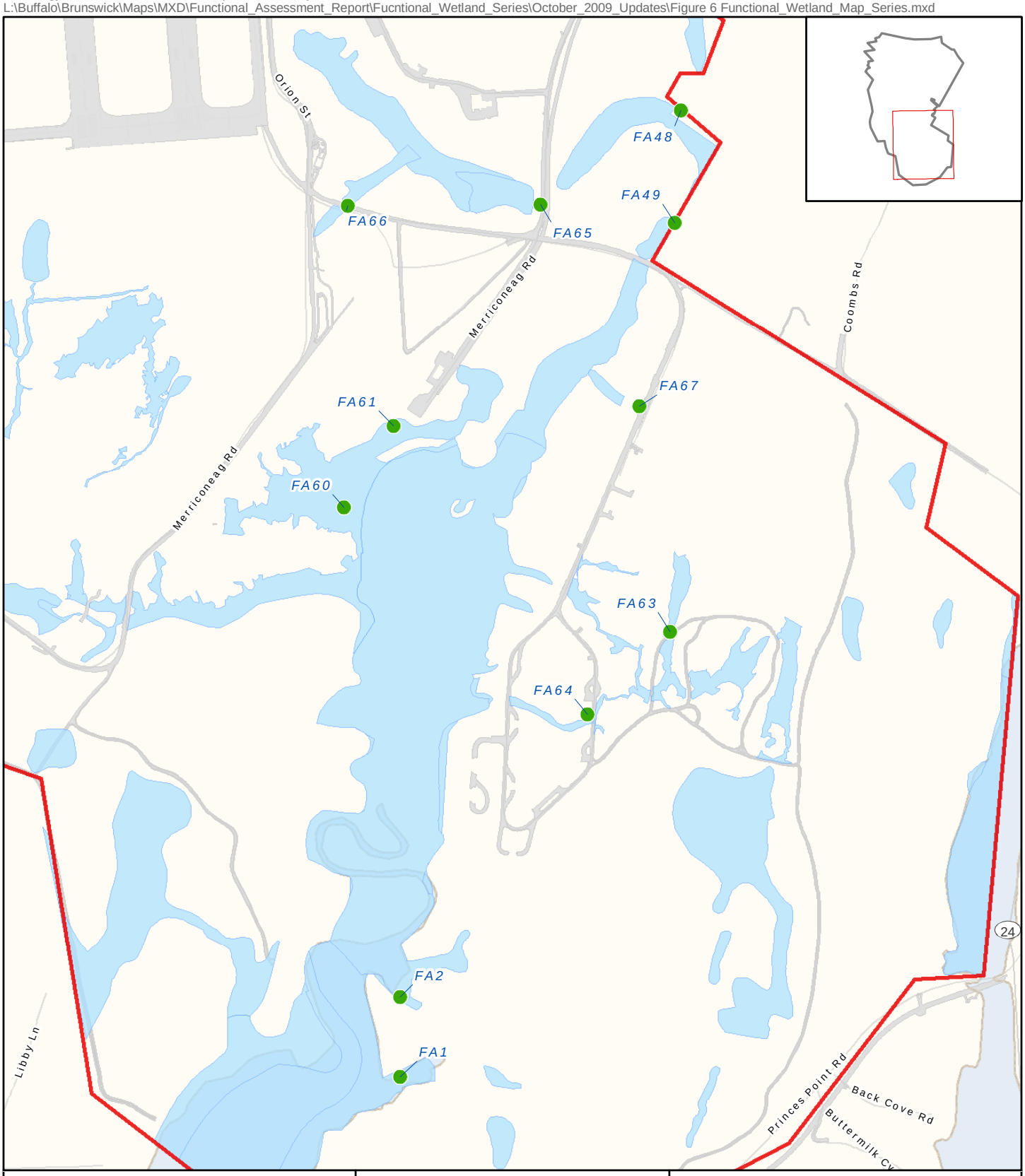
Cluster Data Points
Wetlands
NAS Brunswick Property Boundary

Figure 5 of Attachment 3
Cluster 5
NAS Brunswick
Brunswick, Maine

N

0 500 1,000 2,000
Feet

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Fucntional_Wetland_Series\October_2009_Updates\Figure 6 Functional_Wetland_Map_Series.mxd



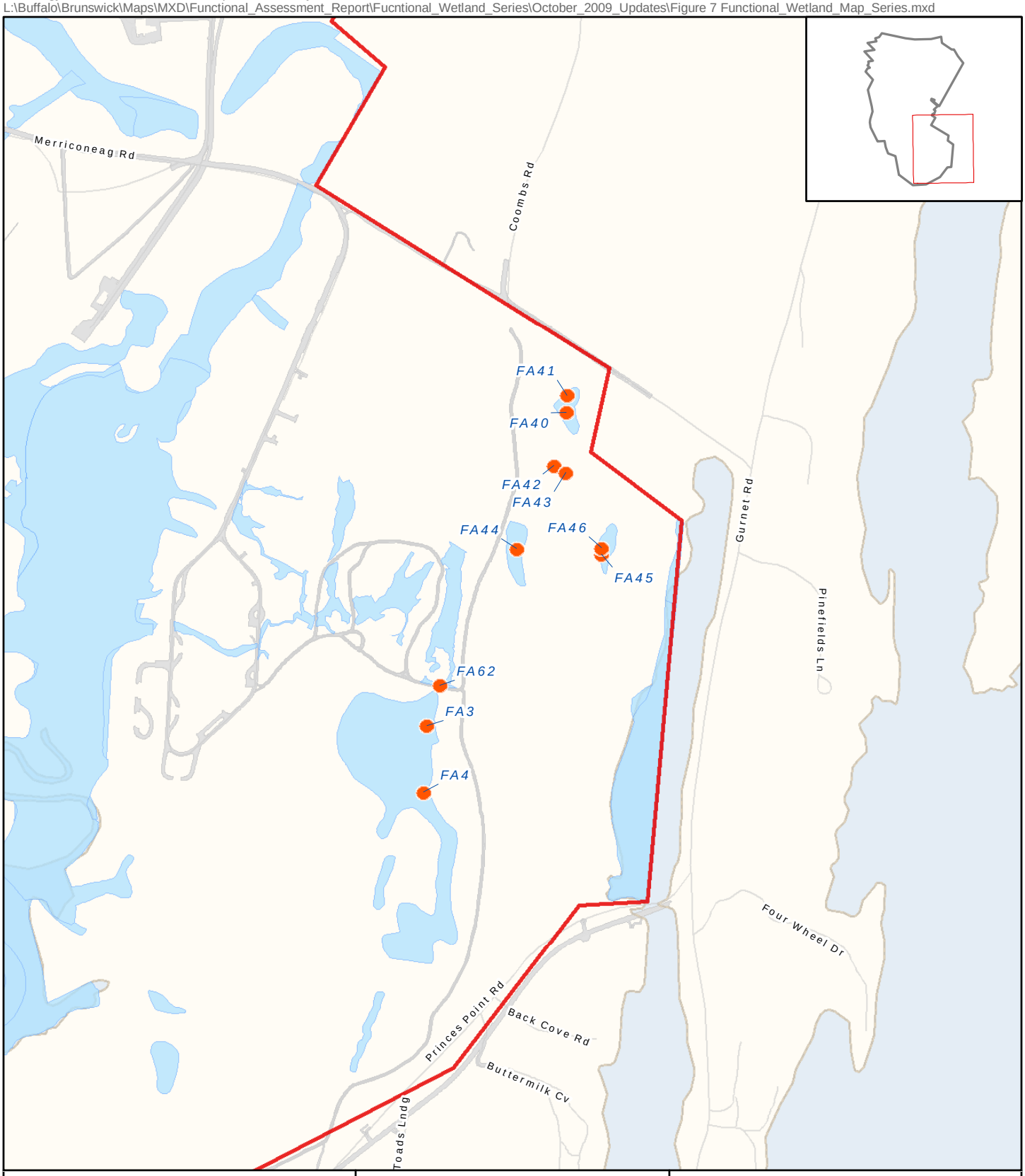
Cluster Data Points
Wetlands
NAS Brunswick Property Boundary

Figure 6 of Attachment 3
Cluster 6
NAS Brunswick
Brunswick, Maine

N

0 500 1,000 2,000
Feet

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Fucntional_Wetland_Series\October_2009_Updates\Figure 7 Functional_Wetland_Map_Series.mxd



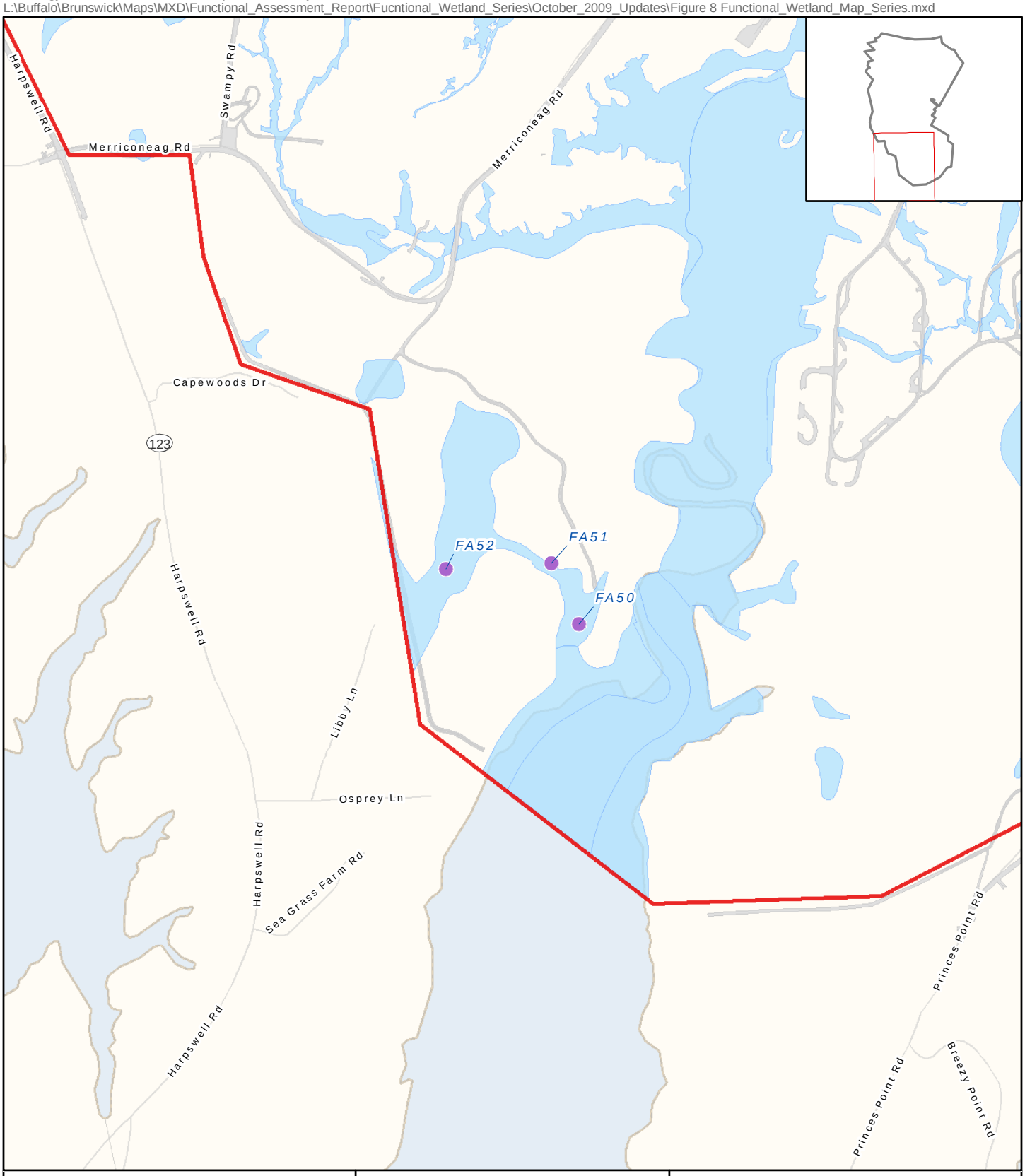
Cluster Data Points
Wetlands
NAS Brunswick Property Boundary

Figure 7 of Attachment 3
Cluster 7
NAS Brunswick
Brunswick, Maine

N

0 500 1,000 2,000
Feet

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Fucntional_Wetland_Series\October_2009_Updates\Figure 8 Functional_Wetland_Map_Series.mxd



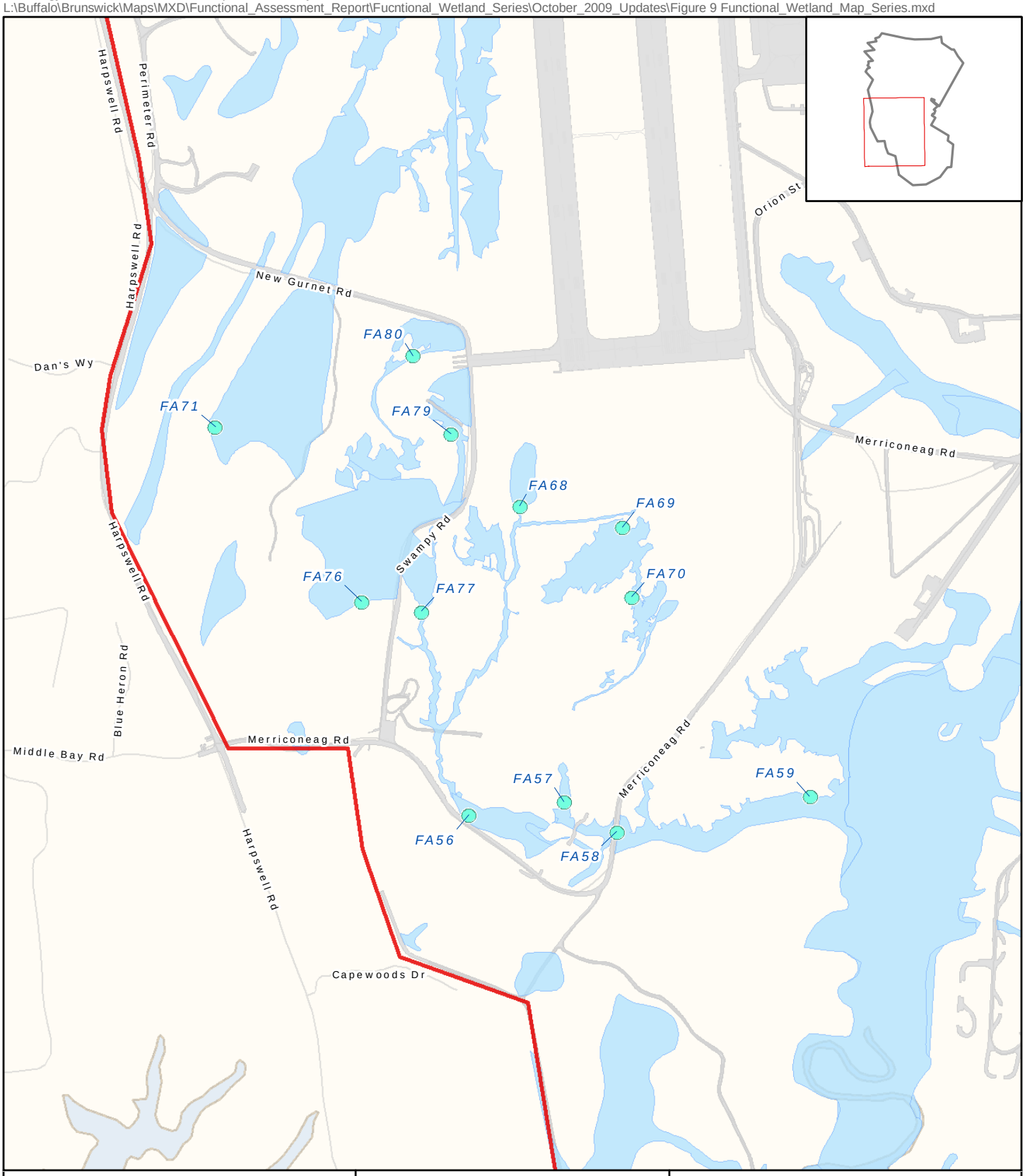
Cluster Data Points
Wetlands
NAS Brunswick Property Boundary

Figure 8 of Attachment 3
Cluster 8
NAS Brunswick
Brunswick, Maine

N

0 500 1,000 2,000
Feet

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Fucntional_Wetland_Series\October_2009_Updates\Figure 9 Functional_Wetland_Map_Series.mxd



Cluster Data Points
Wetlands
NAS Brunswick Property Boundary

Figure 9 of Attachment 3
Cluster 9
NAS Brunswick
Brunswick, Maine

N

0 500 1,000 2,000
Feet

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Fucntional_Wetland_Series\October_2009_Updates\Figure 10 Functional_Wetland_Map_Series.mxd

Cluster Data Points
Wetlands
NAS Brunswick Property Boundary

Figure 10 of Attachment 3
Cluster 10
NAS Brunswick
Brunswick, Maine

0 500 1,000 2,000
Feet

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Fucntional_Wetland_Series\October_2009_Updates\Figure 11 Functional_Wetland_Map_Series.mxd

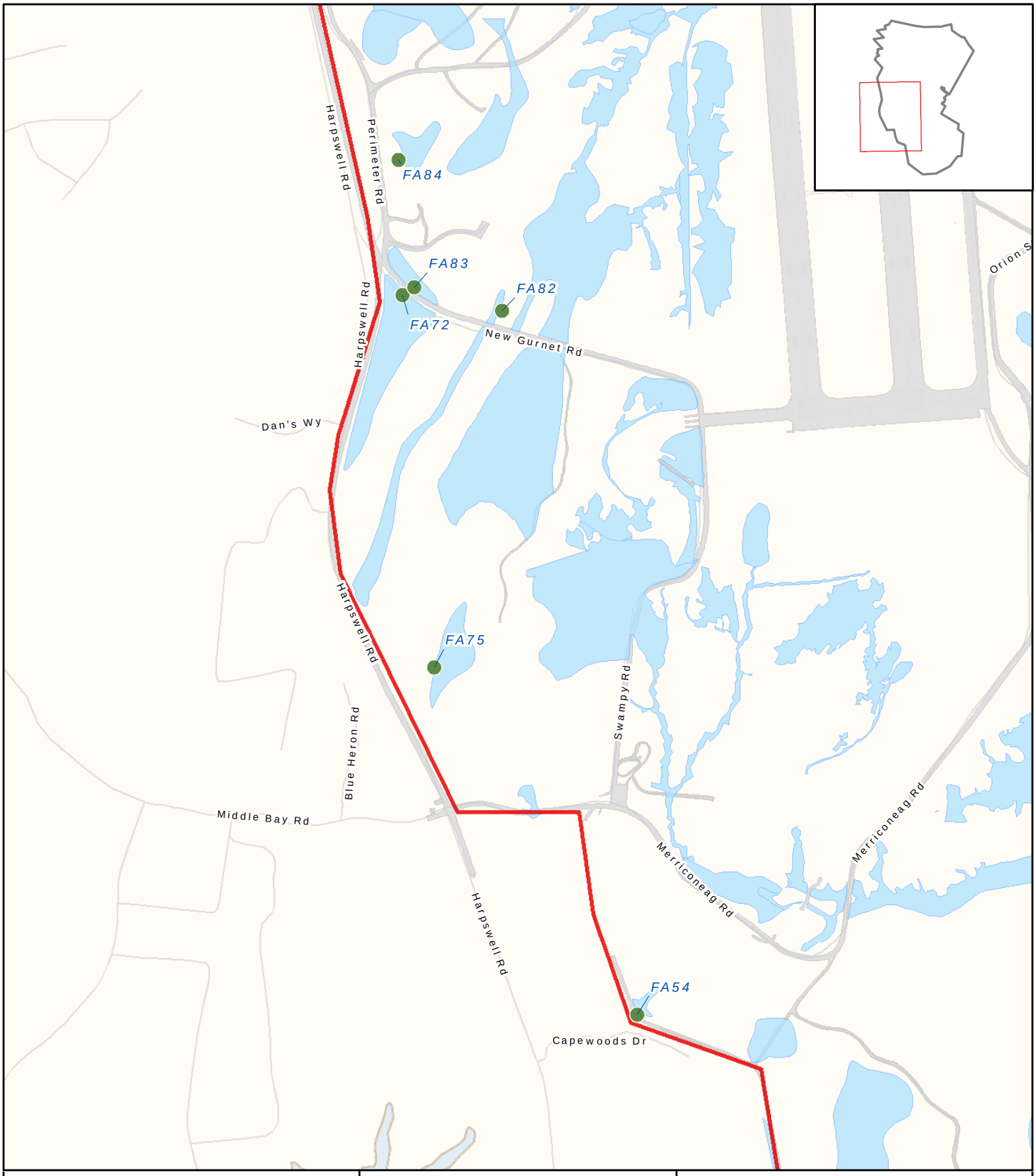
Cluster Data Points
Wetlands
NAS Brunswick Property Boundary

Figure 11 of Attachment 3
Cluster 11
NAS Brunswick
Brunswick, Maine

N

0 500 1,000 2,000
Feet

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Fucntional_Wetland_Series\October_2009_Updates\Figure 12 Functional_Wetland_Map_Series.mxd



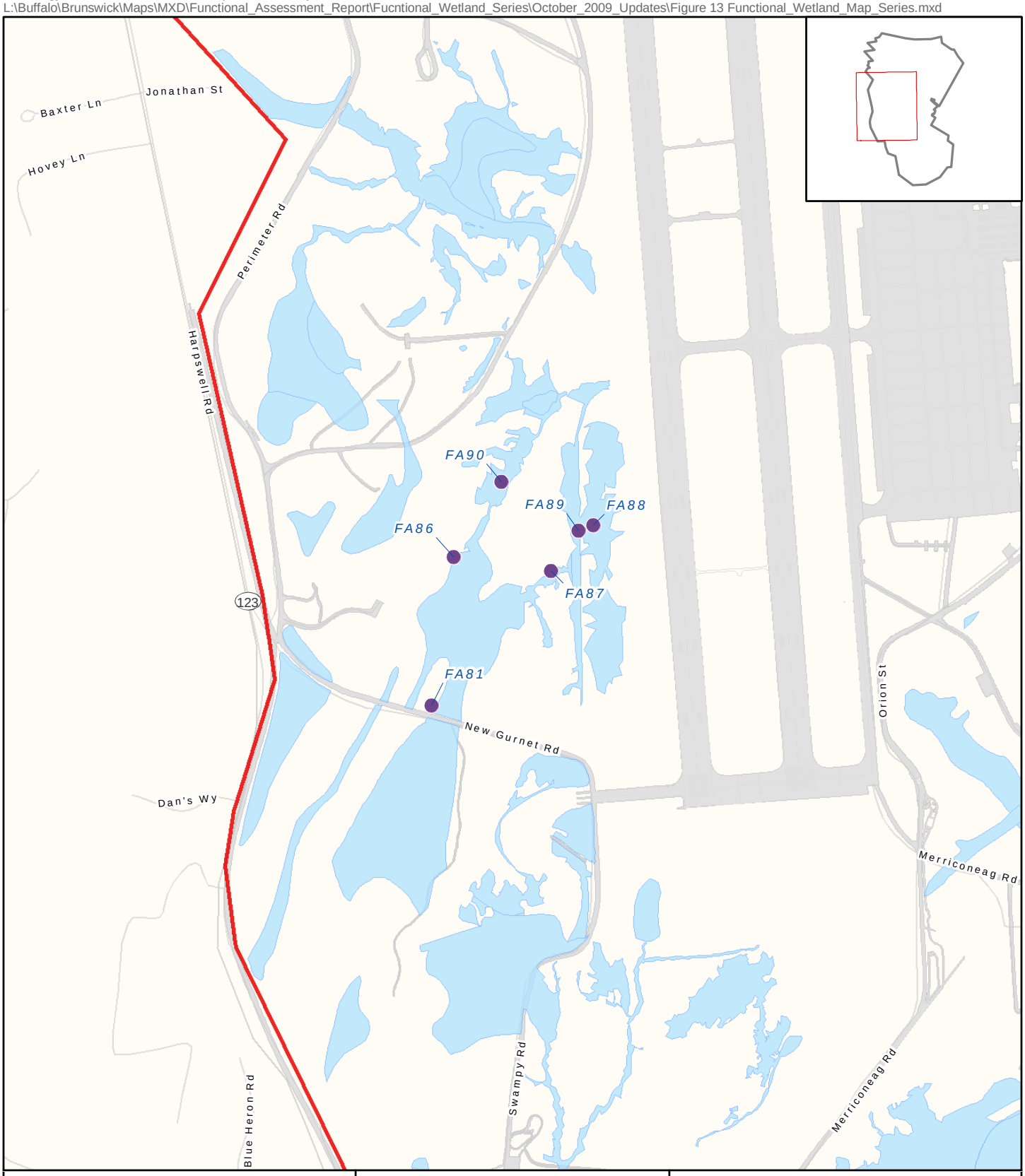
Cluster Data Points
Wetlands
NAS Brunswick Property Boundary

Figure 12 of Attachment 3
Cluster 12
NAS Brunswick
Brunswick, Maine

N

0 500 1,000 2,000
Feet

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Fucntional_Wetland_Series\October_2009_Updates\Figure 13 Functional_Wetland_Map_Series.mxd



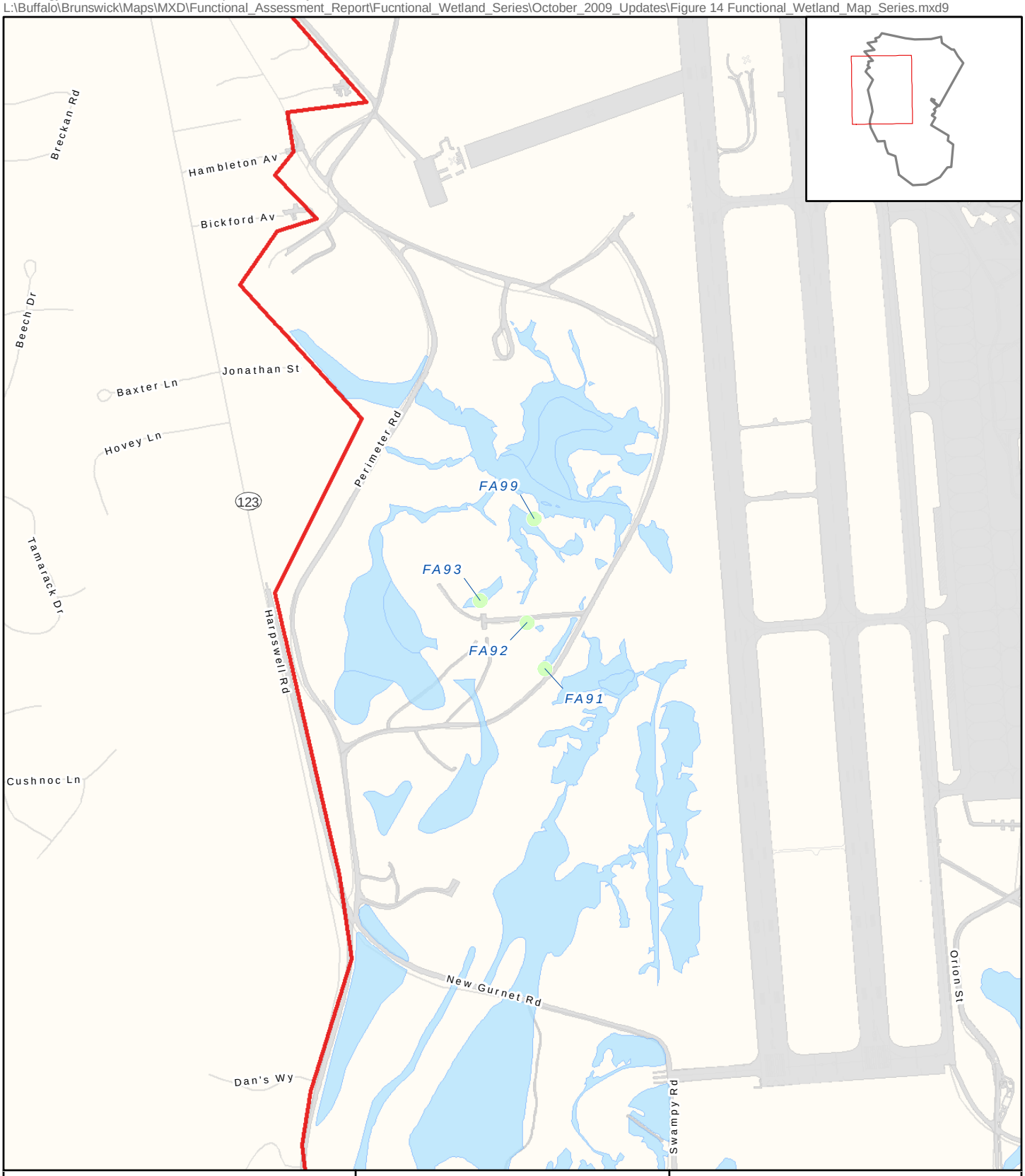
Cluster Data Points
Wetlands
NAS Brunswick Property Boundary

Figure 13 of Attachment 3
Cluster 13
NAS Brunswick
Brunswick, Maine

N

0 500 1,000 2,000
Feet

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Fucntional_Wetland_Series\October_2009_Updates\Figure 14 Functional_Wetland_Map_Series.mxd9



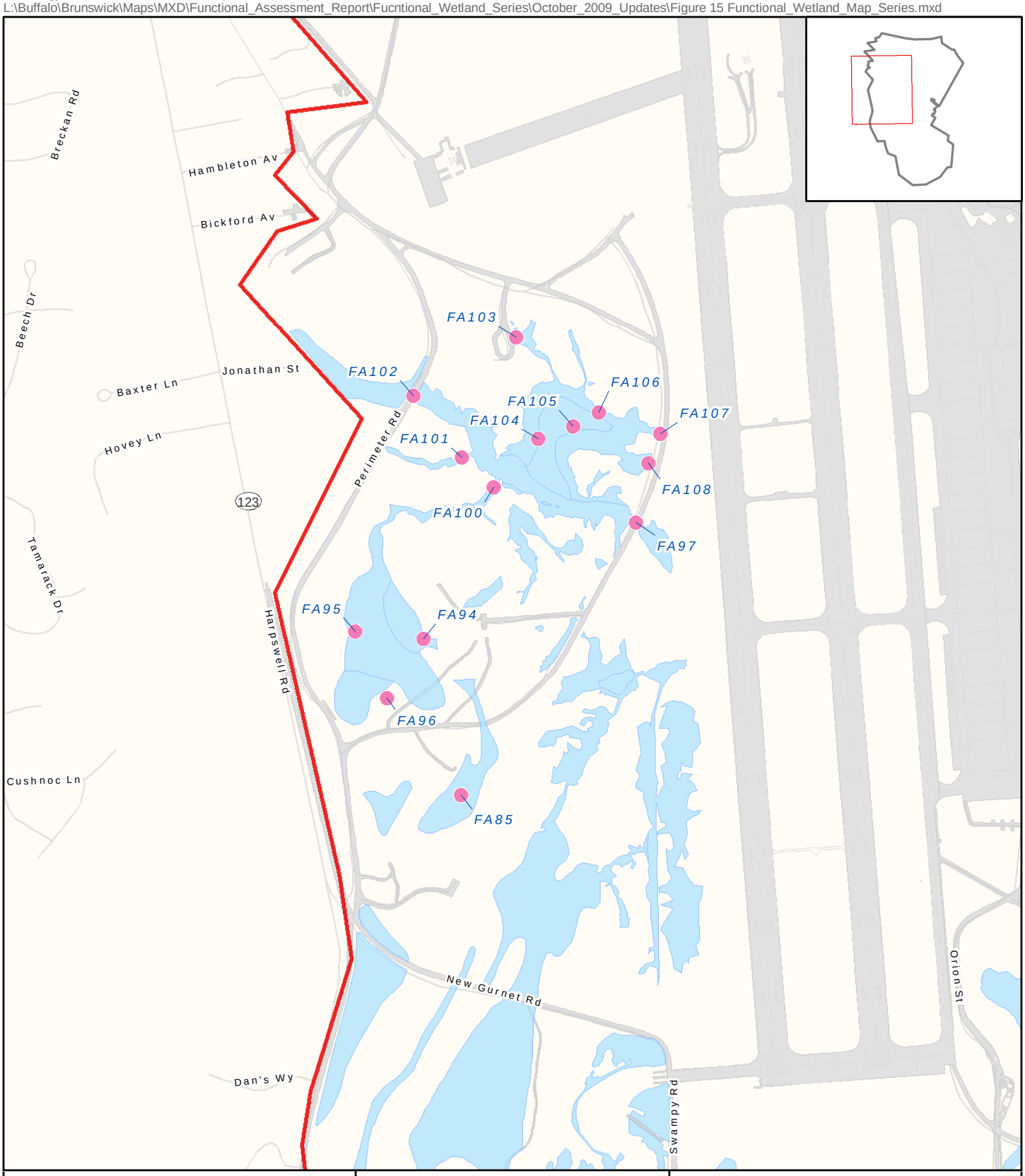
Cluster Data Points
Wetlands
NAS Brunswick Property Boundary

Figure 14 of Attachment 3
Cluster 14
NAS Brunswick
Brunswick, Maine

N

0 500 1,000 2,000
Feet

© Ecology & Environment, Inc. GIS Department Project #
L:\Buffalo\Brunswick\Maps\MXD\Functional_Assessment_Report\Fucntional_Wetland_Series\October_2009_Updates\Figure 15 Functional_Wetland_Map_Series.mxd



Cluster Data Points
Wetlands
NAS Brunswick Property Boundary

Figure 15 of Attachment 3
Cluster 15
NAS Brunswick
Brunswick, Maine

N

0 500 1,000 2,000
Feet