

**WETLAND DELINEATION AND FUNCTIONAL
ASSESSMENT REPORT**

Callahan Mine Superfund Site
Brooksville, Maine

Prepared for:

**Maine Department of Transportation
16 State House Station
Augusta, ME 04333**

Prepared by:



**MACTEC Engineering and Consulting, Inc.
511 Congress Street
Portland, Maine 04101**

MACTEC Project 3612062047

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LIST OF ACRONYMS AND ABBREVIATIONS

GPS	Global Positioning System
MACTEC	MACTEC Engineering and Consulting, Inc.
MEDEP	Maine Department of Environmental Protection
MEDLF&W	
NPL	National Priority List
Site	Callahan Mine Superfund Site
USACE	U.S. Army Corps of Engineers
WOSS	Wetlands of Special Significance
WRP	waste rock pile

1.0 INTRODUCTION

MACTEC Engineering and Consulting, Inc. (MACTEC) conducted a wetland delineation survey at the Callahan Mine Superfund Site (Site) in support of environmental permits relating to potential remediation activities at the Site. The purpose of the survey was to identify and delineate Maine Department of Environmental Protection (MEDEP) Protected Natural Resources at the Site. The wetland delineation survey included salt marsh/tidal wetlands, freshwater wetlands, and streams and a review of potential vernal pools.

The area of investigation included Goose Pond from the outlet to Goose Cove to the upper marsh where the pond transitions to a tidal creek (Marsh Creek). The area of investigation associated with Goose Pond ended at the point where an old beaver dam bisects Marsh Creek. The area of investigation also included the portion of the property within 250 feet of areas on Site where remediation activities may occur. The wetland delineation included flagging the upland-wetland boundary and locating wetland flags using a differentially corrected global positioning system (GPS). The wetland delineation also included a survey of the property for potential vernal pools.

The Protected Natural Resources at the Site were identified and delineated on June 17, 18, and 19, 2008. Six wetland features were delineated and labeled Wetlands A, B, C, D, E, and GP. An area of ponded water in a closed depression was observed within Wetland A, which was identified as a potential vernal pool. Due to the time of year when the field work was conducted (i.e., outside the spring amphibian breeding season) we were unable to document any breeding amphibian use. Delineated wetlands and the potential vernal pool are shown on Figure 1.

2.0 METHODOLOGY

Wetlands were delineated using methods described in the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual. The methodology presented in this manual is generally accepted by both state and federal regulatory agencies. The wetland delineation was based on the definition of wetlands as recognized by both the MEDEP and USACE (i.e., presence of hydric soils, dominance of hydrophytic vegetation, and presence of wetland hydrology). Wetlands, streams, and potential vernal pools on the property were delineated and marked in the field using numbered flagging. The delineated wetland resources were located using a Trimble Pro-XR submeter GPS. Delineated wetlands were classified based on current MEDEP wetland regulations, and on the U.S. Fish and Wildlife Service wetland classification system, *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979). The hydric soils observed in wetlands delineated at the Site were classified based on the *Field Indicators for Identifying Hydric Soils in New England* (“*Field Indicators*”), Version 3 (NEHSTC, 1998).

3.0 FINDINGS

The following subsections present the findings of the wetland delineation and include a brief description and classification of the protected natural resources identified at the Site.

3.1 WETLAND A

Wetland A is classified as a PFO4 or a palustrine, forested, needle-leaved evergreen wetland, based on the U. S. Fish and Wildlife wetland classification system. This wetland is located off the property to the west of the Mine Operations Area. The wetland delineation included the portions of wetland within approximately 125 feet of the western property boundary. Wetland A is dominated by needle-leaved evergreen trees including Northern white cedar (*Thuja occidentalis*), black spruce (*Picea mariana*), and balsam fir (*Abies balsamea*). Subordinate tree, shrub, and herbaceous species included yellow birch (*Betula alleghaniensis*), white pine (*Pinus strobus*), alder (*Alnus incana*), meadow horsetail (*Equisetum pratense*), meadow sweet (*Spirea latifolia*), sensitive fern (*Onoclea sensibilis*), sedges (*Cares* spp.) and moss (*Sphagnum* sp.). Mound and pool micro-topography was present throughout Wetland A, which also included small upland islands. The poorly drained silt to clay textured soils in Wetland A formed in glaciomarine deposits and are hydric soils. The soils are classified as type XI.A. hydric soils.

3.2 WETLAND B

Wetland B is classified as a PEM1 or palustrine, emergent, persistent wetland. This wetland is located at the toe of the southern end of Waste Rock Pile #3 (WRP-3). The wetland formed in an area where an access road was installed between the salt marsh and WRP-3. Seeps discharging from below WRP-3 provide the wetland hydrology. Wetland B is dominated by black grass (*Juncus gerardii*) and horsetail (*Equisetum* sp.) and also included the following subordinate species alder, meadow sweet and sensitive fern. The poorly drained silt to clay textured soils in Wetland B formed in glaciomarine deposits and are hydric soils. The soils are classified as type XI.A. hydric soils.

3.3 WETLAND C

Wetland C is classified as a PEM1 or palustrine, emergent, persistent wetland. This wetland is located along the toe of the Tailings Pile between the berm that exists between the salt marsh and the Tailings Pile. The wetland hydrology is derived from seeps, discharging to the ground surface, from the Tailings Pile and a decant pipe that drains the surface water from the top of the Tailings Pile. Wetland C is dominated by common reed (*Phragmites australis*), and also included sedges (*Carex* spp.), broad-leaved cattail (*Typha latifolia*) and wetland grasses. The soils in Wetland C are composed of an organic surface layer overlying silty glacial till deposits. The soils are classified as type V. hydric soils.

3.4 WETLAND D

Wetland D is classified as a PEM1 or palustrine, emergent, persistent wetland. This wetland is located on the top of the Tailings Pile, in an area that was used to pond and settle aqueous mine wastes. The substrate in the area delineated as Wetland D is composed of very fine angular sand and silt particles and slimes settled from the mine wastes. These materials are characterized as fill material. The hydrology in the area is derived from surface water runoff from the uplands to the west of the Tailings Pile. There is an existing decant structure (6-inch diameter open pipe) that regulates the level of water in the area. The fine particle size of the substrate creates a perched water table in the mine wastes. Wetland D is dominated by broad-leaved cattails, and also included beaked spike rush (*Eleocharis rostellata*). The soils are classified as type VI. hydric soils.

3.5 WETLAND E

Wetland E is classified as a PEM1 or palustrine, emergent, persistent wetland. This wetland is located at the north end of Waste Rock Pile #1 (WRP-1). While the mine was in operation, sediment from Stink Cove slumped into the mine pit during a single mass wasting event. This sediment was excavated from the mine pit and placed on top of WRP-1, where Wetland E has formed. Seeps discharging from below the upper tier of WRP-1 provide the wetland hydrology. Wetland E is dominated hydrophitic vegetation including broad-leaved cattails, subordinate vegetation included golden rod (*Solidago* sp.), blackberry and raspberry (*Rubus* spp.). The northern boundary of the wetland is delineated by an existing berm and the southern boundary follows the toe of slope of the upper tier of the Waste Rock Pile. The sediment deposited on the

top of the waste rock pile is composed of fine grained silty estuarine sediments, which have developed hydric soil characteristics. The soils are classified as type XI.A. hydric soils.

3.6 WETLAND GP

Wetlands delineated in the field as Wetland GP include the salt marsh habitat bordering the eastern and western shores of Goose Pond and where present the contiguous freshwater wetlands that exist up gradient of the salt marsh. Wetlands were delineated within 250 feet of the salt marsh bordering Goose Pond. The upland wetland boundary along the west side (i.e., Site side) and east side (Holbrook Island Sanctuary side) of Goose Pond included areas that transition abruptly from the pond to upland in areas where mining occurred and where bedrock outcrops exist along the pond edge. The upland wetland boundary in these areas is delineated by the highest tide level for the year (i.e., MEDEP Highest Annual Tide). The salt marsh and freshwater wetlands delineated in the vicinity of Goose Pond are discussed in the following sections. Goose Pond is classified as an E1UB3, or estuarine, subtidal, unconsolidated bottom (mud) wetland.

3.6.1 Salt Marsh

The fringe salt marsh along Goose Pond is classified as E2EM1 or estuarine, intertidal, emergent, persistent wetland. These wetlands occur in a relatively narrow band along the edge of Goose Pond. There are several areas where freshwater wetlands bordered the inland edge of fringe salt marsh, which are noted on the wetland delineation plan (Figure 1). There were also several named and unnamed streams observed flowing into Goose Pond. The freshwater wetlands are described in Subsection 3.6.2. The fringe salt marsh wetlands are dominated by smooth cordgrass (*Spartina alterniflora*), and also included saltmeadow cordgrass (*Spartina patens*), narrow-leaved cattail (*Typha angustifolia*) and common reed (*Phragmites australis*). The salt marsh soils are composed of silty textured material that formed in glaciomarine deposits. Wetlands data forms are included in Attachment A. Also included in Attachment A is a data form documenting typical undisturbed bordering upland conditions. The marsh soils are classified as type II. hydric soils.

3.6.2 Freshwater Wetland and Streams

A large freshwater wetland complex was delineated, south of Tailings Pile, which is contiguous with the fringe salt marsh bordering Goose Pond. This area of wetland includes the following

wetland classes PFO4 (palustrine, forested, needle-leaved evergreen wetland), PSS1 (palustrine, scrub/shrub, broad-leaved deciduous wetland) and PEM1 (palustrine, emergent, persistent wetland). Two stream features were also observed within the delineated portions of the wetland complex. One of the stream channels observed becomes broad and diffuse where it transitions into the salt marsh. The other stream channel exists in an entrenched channel to Goose Pond. The PFO4 portion of the wetland is dominated by northern white cedar, black spruce and balsam fir trees. The PSS1 wetland is dominated by alder and high bush blueberry (*Vaccinium corymbosum*). The PEM1 wetland is codominated by horse tail (*Equisetum palustre*), tussock sedge (*Carex stricta*), and sensitive fern (*Onoclea sensibilis*). The wetland hydrology is derived from seeps discharging from below the Tailings Pile and surface water runoff from the surrounding uplands. The soils within the PFO1 wetlands are composed of silty textured hydric soil formed in glacial till deposits. The soils within the PSS1 and PEM1 wetlands are composed of muck and silt textured soils that formed in glaciomarine sediments. Wetland data forms are included in Attachment A. The soils are classified as type XI.A. hydric soils.

4.0 CONCLUSION

Wetland A exists off property to the west of the mine operations area. It appears that this wetland may have continued across the property prior to development of the mine. A small closed depression was observed along the property boundary within Wetland A that may be functioning as a vernal pool. Ponded water was observed in the closed depression at the time of our wetland delineation, which would suggest that ponded water would be found in the depression during the spring amphibian breeding season. However, because our wetland delineation work was done outside the amphibian breeding season, a survey during the spring of 2009 would be required to determine if this area is a “Significant Vernal Pool”.

Four of the wetlands delineated on Site, including Wetlands B, C, D and E, appear to have developed in areas that have been impacted by mine activities and are a direct result mine operations (i.e., man-made). Wetland B developed in an area where seeps discharging from below WRP-3 and the Tailings Pile were cut off from direct discharge to the Goose Pond salt marsh by an access road. Wetland C exists in a low lying area between the toe of the Tailings Pile and an access road running along the edge of the salt marsh. Wetland D formed on the top of the Tailings Pile, in an area that was used to pond and settle aqueous mine wastes. Wetland E formed on the top of WRP-1 in an area where sediments excavated from the mine pit were placed during mine operations. All of these wetlands were created as a direct result of mine operations or the cessation of mine operations.

The protected natural resources delineated on the Site include Coastal Wetlands (Goose Pond and bordering salt marsh) and Freshwater Wetlands and Streams. All of the wetlands delineated in association with Goose Pond, including the pond, fringe salt marsh, and freshwater wetlands within 250 feet of the pond are considered “Wetlands of Special Significance” (WOSS). In addition, wetlands within 25’ of mapped streams are also considered WOSS. Alteration of a WOSS would require a Tier 3 Wetland Permit from the MEDEP and an individual permit from the Army Corps of Engineers. Based the area of proposed impacts (i.e., alteration of greater than 500 square feet of WOSS including coastal wetlands and freshwater wetlands) additional submittals may be required including a wetland mitigation and compensation plan. A wetland functions and values assessment was completed as a part of our wetland delineation services, the results of which are presented in the following subsections.

5.0 WETLAND FUNCTIONS AND VALUES ASSESSMENT

The USACE guidance document The Highway Methodology Workbook (USACE, 1993) was used to evaluate the wetland functions and values of the wetland habitats delineated at the Site. The Highway Methodology Workbook Supplement (USACE, 1999) outlined the specific methodology followed when conducting the wetland functions and values assessment. A total of six wetland types were identified and delineated on the Site; they include Goose Pond, a estuarine subtidal unconsolidated bottom wetland (E1UB3), estuarine intertidal emergent marsh wetland (E2EM1), palustrine unconsolidated bottom wetlands (PUB), palustrine forested wetland (PFO4), palustrine scrub shrub wetland (PSS1), and palustrine emergent wetland (PEM1). Results of the functions and values assessment, for each of the wetland types identified were documented on evaluation forms which are included in Attachment A. In accordance with The Highway Methodology, wetland functions and values have been qualitatively evaluated for each of the wetlands identified at the Site. The functions and values are discussed below. A summary of the suitable and principal functions-values for each wetland type is presented in the Wetland Functions and Values Summary Table (presented in Section 5.14).

5.1 GROUNDWATER RECHARGE/DISCHARGE

This function considers the potential for the wetland to serve as a groundwater recharge and /or discharge area. It refers to the fundamental interaction between wetlands and aquifers, where there is potential for the wetland to contribute water to an aquifer (recharge) or to function as a groundwater discharge area.

The estuarine wetlands delineated on Site (i.e., E1UB3 and E2EM1 wetlands) are functioning as groundwater discharge areas. Groundwater in the form of seeps was observed at multiple locations discharging to the intertidal emergent marsh and Goose Pond (i.e., E1UB3 wetland). The seeps observed discharging to the marsh and Pond appear to originate in the mine tailings piles and waste rock piles on the Site.

The freshwater wetlands (i.e., PFO4, PSS1 and PEM1) delineated on site also appear to be deriving all or part of their hydrology from groundwater discharges, as seeps were observed in these wetland features. In addition, these wetland features are associated with a perennial stream feature, as shown on the wetland delineation plan (Figure 1). Based on our observations and data collected

during remedial investigations at the Site groundwater discharge is a suitable function of the wetlands delineated on Site.

5.2 FLOODFLOW ALTERATION (STORAGE AND DE-SYNCHRONIZATION)

This function considers the effectiveness of the wetland in reducing flood damage by attenuating floodwaters for prolonged periods following precipitation and snow melt events.

Goose Pond (i.e., E1UB3) does not provide significant floodflow alteration. There are areas where tributary streams discharge to the estuary, in these areas floodflow alteration may be a suitable function of bordering emergent marsh (i.e., E2EM1). However, the watersheds of these tributary streams are small and the surrounding soils are well drained; therefore, floodflow alteration would not be a principal function of these wetlands.

Similarly the freshwater wetlands delineated on Site would likely buffer increased runoff due to episodic precipitation events and spring runoff, primarily the PEM1 wetlands. As these wetlands are characterized by thick organic soils which are known to have a high water holding capacity. As noted above however, the watershed of the tributary streams delineated on site are relatively small and would not generate significant runoff therefore this function would not be considered a principal function of these wetlands.

5.3 FISH AND SHELLFISH HABITAT

This function considers the effectiveness or importance of seasonal or permanent waterbodies associated with the wetlands in question for fish and shellfish habitat.

The estuarine wetlands delineated on Site are providing fish and shellfish habitat based on direct observations of fish and shellfish in these habitats. Estuarine habitats are known to provide breeding and nursery habitat for fish and shellfish. Fish and shellfish habitat would be a principal function of these wetlands.

The stream features delineated within the freshwater wetland to the south of the Tailings Pile may be providing suitable fish and shellfish habitat, although no direct observations of fish and shellfish use were documented. The streams delineated on Site do not connect via a defined channel to the

estuarine marsh and Goose pond, but becomes dendritic and defuse in the emergent freshwater wetland adjacent to the estuarine marsh (as shown on Figure 1). Fish passage from the estuary to the freshwater stream is unlikely. In addition, the upper reaches of the streams delineated on site originate from drainages which collect runoff from the surrounding uplands. This function is considered suitable, but not a primary function of the freshwater wetlands and steam delineated on site.

5.4 SEDIMENT/TOXICANT RETENTION

This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland to act as a trap for sediments, toxicants, or pathogens that may be contained in river or runoff water.

The estuarine emergent marsh (i.e., E2EM1) bordering Goose Pond is providing sediment/toxicant retention, based on the high density of herbaceous species growing in this habitat. In addition, sediment sampling done in support of remedial activities at the Site has shown that these habitats are trapping sediment and toxicants. The primary source of sediment and toxicants is storm water runoff from the Site. Sediment/toxicant retention would be a principal function of these wetlands.

Sediment/toxicant retention is a suitable function for the freshwater wetlands delineated along the southern end of the Tailings Pile. The PFO and PSS wetlands to a lesser extent however, the PEM wetlands are providing sediment/toxicant retention, based on the density and species composition of emergent vegetation observed in these areas. Sediment/toxicant retention is a principal function of the PEM wetlands delineated on site, the PFO and PSS wetland would also function to slow/intercept storm water runoff, which would provide sediment/toxicant reduction.

5.5 NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

This wetland function considers the effectiveness of the wetland to prevent adverse effects of excess nutrients entering aquifers or surface water. The effectiveness is related to the ability of the wetland to trap and process these nutrients into other forms or tropic levels.

As noted in the previous section, retention of sediments is occurring in the estuarine and freshwater emergent marsh wetlands on Site. The high density and plant species (i.e., smooth cordgrass and

cattails) growing in the wetlands, and the presence of organic and silt sediment, are likely functioning to remove excess nutrients through plant uptake and or attenuation in sediment. Based on observations of sediment trapping, vegetative growth and presence of organic/silt deposits the wetlands on site are providing nutrient removal, retention and transformation. Nutrient uptake is also a suitable function of the forested and scrub shrub wetlands on site, as they are also likely providing some nutrient uptake, based on their vigorous growth and density in the wetlands.

5.6 PRODUCTION EXPORT (NUTRIENT)

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

The estuarine and freshwater wetlands on site provide wildlife food sources including flowering and fruiting plants and seed producing herbaceous plants. These wetlands also provide habitat for fish, invertebrates, and amphibian populations which would provided a forage base for secondary and tertiary consumers. Piscivorous birds including kingfishers, greater yellow legs, green herons, and great blue herons were observed foraging in and along Goose Pond and bordering emergent marsh. Migratory waterfowl including mallard ducks, black ducks and wood ducks were also observed using the wetlands on site.

5.7 SEDIMENT/SHORELINE STABILIZATION

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

The estuarine emergent marsh bordering Goose Pond is providing sediment and shoreline stabilization. The dense herbaceous growth observed in the marsh habitat provides protection to the underlying sediments from wind derived wave action. In addition, the freshwater wetlands (PFO4, PSS1, and PEM1 wetlands) are also providing sediment and stream bank stabilization. The dense herbaceous vegetation growing in the wetlands and the scrub shrub vegetation and trees growing along the edge of wetlands are functioning to stabilize the banks of the stream that bisect these wetlands. Sediment and shoreline stabilization is a principal function of the wetlands delineated on the Site.

5.8 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 are considered.

The wetlands on site provide wildlife habitat for a variety of resident and migratory species. In particular, as noted above Goose Pond has a significant population of polychaete worms, bivalves and other aquatic invertebrates, fish, and amphibians which provide a forage base for higher trophic level consumers. Wildlife observed foraging in the estuarine habitats on site included kingfishers, cormorants, bald eagles, ducks and wading birds including great blue herons and greater yellow legs. The wetlands and adjacent forested upland to the south of the Tailings Pile also support small mammals such as voles, shrews and field mice as well as larger mammals including deer, raccoons, red fox, otters, and skunks, all of which have been observed at the Site. In addition, black bear tracks have been observed on the Tailings Pile. Wildlife habitat is considered a primary function of the wetlands delineated on site.

5.9 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, and other active or passive recreational activities. Both “consumptive” and “non-consumptive” types of recreation are considered.

The Site is a listed National Priority List (NPL) Superfund Site, however public access is not currently controlled; therefore there is opportunity for recreational activities to occur on the Site. Recreational boaters have been observed using Goose Pond in the recent past. Duck hunting blinds have been observed in the marsh, in the southern end of Goose Pond. In addition, all-terrain vehicle use has been observed on portions of the Site. Goose Pond is closed to shell fishing. The land area to the east of Goose Pond is a wildlife sanctuary managed by the State of Maine, which provides hiking trails and ocean access to the public. Based on the current status as a NPL Site, and the availability of public recreational area to the east of Goose Pond, this is not considered a value of the wetlands on site.

5.10 EDUCATIONAL/SCIENTIFIC VALUE

This function considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

The Site is a listed NPL Superfund Site, therefore utilizing the wetlands as an “outdoor classroom” would not be feasible due to potential for exposure to known contamination at the Site. There may be some value in the study of the Site for research purposes however due to the levels of contamination at the Site this would be limited to trained qualified personnel. Therefore educational/scientific value is not considered a value of these wetlands.

5.11 UNIQUENESS/HERITAGE

This value relates to the effectiveness of the wetland or its associated watersheds to provide certain special values such as archeological sites, unusual aesthetic qualities, historical events, unique plants, animals, geologic features, etc.

The wetland complex including Goose Pond, estuarine salt marsh, and bordering freshwater wetlands are somewhat unique to the coast of Maine. However, the historic mining operation has significantly altered some of the uniqueness of the area (i.e., waste rock piles and tailings pile). Therefore, uniqueness and heritage are not considered a value for these wetlands.

5.12 VISUAL QUALITY/AESTHETICS

This value relates to the visual and aesthetic qualities of the wetland.

As noted above the historic mining operation has significantly impacted the uplands adjacent to the wetland complex, through the construction of the tailings pile and waste rock piles, as well as other mining operations. Therefore, based on the current conditions at the Site visual quality/aesthetics is not considered a value for the wetlands on site.

5.13 ENDANGERED SPECIES HABITAT

This function considers the suitability of the wetland or associated watersheds to support rare, threatened, or endangered species.

The estuarine and freshwater wetlands on Site are likely providing forage and nesting habitat for rare, threatened and endangered species. Bald eagles have been observed on site on multiple occasions. Requests have been sent to the Maine Natural Areas Program, Maine Department of Inland Fisheries and Wildlife, and U.S. Fish and Wildlife Service requesting information on Rare, Threatened, and Endangered Species and Significant Wildlife Habitat known to occur on or in the vicinity of the Site. Endangered species habitat is considered a suitable function of the wetlands on site.

Response letters did not identify any rare threatened and/or endangered plant or animal species occurrences on the property. However, the Maine Department of Inland Fisheries and Wildlife have mapped all grass beds in Dyer Cove and Goose Pond as inland waterfowl/wading bird habitat. The letters sent to regulators and their responses are included in Attachment B.

5.14 CONCLUSION

The following table provides a summary of the suitable and principal functions of the wetlands delineated on the Site.

WETLAND FUNCTIONS AND VALUES SUMMARY TABLE

Functions and Values	E1UB3	E2EM1	PFO4	PSS1	PEM1
Groundwater Recharge/Discharge	S	S	S	S	S
Floodflow Alteration		S	S	S	S
Fish and Shell Fish Habitat	S,P	S,P			
Sediment/Toxicant Retention		S,P	S	S	S,P
Nutrient Removal		S	S	S	S
Production Export	S	S		S	S
Sediment/Shoreline Stabilization		S,P	S,P	S,P	S,P
Wildlife Habitat	S,P	S,P	S,P	S,P	S,P
Recreation					
Education/Scientific Value					
Uniqueness/Heritage					
Visual Quality/Aesthetics					
Endangered Species Habitat	S	S	S	S	S

Notes:

S = Suitable Function/Value

P = Principal Function/Value

As shown in the summary table the wetlands delineated on Site are providing functions and values. The estuarine wetlands (i.e., Goose Pond and adjacent salt marsh) principal functions are fish and shell fish habitat and wildlife habitat. In addition the estuarine salt marsh is providing sediment/toxicant retention and sediment/shore line stabilization. The freshwater wetlands delineated on Site principal functions included sediment/shoreline stabilization and wildlife habitat.

The following values; recreation, education/scientific value, uniqueness/heritage, and visual quality aesthetics were not considered suitable and or principal values due to the fact that the Site is a

listed NPL Superfund Site and residual impacts to the Site from historic mining operations, including the Mine Operations Area, Tailings Pile, and Waste Rock Piles.

6.0 REFERENCES:

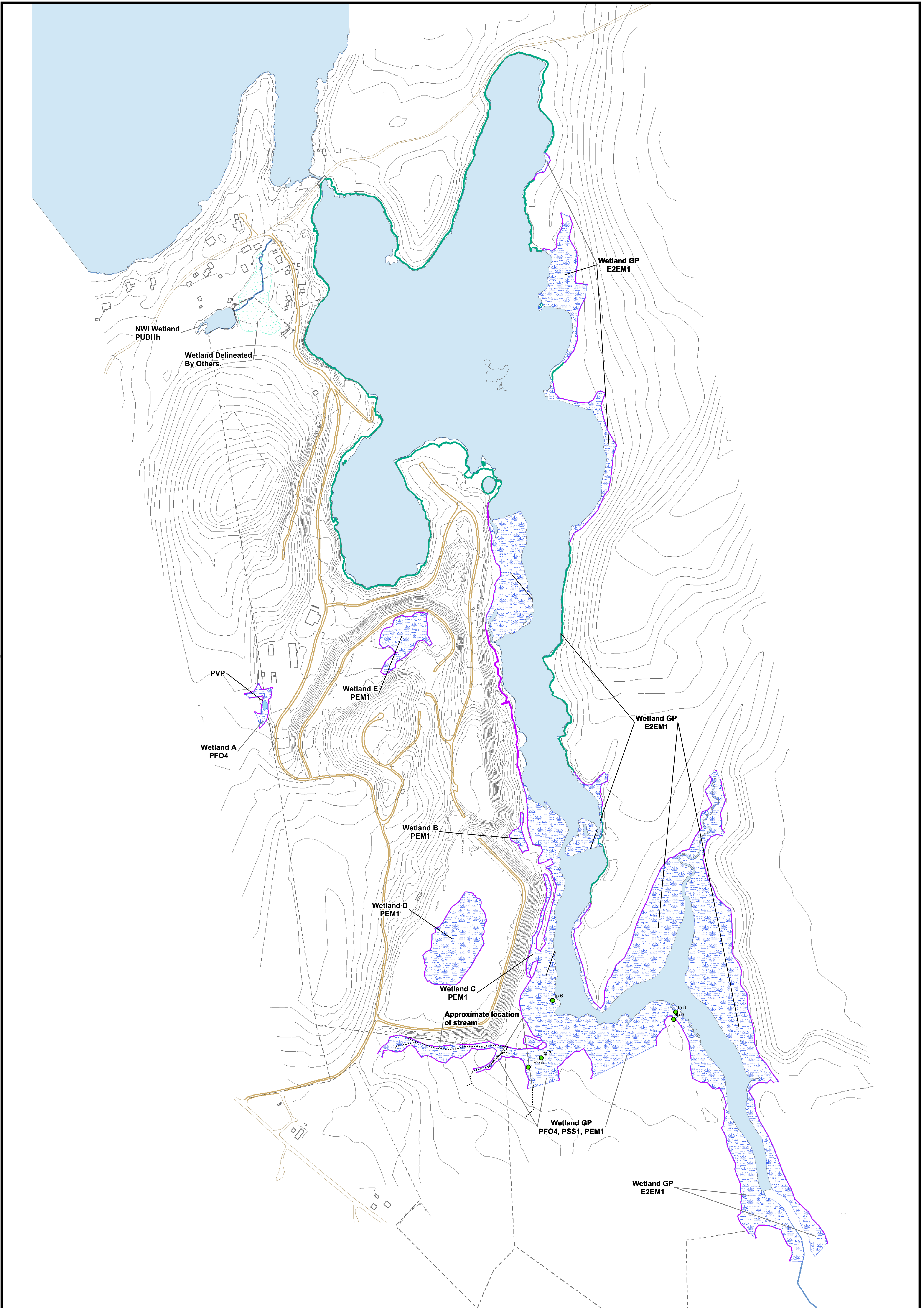
Cowardin, 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service Publication Number FWS/OBS-79/31; Cowardin, L.M., Carter, V., Golet, F.C., and LaRoe, E.T., 1979.

NEHSTC, 1998. "Field Indicators for Identifying Hydric Soils in New England (2nd version)", New England Hydric Soils Technical Committee; New England Interstate Water Pollution Control Commission. Wilmington, MA; 1998.

USACE, 1993. The Highway Methodology Workbook; U.S. Army Corps of Engineers, New England Division. 28pp (NAEEP-360-1-30). 1993.

USACE, 1999. The Highway Methodology Workbook Supplement; U.S. Army Corps of Engineers, New England Division. 32pp (NAEEP-360-1-30a). September 1999.

FIGURES



Legend

- Test_Points_09_09_2008
- Stream Channel
- ▨ Delineated Wetlands
- ▬ MACTEC Delineated Wetland
- Maine DEP Highest Annual Tide

0 125 250
Feet

Prepared/Date: DBW 10/27/08 | Checked/Date: CHL 10/27/08

Wetland Classification (Gowardin et al., 1979)

PFO4 - Palustrine, Forested, Needle-Leaved Evergreen wetland
 PEM1 - Palustrine, Emergent, Persistent wetland
 PSS1 - Palustrine, Scrub-Shrub, Broad-Leaved Deciduous wetland
 E2EM1 - Estuarine, Intertidal, Emergent, Persistent wetland
 E1UB3 - Estuarine, Subtidal, Unconsolidated Bottom, Mud wetland
 PUBHh - Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked / Impounded

PVP - Potential Vernal Pool
 NWI - National Wetlands Inventory

Figure 1
Wetland Delineation Plan

ATTACHMENT A
WETLAND AND FUNCTIONAL ASSESSMENT DATA FORMS

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? no Is wetland part of a wildlife corridor? yes or a "habitat island"? no
 Adjacent land use: forested/open marsh(estuarine)/historic mine Distance to nearest roadway or other development _____
 Dominant wetland systems present open water, muck bottom Contiguous undeveloped buffer zone present _____
 Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? lower
 How many tributaries contribute to the wetland? multiple Wildlife & Vegetation diversity/abundance (see attached list)

Wetland I.D. E1UB3
 Latitude _____ Longitude _____
 Prepared by: CHL Date 09/08/08
 Wetland Impact:
 Type _____ Area _____
 Evaluation based on:
 Office X Field X
 Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability		Rationale (Reference #)*	Principal Functions(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	X				local hydrology affected by mine operations
Floodflow Alteration		X			open water
Fish and Shellfish Habitat	X			X	Goose Pond & Tidal Creeks are providing significant fish and shell fish habitat
Sediment/Toxicant Retention		X			sediment are deposited in this tidal estuary
Nutrient Removal		X			no significant nutrient removal, although sediments in pond area likely contaminant sink
Production Export	X				shellfish, marine invertebrates
Sediment/Shoreline Stabilization		X			NA
Wildlife Habitat	X			X	shellfish, marine invertebrates, fish
Recreation		X			Goose Pond sediments are known to contain elevated levels of inorganic constituents related to historic mining operations.
Educational/Scientific Value		X			Goose Pond sediments are known to contain elevated levels of inorganic constituents related to historic mining operations.
Uniqueness/Heritage		X			Goose Pond sediments are known to contain elevated levels of inorganic constituents related to historic mining operations.
Visual Quality Aesthetics		X			Goose Pond sediments are known to contain elevated levels of inorganic constituents related to historic mining operations.
ES Endangered Species Habitat	X				no known sediment inhabiting organisms present
Other					

Notes: Estuarine subtidal wetland; muck bottom also includes eel grass beds and other emergent and floating leaf plants

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? no Is wetland part of a wildlife corridor? yes or a "habitat island"? no

Adjacent land use: forested upland & wetland/historic mine Distance to nearest roadway or other development _____

Dominant wetland systems present salt marsh Contiguous undeveloped buffer zone present _____

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? lower

How many tributaries contribute to the wetland? multiple Wildlife & Vegetation diversity/abundance (see attached list)

Wetland I.D. E2EM1
 Latitude _____ Longitude _____
 Prepared by: CHL Date 09/08/08
 Wetland Impact:
 Type _____ Area _____

Evaluation based on:
 Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability		Rationale (Reference #)*	Principal Functions(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	X		1,6,7,13		local hydrology affected by mine operations, area shallow to bedrock seeps observed along Tailings Pile and Waste Rock piles.
Floodflow Alteration	X		3,5,6,7,8,9,13,18		wetland borders tidal estuary, Goose Pond does not receive significant inputs/discharges from tributaries
Fish and Shellfish Habitat	X		1,3,4,5,7,9,10,11,12,14,15,16, (1,2,3,4,5)	X	marsh & Goose Pond "Tidal Creeks" provide nursery habitat from fish & shellfish
Sediment/Toxicant Retention	X		6	X	marsh is likely providing sed/tox retention
Nutrient Removal	X		2,3,4,5,6,7,8,9,10,12,13,14		marsh likely providing nutrient removal
Production Export		X	1,2,4,5,6,7,10,12		wildlife food sources limited to grass/verb seeds. No shrubs/trees
Sediment/Shoreline Stabilization	X		1,3,4,6,7,10,12,13,15	X	primary erosional force is wind derived wave action as well as some tidally influenced erosion
Wildlife Habitat	X		3,4,5,6,7,8,9,11,12,13,16,17, 18,19,21	X	marsh likely providing significant wildlife habitat
Recreation		X			relatively uncommon wetland type however historic mine operations have significantly impacted adjacent uplands. Similar habitats are located in the vicinity of the site.
Educational/Scientific Value		X			relatively uncommon wetland type however historic mine operations have significantly impacted adjacent uplands. Similar habitats are located in the vicinity of the site.
Uniqueness/Heritage		X			relatively uncommon wetland type however historic mine operations have significantly impacted adjacent uplands. Similar habitats are located in the vicinity of the site.
Visual Quality Aesthetics		X			relatively uncommon wetland type however historic mine operations have significantly impacted adjacent uplands. Similar habitats are located in the vicinity of the site.
ES Endangered Species Habitat	X				area known to support bald eagles
Other					

Notes: Estuarine intertidal wetland (see PF04, PEM1, and PSS1 for descriptions/evaluations of freshwater wetlands which border the Goose Pond marsh habitat)

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? no Is wetland part of a wildlife corridor? yes or a "habitat island"? no
 Adjacent land use: forested/historic mine Distance to nearest roadway or other development _____
 Dominant wetland systems present needle leaved evergreen forest Contiguous undeveloped buffer zone present no, mine wastes
 Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? upper
 How many tributaries contribute to the wetland? _____ Wildlife & Vegetation diversity/abundance (see attached list)

Wetland I.D. PF04
 Latitude _____ Longitude _____
 Prepared by: CHL Date 09/08/08
 Wetland Impact:
 Type _____ Area _____
 Evaluation based on:
 Office X Field X
 Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability		Rationale (Reference #)*	Principal Functions(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	X		1,6,7,13		local hydrology affected by mine operations, area shallow to bedrock. Seeps observed along mine tailings & Waste Rock piles.
Floodflow Alteration	X		2,3,5,8,9,14,18		forested wetlands may buffer increase runoff due to episodic precipitation events & spring runoff
Fish and Shellfish Habitat		X			forested wetlands do not provide fish and shellfish habitat; no ponded or permanently flowing streams
Sediment/Toxicant Retention	X		1,2,4,7,8,9,10		forested wetlands borders scrub/shrub & emergent wetlands and may be providing some sediment/toxicant retention & nutrient removal.
Nutrient Removal		X	2,3,6,7,11		appear to be providing some sediment & bank stabilization
Production Export		X	1,2,4,8,10,11,12		some fruit producing trees present
Sediment/Shoreline Stabilization	X		1,2,3,4,6,7,9,14,15	X	uplands contain highly erodible silty soils
Wildlife Habitat	X		3,5,6,7,8,9,10,11,15,16,17,18,19,20,21	X	forested wetlands on site are providing habitat for avian mammalian and inverts, reptiles & amphibians; some human impact due to past mining operation
Recreation		X			common wetland type; similar habitats located close by in state run sanctuary; historic mine operations have significantly impacted uplands (tailings and Waste Rock piles)
Educational/Scientific Value		X			common wetland type; similar habitats located close by in state run sanctuary; historic mine operations have significantly impacted uplands (tailings and Waste Rock piles)
Uniqueness/Heritage		X			common wetland type; similar habitats located close by in state run sanctuary; historic mine operations have significantly impacted uplands (tailings and Waste Rock piles)
Visual Quality Aesthetics		X			historic mine operations have significantly impacted adjacent uplands
ES Endangered Species Habitat	X				area known to support bald eagles (have been observed at site)(observed potential vernal pool in PF04-wetland)
Other					

Notes: includes wetland A & portions of wetland GP south of Tailings Pile

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? no Is wetland part of a wildlife corridor? yes or a "habitat island"? no
 Adjacent land use: forested/open marsh(estuarine)/historic mine Distance to nearest roadway or other development _____
 Dominant wetland systems present scrub/shrub Contiguous undeveloped buffer zone present no, mine wastes
 Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? lower
 How many tributaries contribute to the wetland? _____ Wildlife & Vegetation diversity/abundance (see attached list)

Wetland I.D. PSS1
 Latitude _____ Longitude _____
 Prepared by: CHL Date 09/08/08
 Wetland Impact:
 Type _____ Area _____
 Evaluation based on:
 Office X Field X
 Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability		Rationale (Reference #)*	Principal Functions(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	X		1,6,7,13		local hydrology affected by mine operations, area shallow to bedrock seeps observed along mine tailings & Waste Rock piles
Floodflow Alteration	X		3,5,6,8,9,10,13,14,16,18		scrub shrub wetlands border emergent wetlands throughout site; likely provide some flood flow alteration
Fish and Shellfish Habitat		X			scrub shrub wetlands do not provide fish & shellfish habitat (i.e. open water)
Sediment/Toxicant Retention	X		1,2,3,4,7,9,10,11,14,16		scrub shrub wetlands occur between forested & emergent wetlands in several locations on site. Appear to be providing some sediment & toxicant retention & nutrient removal
Nutrient Removal	X		3,4,5,6,7,8,9,11,12,14		
Production Export	X		1,2,4,5,7,8,10,12,13		fruit producing shrubs present
Sediment/Shoreline Stabilization	X		1,2,3,4,5,7,9,14,15	X	scrub shrub vegetation is providing sed/shoreline stabilization
Wildlife Habitat	X		1,3,4,5,6,7,8,9,10,13,14,15,16,17,18, 19,20,21	X	wildlife have been observed using all wetlands on site
Recreation		X			common wetland type; similar wetlands located close by in state run sanctuary (Holbrook Sanctuary) Past mine operations have significantly impacted bordering uplands (Tailings Pile & Waste Rock piles)
Educational/Scientific Value		X			common wetland type; similar wetlands located close by in state run sanctuary (Holbrook Sanctuary) Past mine operations have significantly impacted bordering uplands (Tailings Pile & Waste Rock piles)
Uniqueness/Heritage		X			common wetland type; similar wetlands located close by in state run sanctuary (Holbrook Sanctuary) Past mine operations have significantly impacted bordering uplands (Tailings Pile & Waste Rock piles)
Visual Quality Aesthetics		X			common wetland type; similar wetlands located close by in state run sanctuary (Holbrook Sanctuary) Past mine operations have significantly impacted bordering uplands (Tailings Pile & Waste Rock piles)
ES Endangered Species Habitat	X				area known to support bald eagles (observed on site)
Other					

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? no Is wetland part of a wildlife corridor? yes or a "habitat island"? no
 Adjacent land use: forested/historic mine Distance to nearest roadway or other development _____
 Dominant wetland systems present persistent emergent Contiguous undeveloped buffer zone present _____
 Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? mid to lower
 How many tributaries contribute to the wetland? multiple Wildlife & Vegetation diversity/abundance (see attached list)

Wetland I.D. PEM1
 Latitude _____ Longitude _____
 Prepared by: CHL Date 09/08/08
 Wetland Impact:
 Type _____ Area _____
 Evaluation based on:
 Office X Field X
 Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability		Rationale (Reference #)*	Principal Functions(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	X		1,6,7,13		local hydrology affected by mine operations, area shallow to bedrock seeps observed along mine tailing and Waste Rock piles
Floodflow Alteration	X		3,5,6,7,8,9,13,14,16,18		emergent wetlands, with organic soils have a high potential to provide significant flood flow alteration
Fish and Shellfish Habitat		X			emergent wetlands (fresh water) don't provide fish & shellfish habitat
Sediment/Toxicant Retention	X		1,2,3,4,5,6,7,9,10,11,13,14,16	X	channelized flow observed flowing into PEM 1 become diffuse and un-discernable
Nutrient Removal	X		3,4,5,6,7,8,9,10,11,12,13,14		
Production Export	X		1,2,4,5,7,9,10,12,13		
Sediment/Shoreline Stabilization	X		3,4,5,7,12,13,15	X	
Wildlife Habitat	X		3,4,5,6,7,8,11,12,13,16,17,18,19,20,21	X	
Recreation		X			common wetland type; similar wetlands located close by in state run sanctuary (Holbrook Sanctuary); past mine operations have significantly impacted bordering uplands (Tailings Pile & Waste Rock piles)
Educational/Scientific Value		X			common wetland type; similar wetlands located close by in state run sanctuary (Holbrook Sanctuary); past mine operations have significantly impacted bordering uplands (Tailings Pile & Waste Rock piles)
Uniqueness/Heritage		X			common wetland type; similar wetlands located close by in state run sanctuary (Holbrook Sanctuary); past mine operations have significantly impacted bordering uplands (Tailings Pile & Waste Rock piles)
Visual Quality Aesthetics		X			common wetland type; similar wetlands located close by in state run sanctuary (Holbrook Sanctuary); past mine operations have significantly impacted bordering uplands (Tailings Pile & Waste Rock piles)
ES Endangered Species Habitat	X				area known to support bald eagles (observed on the site)
Other					

Notes: PEM = freshwater emergent marsh; areas bordering the Goose Pond salt marsh and several isolated man-made wetlands

* Refer to backup list of numbered considerations.

PROJECT TITLE: Callahan Mine Superfund Site

TRANSECT: WETLAND PLOT: TP-6

DELINEATOR(S): CLYMAN

DATE: 9/5/08

VEGETATION	Stratum and Species	Dominance Ratio	Percent Dominance	DOM	NWI Status
Trees:	None				
Shrubs:	None				
Herbs:					
	Common Reed (<i>Phragmites australis</i>)	20.5/144	14%		
	Smooth Cordgrass (<i>Spartina alterniflora</i>)	85.5/144	60%	X	OBL
	Saltmarsh Cordgrass (<i>Spartina patens</i>)	38/144	26%	X	FACW+
	Narrow leaved cattail (<i>Typha angustifolia</i>)				
SHRUBS:	None				
TREES:	None				
Vines:	None				

HYDROPHYTES				NON-HYDROPHYTES		
OBL	FACW	FAC	*OTHER	FAC-	FACU	UPL
1						
Hydrophytes Subtotal (A): 2				Non-hydrophytes Subtotal (B): 0		
PERCENT HYDROPHYTES (100A/A+B): 100%						

HYDROLOGY

RECORDED DATA
 Stream, lake, or tidal gage Identification: _____
 Aerial photography Identification: _____
 Other Identification: _____

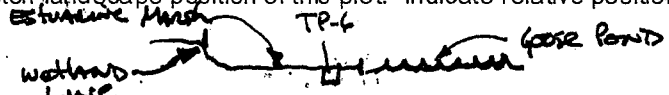
NO RECORDED DATA

OBSERVATIONS:
 Depth to Free Water: SURFACE
 Depth to Saturation (including capillary fringe): SURFACE
 Altered Hydrology (explain): _____

Inundated Saturated in upper 12" Water Marks Drift Lines Sediment Deposits Drainage Patterns within Wetland

OTHER (explain): SALT MARSH TIDALLY INFLUENCED

SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on plan.



Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
0-8"	O _i	DARK BROWN	-	Many fine roots, MUCK, Friable
8-12"	O _a	gray (gray 2 1/10g)	grayed	Silty clay, No roots, friable
12"-48"	C	Sy 3/4	↓	Silt, No roots, friable/loose.
48" = limit of observations				Note sulfidic odor throughout. - Free water to top of Pit.

HYDRIC SOIL INDICATOR(S):

II

REFERENCE(S):

Field Indicators for Identifying Hydric Soils
in New England V. 3 April 2004

OPTIONAL SOIL DATA

Taxonomic subgroup:
Soil drainage class:
Depth to active water table:
NTCHS hydric soil criterion:

REFERENCE(S): Upland adjacent to wetland
is composed of fill material (Berm surrounding
the tailings pile.)

CONCLUSIONS

	YES	NO	REMARKS:
Hydrophytic vegetation criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Hydric soils criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Wetland hydrology criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IS THIS DATAPOINT IN A WETLAND?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

PROJECT TITLE: Callahan Mine Superfund site

TRANSECT: Wetland

PLOT: TP-6

PROJECT TITLE: Collins Mine Superfund Site TRANSECT: Wetland PLOT: TP-7A

DELINEATOR(S): Clyman

DATE: 9/5/08

VEGETATION	Stratum and Species	Dominance Ratio	Percent Dominance	DOM	NWI Status
Herbaceous:					
	Tussock sedge (<i>Carex stricta</i>)	63/173	39%	X	OBL
	Cinnamon fern (<i>Osmunda cinnamomea</i>)	38/173	22%	X	FACW
	Sensitive fern (<i>Oxyclea sensibilis</i>)	38/173	22%	X	FACW
	Grass (<i>Poa pilustris</i>)	20.5/173	12%		
	Equisetum (<i>Equisetum palustre</i>)	10.5/173	6%		
	Golden Rod (<i>Solidago</i> sp.)	3/173	2%		
SHRUBS:					
	Alder (<i>Alnus serrulata</i>)	85.5/96	89%	X	OBL
	Black spruce (<i>Picea ^{MARTIANA} mariana</i>)	10.5/96	11%		
TREES:					
	Black spruce (<i>Picea mariana</i>)	282/358	78%	X	FACW
	Gray Birch (<i>Betula populifolia</i>)	76/358	22%	X	FAC

HYDROPHYTES
2 OBL 3 FACW 1 FAC *OTHER

NON-HYDROPHYTES
 FAC- FACU UPL

Hydrophytes Subtotal (A): 6

Non-hydrophytes Subtotal (B): 0

PERCENT HYDROPHYTES (100A/A+B): 100%

HYDROLOGY

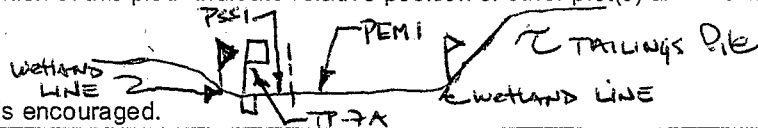
- RECORDED DATA
 Stream, lake, or tidal gage Identification: _____
 Aerial photography Identification: _____
 Other Identification: _____

NO RECORDED DATA

- OBSERVATIONS:
 Depth to Free Water: _____
 Depth to Saturation (including capillary fringe): _____
 Altered Hydrology (explain): _____

- Inundated Saturated in upper 12" Water Marks Drift Lines Sediment Deposits Drainage Patterns within Wetland
- OTHER (explain): _____

SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on plan.



Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
7-0"	O ₁	DARK BROWN	—	Many fine, few Med roots, friable
0-7"	A	5y 5/1	Many fine & many Med depletions	Loamy fine sand, friable, few fine roots.
7-14"	B _w	5y 5/1	↓	Loamy sand, firm, no roots w/charners
14"-24"	B _c	5y 5/3	Few fine & many Med. depletions	silt loam, firm, no roots
24" = limit of observations				

HYDRIC SOIL INDICATOR(S):

V

REFERENCE(S):

Field Indicators for Identifying Hydric Soils in New England V.3 April 2004

OPTIONAL SOIL DATA

REFERENCE(S):

Taxonomic subgroup:
Soil drainage class:
Depth to active water table:
NTCHS hydric soil criterion:

CONCLUSIONS

YES / NO

REMARKS: PSS1 - WETLAND (FRESHWATER)

Hydrophytic vegetation criterion met? /

Hydric soils criterion met? /

Wetland hydrology criterion met? /

IS THIS DATAPOINT IN A WETLAND? /

PROJECT TITLE:

Colliery Mine Superfund site

TRANSECT:

Wetland

PLOT:

TP-7A

PROJECT TITLE: Callahan Mine Superfund site TRANSECT: Wetland PLOT: TP-7

DELINEATOR(S): Clyman DATE: 9/5/08

VEGETATION	Stratum and Species	Dominance Ratio	Percent Dominance	D O M	NWI Status
HERBACEOUS:					
	Cattails (<i>Typha latifolia</i>)	85.5 / 193 ¹⁹⁰	44%	X	OBL
	Sensitive fern (<i>Onoclea sensibilis</i>)	20.5 / 193 ¹⁹⁰	11%		
	Sedge (<i>Carex crinita</i>)	63 / 193 ¹⁹⁰	33%	X	OBL
Grass					
	Reed Canary (<i>Phalaris arundinacea</i>)	10.5 / 193 ¹⁹⁰	6%		
	Jewel weed (<i>Impatiens capensis</i>)	10.5 / 193 ¹⁹⁰	6%		
SHRUBS:					
	Gooseberry (<i>Ribes hirtellum</i>)	3 / 6	50%	X	FAC
	Raspberry (<i>Rubus</i> sp.)	3 / 6	50%	X	FAC-
TREES: NONE					

HYDROPHYTES				NON-HYDROPHYTES		
<u>2</u>	<u>1</u>			<u>1</u>		
OBL	FACW	FAC	*OTHER	FAC-	FACU	UPL
Hydrophytes Subtotal (A): <u>3</u>				Non-hydrophytes Subtotal (B): <u>1</u>		
PERCENT HYDROPHYTES (100A/A+B): <u>75%</u>						

HYDROLOGY

RECORDED DATA
 Stream, lake, or tidal gage Identification: _____
 Aerial photography Identification: _____
 Other Identification: _____

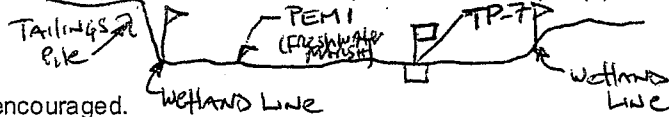
NO RECORDED DATA

OBSERVATIONS:
 Depth to Free Water: SURFACE
 Depth to Saturation (including capillary fringe): SURFACE
 Altered Hydrology (explain): _____

Inundated Saturated in upper 12" Water Marks Drift Lines Sediment Deposits Drainage Patterns within Wetland

OTHER (explain): _____

SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on plan.



Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
7-0"	O _i	Dark Brown	—	Many fine roots
0-7"	A	5y 5/1	Many fine & Many Med. Depletions	Loamy fine sand, friable, few fine roots.
7-14"	Bw	5y 5/1	↓	Loamy fine sand, firm, no roots
14"-48"	2C	5y 3/1	depleted	Silt loam, firm, No roots

HYDRIC SOIL INDICATOR(S): **V** REFERENCE(S): Field Indicators for Identifying Hydric Soils in New England V.3 APRIL 2004

OPTIONAL SOIL DATA REFERENCE(S):
 Taxonomic subgroup:
 Soil drainage class:
 Depth to active water table:
 NTCHS hydric soil criterion:

CONCLUSIONS

	YES	NO	REMARKS: PEM1-WETLAND (FRESHWATER)
Hydrophytic vegetation criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Hydric soils criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Wetland hydrology criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IS THIS DATAPOINT IN A WETLAND?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

PROJECT TITLE: **Chatham Mine Superfund site** TRANSECT: **Wetland** PLOT: **TP-7**

PROJECT TITLE: Callahan Mine Superfund site

TRANSECT: Wetlands PLOT: TP-8

DELINEATOR(S): Chymon

DATE: 9/5/08

VEGETATION	Stratum and Species	Dominance Ratio	Percent Dominance	DOM	NWI Status
Herbaceous:					
	Smooth cordgrass (<i>Spartina alterniflora</i>)	38/89.5	42%	X	OBL
	Saltmeadow cordgrass (<i>Spartina patens</i>)	38/89.5	42%	X	FACW+
	Seaside golden rod (<i>Solidago sempervirens</i>)	10.5/89.5	12%		
	Black grass (<i>Juncus gerardi</i>)	3/89.5	3%		
SHRUBS/SAPLINGS: None					
TREES: None					

HYDROPHYTES

NON-HYDROPHYTES

OBL 1 1 *OTHER

FAC- FACU UPL

Hydrophytes Subtotal (A): 2

Non-hydrophytes Subtotal (B): 0

PERCENT HYDROPHYTES (100A/A+B): 100%

HYDROLOGY

- RECORDED DATA
 - Stream, lake, or tidal gage Identification: _____
 - Aerial photography Identification: _____
 - Other Identification: _____

NO RECORDED DATA

OBSERVATIONS:

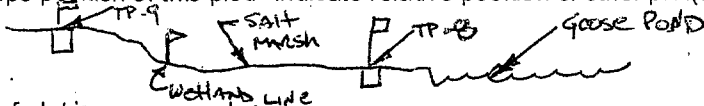
Depth to Free Water: Surface

Depth to Saturation (including capillary fringe): _____

Altered Hydrology (explain): _____

- Inundated
- Saturated in upper 12"
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns within Wetland
- OTHER (explain): Salt marsh heavily influenced

SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on plan.



Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
0-8"	O ₂ O _a	DARK BROWN	—	many fine roots, silty muck,
8-12"	C ₁	5y 4/1	Depleted	Silt/clay silt, few fine roots Mucky friable/loose
12-48"	C ₂	2.5y 4/1	↓	silt, No roots, friable/loose
48" = Limit of observations				

HYDRIC SOIL INDICATOR(S):

II/III

REFERENCE(S):

Field Indicators for Identifying Hydric Soils
in New England V.3 April 2004

OPTIONAL SOIL DATA

REFERENCE(S):

Taxonomic subgroup:
Soil drainage class:
Depth to active water table:
NTCHS hydric soil criterion:

CONCLUSIONS

	YES	NO	REMARKS:
Hydrophytic vegetation criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Hydric soils criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Wetland hydrology criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IS THIS DATAPOINT IN A WETLAND?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

PROJECT TITLE: Callahan Mine Superfund Site TRANSECT: Wetlands PLOT: TP-8

PROJECT TITLE: Colohan Mine Superfund Site

TRANSECT: UPLAND PLOT: TP-9
(Typical un-impacted)

DELINEATOR(S): Clyman

DATE: 9/5/08

VEGETATION	Stratum and Species	Dominance Ratio	Percent Dominance	DOM	NWI Status
HERBACEOUS:					
	Star Flower (<i>Trientalis borealis</i>)	3/9	33%	X	FAC
	Lilly (<i>Lilium canadensis</i>)	3/9	33%	X	FAC+
	BRACKEN FERN (<i>Pteridium aquilinum</i>)	3/9	33%	X	FACU
SHRUBS/SAPLINGS:					
	Low Bush Blueberry (<i>Vaccinium angustifolium</i>)	20.5/36	60%	X	FACU-
	Balsam fir (<i>Abies balsamea</i>)	10.5/31	34%	X	FAC
TREES:					
	RED spruce (<i>Picea rubens</i>)	1,041/1812	57%	X	FACU
	White Pine (<i>Pinus strobus</i>)	570/1812	32%	X	FACU
	White Birch (<i>Betula populifolia</i>) Gray	201/1812	11%		

HYDROPHYTES

3

NON-HYDROPHYTES

4

OBL FACW FAC *OTHER

FAC- FACU UPL

Hydrophytes Subtotal (A): 3

Non-hydrophytes Subtotal (B): 4

PERCENT HYDROPHYTES (100A/A+B): 43%

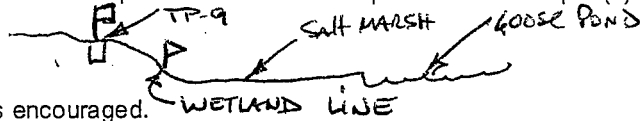
HYDROLOGY

- RECORDED DATA
 - Stream, lake, or tidal gage Identification: _____
 - Aerial photography Identification: _____
 - Other Identification: _____
- NO RECORDED DATA

- OBSERVATIONS:
 - Depth to Free Water: _____
 - Depth to Saturation (including capillary fringe): _____
 - Altered Hydrology (explain): _____

- Inundated
- Saturated in upper 12"
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns within Wetland
- OTHER (explain): _____

SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on plan.



Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
3-0	O ₁	—	—	Pine Needles, Partly decomposed with depth
0-2"	E	10YR 4/1	—	Silt loam, friable, many fine roots
2-6"	Bw ₁	10YR 3/3	—	Silt loam, friable, many fine roots
6-12"	Bw ₂	10YR 4/4	—	Silt loam, friable, few fine roots
12-14"	B/C	10YR 4/4	—	Silt loam - channery, firm, no roots.
14" Limit of observations				

HYDRIC SOIL INDICATOR(S): **Non-hydric soil** REFERENCE(S):

OPTIONAL SOIL DATA REFERENCE(S):
 Taxonomic subgroup:
 Soil drainage class:
 Depth to active water table:
 NTCHS hydric soil criterion:

CONCLUSIONS

	YES	NO	REMARKS: Typical upland outside of Area impacted by historic mine operations.
Hydrophytic vegetation criterion met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Hydric soils criterion met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Wetland hydrology criterion met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
IS THIS DATAPOINT IN A WETLAND?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

PROJECT TITLE: **Callahan Mine Superfund Site** TRANSECT: **Upland (Unimpacted)** PLOT: **TP-9**

ATTACHMENT B
CORRESPONDANCE LETTERS AND RESPONSES FROM REGULATORS

Correspondence Letters to Regulators



engineering and constructing a better tomorrow

October 15, 2008

Project No. 3612062047/29

U.S. Fish and Wildlife Service
Maine Field Office
1168 Main Street
Old Town, Maine 04468

Subject: Rare, Threatened or Endangered Species Review
Callahan Mine Superfund Site
Brooksville, Maine

Dear Sir/Madam,

I am sending you this letter to request a review for known occurrences of Rare, Threatened, or Endangered species known to occur in the vicinity of the subject property, located in Brooksville, Maine. This information is to be used in support of remediation activities being conducted at the site. Please find a Site Location Map showing the approximate site boundary, attached to this letter. Please feel free to contact me at (207) 828-3280, if you have any questions regarding this request.

Sincerely,
MACTEC ENGINEERING AND CONSULTING, INC.

A handwritten signature in cursive script that reads "Charles H. Lyman".

Charles H. Lyman
Project Scientist



engineering and constructing a better tomorrow

October 15, 2008

Project No. 3612062047/29

Department of Inland Fisheries and Wildlife
41 State House Station
Augusta, Maine 04333

Subject: Significant Wildlife Habitats and Rare, Threatened or Endangered Species
Review
Callahan Mine Superfund Site
Brooksville, Maine

Dear Sir/Madam,

I am sending you this letter to request a review for known occurrences of Significant Wildlife Habitat and Rare, Threatened, or Endangered species known to occur in the vicinity of the subject property, located in Brooksville, Maine. This information is to be used in support of remediation activities being conducted at the site. Please find a Site Location Map showing the approximate site boundary, attached to this letter. Please feel free to contact me at (207) 828-3280, if you have any questions regarding this request.

Sincerely,
MACTEC ENGINEERING AND CONSULTING, INC.

A handwritten signature in black ink that reads "Charles H. Lyman".

Charles H. Lyman
Project Scientist



engineering and constructing a better tomorrow

October 15, 2008

Project No. 3612062047/29

Maine Natural Areas Program
Department of Conservation
93 State House Station
Augusta, Maine 04333

Subject: Rare, Threatened and Endangered Species
Environmental Site Review
Callahan Mine Superfund Site
Brooksville, Maine

Dear Sir/Madam,

I am sending you this letter to request an environmental site review for the subject property, located in Brooksville, Maine. This information is to be used in support of remediation activities being conducted at the site. Please find a Site Location Map showing the approximate site boundary, attached to this letter. Please feel free to contact me at (207) 828-3280, if you have any questions regarding this request.

Sincerely,
MACTEC ENGINEERING AND CONSULTING, INC.

A handwritten signature in black ink that reads "Charles H. Lyman".

Charles H. Lyman
Project Scientist

Response from Regulators



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Maine Field Office – Ecological Services
1168 Main Street
Old Town, ME 04468
(207) 827-5938 Fax: (207) 827-6099

In Reply Refer To: 53411-2009-SL-0013
FWS/Region5/ES/MEFO

October 16, 2008

Charles Lyman
MACTEC Engineering and Consulting Inc.
511 Congress St
PO Box 7050
Portland, ME 04112-7050

Dear Mr. Lyman,

Thank you for your letter dated October 15, 2008 requesting information or recommendations from the U.S. Fish and Wildlife Service. This letter provides the Service's response pursuant to Section 7 of the Endangered Species Act (ESA), as amended (16 U.S.C. 1531-1543), Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250) and the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667d).

Project Name/Location: Callahan Mine Superfund Site, Brooksville

Federally listed species

Based on the information currently available to us, no federally threatened or endangered species under the jurisdiction of the Service are known to occur in the project area. Accordingly, no further action is required under Section 7 of the ESA, unless: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by the identified action.

Other protected species

We have not reviewed this project for state-threatened and endangered wildlife, wildlife species of special concern, and significant wildlife habitats protected under the Maine Natural Resources Protection Act. I recommend that you contact the Maine Department of Inland Fisheries and Wildlife:



Steve Timpano
Maine Department of Inland Fisheries and Wildlife
284 State St.
State House Station 41
Augusta, ME 04333-0041
Phone: 207 287-5258

Atlantic salmon may occur in the project area. I recommend that you contact the Department of Marine Resources for additional information:

Norm Dube
Maine Department of Marine Resources
650 State St.
Bangor, ME 04401

I recommend that you contact the Maine Natural Areas Program for additional information on state-threatened and endangered plant species, plant species of special concern, and rare natural communities:

Lisa St. Hilaire
Maine Natural Areas Program
Department of Conservation
93 State House Station
Augusta, ME 04333
Phone: 207 287-8046

Bald eagles

Occasional, transient bald eagles (*Haliaeetus leucocephalus*) may occur in the area. Based on the information currently available to use, there are no bald eagle nests near your project. The bald eagle was removed from the federal threatened list on August 9, 2007 and is now protected from take under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. "Take" means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. The term "disturb" under the Bald and Golden Eagle Protection Act was recently defined within a final rule published in the Federal Register on June 5, 2007 (72 Fed. Reg. 31332). "Disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle; 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

Further information on bald eagle delisting and their protection can be found at <http://www.fws.gov/migratorybirds/baldeagle.htm>.

Please consult with our new national bald eagle guidelines, which can found at <http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf>.

These Guidelines are voluntary and were prepared to help landowners, land managers and others meet the intent of the Eagle Act and avoid disturbing bald eagles. If you believe your project will result in taking or disturbing bald or golden eagles, please contact our office for further guidance. We encourage early and frequent consultations to avoid take of eagles.

If you have any questions, please call Mark McCollough, endangered species biologist, at (207) 827-5938 ext.12.

Sincerely,

A handwritten signature in cursive script that reads "Lori Nordstrom". The signature is written in black ink and is positioned above the typed name.

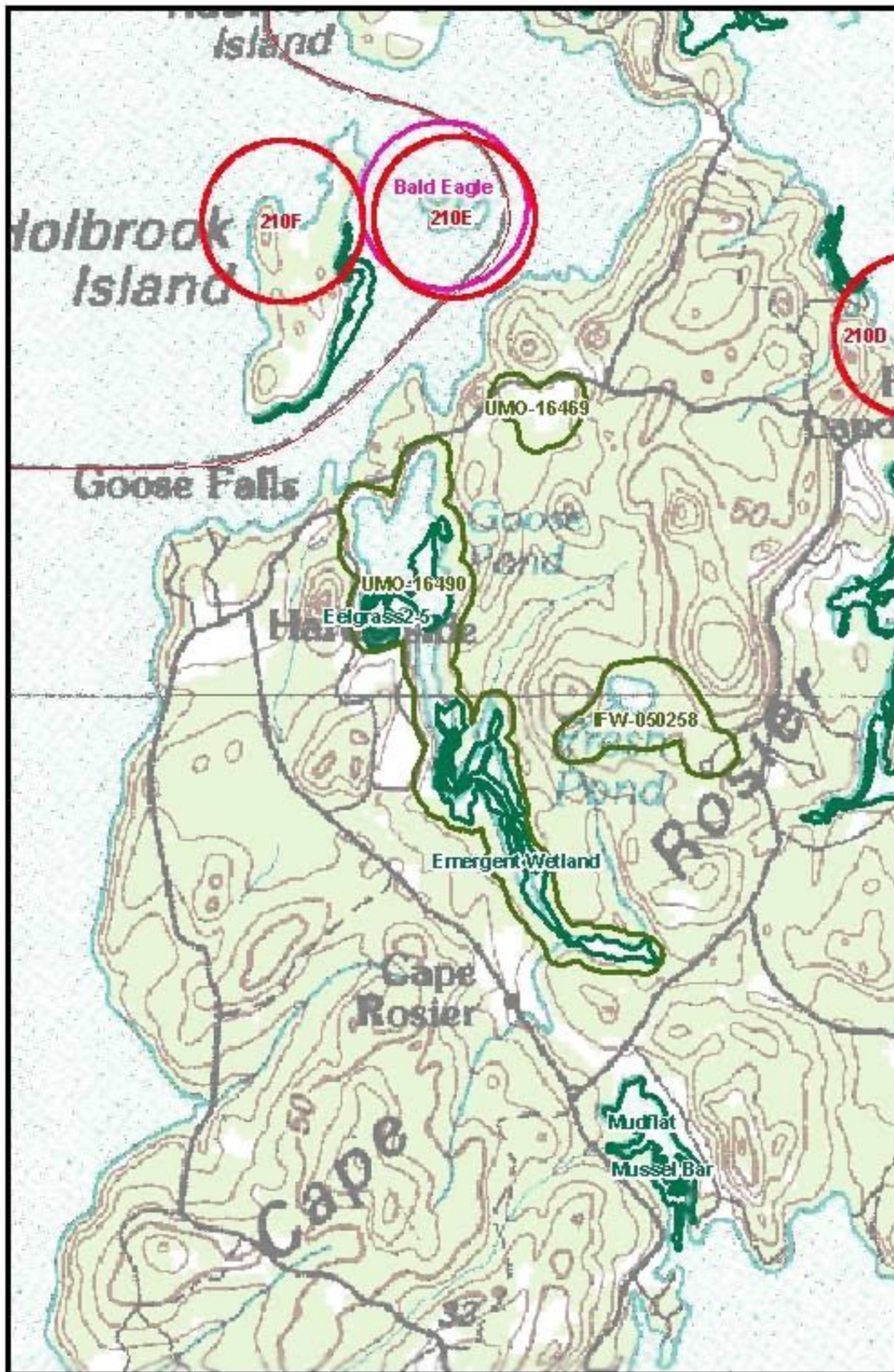
Lori Nordstrom, Project Leader
Maine Field Office

From: Hall, James [mailto:James.Hall@maine.gov]
Sent: Wednesday, October 22, 2008 2:59 PM
To: Lyman, Charles
Subject: Brooksville Wildlife Habitat Map

Please find attached map, if any questions call or email. Tel. 434-5927 <<MactecBroks.jpg>>

James Hall, Wildlife Biologist

Search for Wildlife Observations & Habitat



- Bald Eagle Nest Site
- Piping Plover / Least Tern Nesting, Feeding, & Brood-rearing Area
- Roseate Tern Nesting Area
- Deer Winter Area
- Inland Waterfowl / Wading Bird Habitat
- Tidal Waterfowl / Wading Bird Habitat
- Seabird Nesting Island
- Shorebird Area
- Biological Conservation Database Rare Species or Habitat Observation
- Township Boundary
- County

0 0.3 0.6 0.9 1.2 Miles

1:34,126

UTM Projection, Zone 19N, NAD83



P.O. Box 220

Jonesboro, ME 04648

Voice: (207) 434-5927

Fax: (207) 434-5923

October 22, 2008



