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Transmittal

To: Jay Clement (USACE), Marybeth Richardson (MDEP)

CC: Jim Wendel (Scarborough), Ken Grondin (Grondin), Rich Jordan (Boyle Associates)

From: David Brenneman (Boyle Associates) on behalf of Grondin Aggregates/Larrabee Farms Wetland Mitigation Site

Date: 1/7/2011

Re: **Cabela's (New England Expedition Scarborough LLC) Wetland Mitigation Project at Larrabee Farms Wetland Mitigation Site – YEAR THREE (2010) MONITORING REPORT**

Corps Permit No.: NAE-2006-3128
Maine DEP NRPA Project Number: L-23242-26-A-N

Attached, please find the third year (2010) wetland mitigation project monitoring report for the above-mentioned project.

If you have any questions or would like to conduct a site visit, please contact Ken Grondin (207-854-1147) or Richard Jordan (207-671-2760).

Thank you,

David Brenneman, Environmental Scientist
dbrenneman@boyleassociates.net

MITIGATION REPORT
TRANSMITTAL AND SELF-CERTIFICATION

DEPARTMENT OF THE ARMY PERMIT NUMBER: **NAE-2006-3128**
PROJECT TITLE: The Gateway at Scarborough (Cabela's): Larrabee Farms Wetland Mitigation Project

PERMITTEE: New England Expedition – Scarborough, LLC
MAILING ADDRESS: 220 Elm Street, Ste 104, New Caanan, CT 06840

AUTHORIZED AGENT: Grondin Aggregates, LLC
MAILING ADDRESS:
Ken Grondin
11 Bartlett Road
Gorham, Maine 04038
TELEPHONE: 207.854.1147

ATTACHED MITIGATION REPORT TITLE: The Gateway at Scarborough (Cabela's): Third Year Wetland Mitigation Monitoring Report

PREPARERS: Boyle Associates (207.591.5220)

DATE: December 22, 2010

CERTIFICATION OF COMPLIANCE: I certify that the attached report is accurate and discloses that the mitigation required by the Department of the Army Permit **[is]** **(is not)** in full compliance with the terms and conditions of that permit.

CORRECTIVE ACTION: A need for corrective action **[is]** **[is not]** identified in the attached report.

CONSULTATION: I **[do]** **[do not]** request consultation with the Corps of Engineers to discuss a corrective strategy or permit modification.

CERTIFIED: on file year 1
(Signature of permittee) Date

Table of Contents:

Appendices

Project Overview Form

Corps Permit No.: NAE-2006-3128 **Maine DEP NRPA Project Number: L-23242-26-A-N**
Mitigation Site Name(s): Larrabee Farms Wetland Mitigation Site: The Gateway at Scarborough (Cabela's)
Monitoring Report : Year 3 of 10 years
Name and Contact Information for Permittee (left) and Agent (right):

New England Expedition – Scarborough, LLC 220 Elm Street, Ste 104 New Caanan, CT 06840	Grondin Aggregates, LLC Ken Grondin #207.854.1147 11 Bartlett Road Gorham, ME 04038

Name of Party Conducting the Monitoring: Boyle Associates (David Brenneman #207.591.5220)
Date(s) of Inspection(s) (Specific to Monitoring**):** October 14, 18, 19, 21 and 29, 2010
Project Summary:

Third year monitoring procedures were conducted at the herbaceous, scrub-shrub and forested wetland creation areas at the Larrabee Farms Wetland Mitigation Site on October 14, 18, 19, 21 and 29. These wetland areas were created as compensation for wetland functions and values impacted by construction of the Gateway at Scarborough (anchored by Cabela's). Construction of the project impacted approximately 4.47 acres of freshwater wetland (2.49 acres wet meadow, 1.29 acres forested and 0.69 acres of mixed forested/shrub/open water wetlands). Wetland compensation totals 31.55 acres and consists of 4.55 acres of wetland creation (2.10 acres PEM, 0.35 acres PSS and 2.10 acres PFO), preservation of 14.93 acres of existing upland, and preservation of 12.07 acres of existing wetland (including a stretch of the Nonesuch River). Wetland compensation took place at Grondin Aggregate's Larrabee Farms Wetland Mitigation Site, a multi-user mitigation project site.

Location of and Directions to Mitigation Site:

The Larrabee Farms Wetland Mitigation Site is located in the town of Scarborough, approximately 1 mile southeast of the corner of Route 114 and Beech Ridge Road.

Start and Completion Dates for Mitigation:

Conservation easement recorded - Cumberland County Registry of Deeds	Spring 2007
Final wetland grading began	February 2007
Final wetland grading completed	Oct. 15, 2007
Hydroseeding with wetland herbaceous seed mix completed and installation of woody vegetation completed	Oct. 15, 2007

Performance Standards are/are not being met:

The success standards for hydrology, invasive species, and shrub density, are being met. The success standard for aerial cover by hydrophytes is not yet being met.

Dates of Corrective or Maintenance Activities Conducted Since Last Report:

- Hand removal of reed canarygrass, Japanese knotweed and purple loosestrife occurred in the summer of 2010 as a follow-up to 2009's herbicide and hand removal control..

Recommendations for Additional Remedial Actions:

- No specific remedial actions suggested at this time (more information discussed under "Success Standards" located in the "Summary" portion of this report).

Requirements

Performance Standards

The wetland creation areas will be assessed once annually during the growing season (May-October) for at least 10 years. Monitoring will take place twice per season during the first through fifth years following planting. One visit will take place in the spring, and will include a general site walk and assessment of general site health, an assessment of any winter damage and in order to determine any corrective needs. A second site visit will take place between June and October to assess plant mortality/vitality and to gather data for the annual monitoring reports. The data gathering and reporting procedure will then take place once during the first through fifth years, and during the 7th and 10th years, if necessary, following construction.

Success Standards:

1. Hydrology • Adequate to support the designed wetland type: • Proposed hydrology being met: • Percentage of site meeting proposed hydrology: • Too wet/dry areas identified and corrective measures proposed:	 Yes Yes 100% N/A
2. Proposed vegetation diversity and/or density goals for woody plants from the plan met:	No
3. Aerial cover a. Each mitigation site has at least 80% aerial cover, by noninvasive species: b. Emergent areas have at least 80% cover by noninvasive hydrophytes: c. Scrub-shrub and forested cover types have at least 60% cover by noninvasive hydrophytes, of which at least 15% are woody species:	 Yes Yes Yes
4. Common reed (*Phragmites australis*), Purple loosestrife (*Lythrum salicaria*), Russian and Autumn olive (Elaeagnus spp.), Buckthorn (Rhamnus spp.), Japanese knotweed (*Polygonum cuspidatum*), and/or Multiflora rose (*Rosa multiflora*) plants at the mitigation site(s) are being controlled:	Yes
5. All slopes, soils, substrates, and constructed features within and adjacent to the mitigation site(s) are stable:	No

In general, the mitigation area is doing well and is successfully providing wetland functions and values similar to those provided by wetlands impacted by construction of The Gateway at Scarborough. Wetland functions and values being provided across the site include wildlife habitat, groundwater recharge/discharge, floodflow alteration, educational and scientific value, production export, and recreational value. There is a dominance of hydrophytic vegetation, presence of hydric soils and evidence of prolonged saturation in the upper part of the soil profile. Finally, survivorship of the planted shrubs and trees is good and overall plant cover is high. The percent aerial coverage of non-invasive hydrophytes has greatly increased since the 2008 monitoring session (from approximately 40% in 2008 to 70% in 2009, and now greater than 100% in 2010).

Summary Data

Describe the monitoring inspections, and provide their dates, that occurred since the last report.

Wetland Creation Monitoring

General site walks were conducted throughout winter, spring and summer of 2010 to assess general site health and to determine if any winter damage occurred which would warrant correction measures. Some girdling by rodents, mainly of chokeberry and ash, was observed. However, no significant damage was observed and no corrective measures are recommended. In-depth monitoring of the creation area occurred in October 2010. As discussed in the as-built report (30 October 2007): "(w)hile some areas were planted solely with tree or shrub species, most of the plants were installed in clumps, with tree and shrub plantings close together and dispersed over the site. Much of the creation area will presumably grow to achieve a PSS/PFO or PFO/PSS description, showing co-dominance among the tree and shrub species with interspersed pockets of both wetland types." Thus, as during the first and second years of monitoring, we reviewed the PSS and PFO areas together as a PFO/PSS wetland type. In subsequent monitoring seasons, as the site begins to reach maturity and the PSS and PFO habitats begin to become clear, we will map and monitor the habitats separately.

Linear transects were established 25 feet apart in a generally north-to-south direction across the upper and lower wetland creation areas in order to survey woody vegetation. Six-foot wide transects with varying lengths were used to create rectangular plots in order sample twenty-five percent (25%) of the mixed scrub-shrub/forested (PSS/PFO) wetland creation area. Every other transect end was marked with a wooden stake. The locations of each transect was GPS-located using a survey-grade GPS unit. Herbaceous vegetation data was gathered for all wetland creation cover types (emergent and scrub-shrub/forested) by transacting the creation cells at least two times. Herbaceous vegetation was identified to species level and aerial cover was determined for each species within each covertype, within each creation cell. For planted woody species, if more than half of the plant was located within the sample plot, the plant was counted. Please see Figure 1 for a depiction of the monitoring transects.

Success Standards

1) Hydrology

Is the proposed hydrology met at the site?

Yes.

All of the creation site is meeting the projected hydrology levels as evidenced by: the presence of reducing conditions within the soil profile, ponded water within the lowest portions of the site, and signs of drainage through the rip rap overflow spillways. As anticipated, the primary source of hydrology in the wetland creation area comes from groundwater interception and surface runoff from the adjacent quarry area. Further hydrologic input is provided by rain and snow. General hydrology across the wetland mitigation area varies from seasonally saturated to semi-permanently flooded. Indicators of hydrology include pockets of standing water (up to 6 inches deep), water-stained leaves, surface soil cracks, oxidized rhizospheres on living roots, evidence of flooding, and evidence of reducing conditions within the soil profiles. Furthermore, most of the wetland species planted in the creation area are alive and growing, indicating an adequate hydrologic regime.

Due to the removal of the berm in between the upper cells and the addition of the rip rap spillway directing excess surface flow from the road and quarry in 2009, the PEM creation areas continue to show signs of improved hydrology. Monitoring in the summer of 2010 seems to indicate that the improved hydrology is now permanent and adequate to support appropriate wetland conditions.

What percentage of the site is meeting projected hydrology levels?

100%

Areas that are too wet or too dry should be identified along with suggested corrective measures.

In 2008 the northern portion of the site closest to the quarry was identified as being drier than desired. In 2009, increased rainfall and during the growing season was noted to have substantially benefited the hydrologic regime of the area along with removal of the berm dividing the northern creation area. During spring, summer, and monitoring visits, adequate hydrology was noted in all creation areas. During

monitoring, pits were noted to have standing water to 2-4" deep after a rain event. Prior to rain event and leading up to monitoring, a dry stretch of weather had occurred and most pits were still saturated to flooded with 0.5-1" of standing water.

2) The proposed vegetation diversity and density goals for woody plants from the plan are met.

The diversity goal is being met, but the density goal is not being met. The density of planted woody species exceeds the density goal and 12 of the 14 tree and shrub species planted at the mitigation site have densities greater than 50 plants per acre; therefore, the plant diversity goal for the site is also met. Volunteer shrub species have met the density goal as well and were counted along with the planted species during this years monitoring, adding to the natural diversity of the site.

The planted densities for the PSS/PFO creation areas were 600 shrubs/acre and 400 trees/acre. The planted density *goal*, as described in the Corps checklist, is 500 trees and shrubs per acre (of which at least 350 per acre are tree species for PFO creation areas). Based on the investigated plot data, the average density of shrubs was determined to be approximately 610 shrubs per acre and the average density of trees was determined to be approximately 343 trees per acre, for a total density of 960 woody plants per acre. For additional details on the shrub and tree plantings and volunteer shrubs, please see Table 7 in Appendix B.

3) a. Each mitigation site has at least 80% aerial cover, excluding planned open water areas or planned bare soil areas (such as for turtle nesting), by noninvasive species.

Yes.

Based on transect data, average aerial cover by non-invasive species was approximately 126% throughout the wetland creation site. The transect areas did not include some planned non-vegetated areas such as sand mounds (turtle nesting islands) and a few of the deeper pits and puddles excavated during the initial construction (see Table 8 in App. D). Total cover by noninvasive hydrophytes is only 8% in the emergent areas.

3) b. Planned emergent areas on each mitigation site have at least 80% cover by noninvasive hydrophytes.

Yes.

Average percent aerial cover in past monitoring was not meeting the goals, but was increasing at a sharp rate. This year's monitoring shows this to be true with an average increase of approximately 28% in herbaceous cover (see table 8 in App. D)

3) c. Planned scrub-shrub and forested cover types have at least 60% cover by noninvasive hydrophytes, of which at least 15% are woody species.

Yes**.**

Monitors observed 140% aerial cover by non-invasive hydrophytes in the southern scrub-shrub and forested creation area (herbaceous vegetation *and* woody vegetation). Twenty percent of the cover is by woody hydrophytes, and this number is expected to increase as the shrubs and trees continue to grow.

Monitors observed 122% aerial cover by non-invasive hydrophytes in the northern scrub-shrub and forested creation areas (herbaceous vegetation *and* woody vegetation). Twenty-three percent (23%) of the cover is by woody hydrophytes, and this number is expected to increase as the shrubs and trees continue to grow.

4) Common reed (*Phragmites australis*), Purple loosestrife *(Lythrum salicaria*), Russian and Autumn olive (*Elaeagnus* spp.), Buckthorn (*Rhamnus* spp.), Japanese knotweed (*Polygonum cuspidatum*), and/or Multiflora rose (*Rosa multiflora*) plants at the mitigation site(s) are being controlled.

Yes.

The only invasive and noxious species observed (as listed in table Table 4, *U.S. Army Corps of Engineers New* England District, Guidance for Mitigation Plan Checklist, 06/15/2004) within the creation area were purple loosestrife (*Lythrum salicaria*), bird's-foot trefoil (*Lotus corniculatus*), Japanese knotweed (*Polygonum*

cuspidatum), reed canarygrass (*Phalaris arundinacea*), barnyard grass (*Echinochloa crusgalli*), common reed (*Phragmites australis*), broad-leaf cattail (*Typha latifolia*), and yellow foxtail (*Setaria pumila*). These were observed in very small numbers (eight percent cover by invasive species across the entire creation site) and were noted for further monitoring. Japanese knotweed, purple loosestrife, and common reed were hand removed in the summer of 2010.These areas will continue to be monitored for re-sprouts or evidence of spreading across the site. The knotweed appears to be relegated only to a few small patches on the adjacent side slopes outside of the basin area. The chemical treatment of the common reed (2009) did not eradicate it, but it does not appear to be spreading further and the small pocket of plant matter leftover was removed. No treatments (mechanical or chemical) were applied to the small pockets of canarygrass, barnyard grass, cattail, trefoil, or foxtail. These species are slowly being outcompeted by non-invasive herbaceous species and should begin to reduce in density over time.

5) All slopes, soils, substrates, and constructed features within and adjacent to the mitigation site(s) are stable.

No.

A spoil pile being stored in the adjacent quarry area and upslope of the creation basin was noted to be eroding toward the creation area. The pile has and erosion control mix berm placed around it to contain sediments. However, monitors noted that the berm was not being maintained and the sediment eroding from the spoil pile was over-topping the erosion control berm. No sediment was noted to be reaching the creation basin due to the long distance and vegetation between the berm and the basin. The erosion issue was noted to the quarry owners and appropriate measures should be taken to stabilize any current and future erosion.

Soils data:

Five soil profiles were investigated within the wetland creation site (three from the PEM areas and two from PSS/PFO areas). Soils observed consisted of dark and very dark A horizons underlain by grayish-brown horizons with redoximorphic features. All profiles investigated keyed as hydric following the Field Indicatorsof Hydric Soils in the United States, Version 7.

Please see Tables 1 through 5 in Appendix D for representative soil profile descriptions for each creation type. The HSUS7 hydric soil indicator reference is indicated in parentheses after the wetland creation type.

Remediation:

A site visit in the spring of 2010 was conducted to identify and locate any patches of invasive species for removal during the growing season. Small patches were identified and some hand removal of small Japanese knotweed and purple loosestrife individuals occurred in the summer of 2010. Very few individuals were removed and observed. The other problem species do not appear to be a threat to the creation site and will continue to be monitored.

Erosion Control Measures:

No erosion problems were observed within the creation area. Temporary measures, such as silt fence, were removed upon completion of the project in October 2007. Erosion control mulch remains in place around the lower perimeter of the wetland creation site and will be left to degrade in place. The permanent riprap spillways are functioning as planned.

Visual Estimate of Percent Cover of Non-invasive and Invasive Species:

The average percent vegetative cover by non-invasive plants at the mitigation site is approximately 100%. The average percent cover of invasive species is approximately 8% (primarily by *Typha latifolia* and *Lotus corniculatus).*

Fish and Wildlife Use at the Site:

Please see Table 6 in Appendix D. Of particular note, a wood turtle (*Glyptemys insculpta)* was located within the creation area in early 2009. A rare animal reporting form was filed with MDIF&W. This is the second wood

turtle identified on this creation site. In October 2009, Grondin found broken, predated turtle shells in one of the sandy turtle nesting islands installed during initial site construction. MDIF&W biologists were contacted and are unsure of the species – but signs indicate that the desiccated shells *could* be those of wood turtles. Monitors planned to conduct a site visit with MDIF&W, but could not coordinate a meeting. A field visit will be planned with IF&W for 2011.

General health and vigor of the surviving plants, prognosis for their future survival, and a diagnosis of the cause(s) of morbidity or mortality:

Overall, planted shrub species (*Aronia melanocarpa, Betula populifolia, Cornus sericea, Ilex verticillata, Salix discolor, Vaccinium corymbosum, Viburnum cassinoides,* and *Viburnum dentatum*) and tree species (*Acer rubrum, Fraxinus pennsylvanica, Larix laricina, Pinus strobus, Quercus bicolor,* and *Ulmus americana*) appear to be healthy and growing. Hydrology appears adequate for these plants and there is limited evidence of death from herbivory, flooding, or desiccation. These plants have a high likelihood of survival.

Maps

Maps must be provided to show the location of the compensatory mitigation site relative to other landscape features, habitat types, locations of photographic reference points, transects, sampling data points, and/or other features pertinent to the mitigation plan. In addition, the submitted maps must clearly delineate the mitigation site boundaries to assist in proper locations for subsequent site visits. Each map or diagram must fit on a standard 8 ½ x 11" piece of paper and include a legend and the location of any photos submitted for review.

PLEASE SEE FIGURE 1 ON NEXT PAGE (9) FOR A CLOSEUP OF MITIGATION TRANSECTS AND AS BUILT CONDITIONS (additional maps can be available by request)

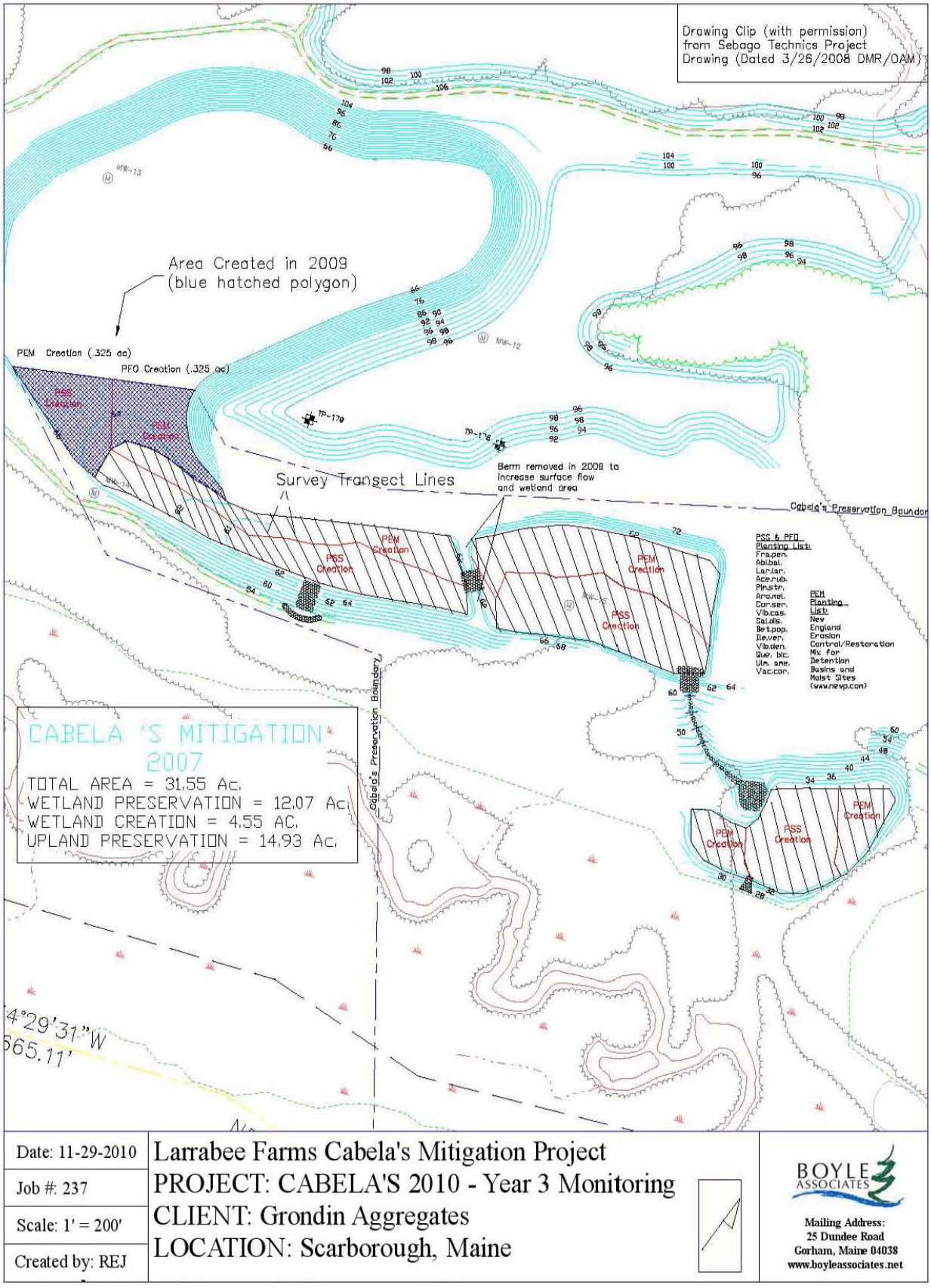

Figure 1. Site map and survey transect centerlines.

Conclusions (1 page)

In general, and as can be noted from the photographs and data, the wetland creation areas are responding well after three years of growth. In the wetland creation area, hydrology is adequate to achieve wetland conditions. Pockets of standing water were observed within the creation area and there is evidence of reducing conditions in the soil profiles. All soil profiles described within the creation area key as hydric using the Hydric Soils of the United States, Version 7. Herbaceous plants are growing well and aerial cover increased by approximately 28% since the second year monitoring, and all creation areas meet the requirements for vegetative cover.

Woody plant material is doing well at the site. Plant material that quickly established during years one and two are now becoming more robust and growing well. Monitors did note that some planted woody individuals that have been in declining health during previous years seem to have finally died after a few years of struggling. As such, a slight decrease in the density of tree species per acre was noted since last year's monitoring effort. There appears to be several reasons contributing to the overall loss of trees species including, herbivory from deer and rodents, deer rubbings, and competition from herbaceous plant material. The latter is a new issue citied this year due to the increased robustness of the herbaceous material as it is now beginning to overtop some of the smaller trees and shrubs that have not attained a tall height.

Volunteer tree species, most notably black willow (*Salix nigra*), were noted beginning to grow around the site. These volunteers have not reached the density or height requirements to be counted yet (i.e. 18"). However, it is believed that in future years these species will help add to the total trees-per-acre count and replace the planted individuals being lost. Future monitoring will show if this proves to be true. If these volunteers do not attain the height and density requirements in years to come it may become necessary to plant more trees to make up for the lost individuals.

Volunteer shrub species, especially in the southern cell, have begun to populate mostly the southern creation area, although there were a few noted in northern creation area as well. It appears that the wetland adjacent to the southern creation area is supplying a healthy seed source of speckled alder (*Alnus incana*). Alder 18" tall and taller were counted along with the other woody planted material and these volunteers are helping to increase the density and diversity of woody plant material on the site.

A 0.65-acre extension of the wetland creation site was graded and planted in the winter of 2008 and spring of 2009, respectively. This area was monitored as a part of the whole site for the first time in 2010. The area is already completely vegetated and the planted woody material appears to be healthy and growing. Overall, a saturated hydrologic regime was noted with some small pockets of inundation in the excavated pits.

Some invasive species were noted within the creation area and are being monitored on a yearly basis. Each year monitors conduct a thorough search of the site for invasive species. Again this year, a search was conducted and control measures were taken. There still seems to be only small populations of invasive plants and they do not appear to pose a threat to becoming a larger problem at the site. Control measures will continue on a yearly basis to ensure the future health of the mitigation site. No remedial actions are requested or recommended.

<u>Appendix A</u> -- An as-built plan showing topography to 1-foot contours, any inlet/outlet structures and the location and extent of the designed plant community types (e.g., shrub swamp). Within each community, type the plan shall show the species planted—but it is not necessary to illustrate the precise location of each individual plant. There should also be a soil profile description and the actual measured organic content of the topsoil. This should be included in the first monitoring report unless there are grading or soil modifications or additional plantings of different species in subsequent years.

- Please see Figure 1 on page 9 of this report for a close-up site map.
- Soil Profile Descriptions are included in Tables 1 through 5 in Appendix D.
- A site map showing the Cabela's location in comparison to the overall Larrabee Farms is on file with previous years monitoring reports.

Appendix B – A vegetative species list of volunteers in each plant community type. The volunteer species list should, at a minimum, include those that cover at least 5% of their vegetative layer*.

Year Three Herbaceous Volunteer Vegetation (Plot Data) - 2010

Scientific Name	Common Name	Indicator Status	Percent Aerial Cover (On average across creation area)
Carex lurida	Shallow Sedge	OBL	10
Carex scoparia	Pointed Broom Sedge	FACW	12
Comptonia peregrina	Sweet fern	UPL	1
Eleocharis sp.	Spike-rush species	FACW+	0
Eupatorium perfoliatum	Common Boneset	FACW+	2
Festuca rubra	Creeping Red Fescue	FACU	0
Juncus bufonius	Toad Rush	FACW	2
Juncus canadensis	Canada Rush	OBL	1
Juncus effusus	Soft Rush	FACW+	21
Juncus tenuis	Path Rush	FAC-	1
Lotus corniculatus	**Bird's-foot Trefoil**	**FACU-**	3
Panicum clandestinum	Deertongue	FAC+	0
Panicum sp.	Grass species	NI	1
Phalaris arundinacea	**Reed canarygrass**	**FACW+**	1
Phleum pratense	Timothy	FACU	0
Polygonum pennsylvanicum	Pennsylvania Smartweed	FACW	1
Scirpus atrovirens	Black bulrush	OBL	2
Trifolium arvense	Haresfoot Clover	NI	0
Trifolium pratense	Red Clover	FACU-	1
Trifolium repens	White Clover	FACU-	2
Typha latifolia	**Broad-leaved Cattail**	**OBL**	4
Verbena hastata	Blue Vervain	FACW+	0

Red plants are considered invasive or noxious.
Green plants are hydrophytes.

*Being that this is the third year of monitoring, percent aerial cover by volunteer species is low. Therefore, all volunteer species with 1% aerial cover or greater (within the area of the mitigation site surveyed) are included in the volunteer species table. For additional species observed, please see Table 8 in Appendix D.

<u>Appendix C</u> -- Representative photos of each mitigation site taken from the same locations for each monitoring event. Photos should be dated and clearly labeled with the direction from which the photo was taken. The photo sites must also be identified on the appropriate maps.

Figure 2. Photo locations for 2010 monitoring report ("P.1 = Photo 1, "P.2"= Photo 2, et cetera).

Photo 1 (pre-construction). Facing south towards southeastern wetland creation cell during soil tests, 07-Sep-2006.

Photo 1 (Year 2). Facing south towards southeastern wetland creation cell, 04-Aug-2009.

Photo 1 (Year 3). Facing south towards southeastern wetlands creation cell, 10-Sept-2010.

Photo 2 (Year of construction). Facing south towards separator berm and spillway between upper two cells, 28-Mar-2007.

Photo 2 (Year 2). Facing south towards former location of separator berm which was a spillway between upper two cells. The berm was removed in the spring of 2009, 05-Aug-2009.

Photo 2 (Year 3). Facing south towards former separator berm location. Area now completely re-vegetated, 10-Sept-2010.

Photo 3 (Year of construction). Facing southeast towards southeastern creation cell just after snowmelt in 2007, 28-Mar-2007.

Photo 3 (Year 2). Facing southeast towards southeastern creation cell during the summer, 04-Aug-2009.

Photo 3 (Year 3). Facing southeast towards southern creation cell during late summer 2010, 10-Sept-2010.

Photo 4 (Year of construction). Facing west across northwestern creation cell at watering activities just after plant installation and mulching, 26-Sep-2007.

Photo 4 (Year 2). Facing northwest across northwestern creation cell, 05-Aug-2009.

Photo 4 (year 3). Facing northwest across north PFO/PSS creation cell, 10-Sept-2010.

Photo 5 (Year of construction). Facing northeast inside of northeastern creation cell after ½" rain event, 26-Oct-2007.

Photo 5 (Year 2). Facing northeast inside of northeastern creation cell, 05-Aug-2009.

Photo 5 (Year 3). Facing northeast at PEM northeastern creation cell, 10-Sept-2010.

Photo 6 (Year of construction). Facing southeast towards southeastern creation cell after ½" rain event, 26-Oct-2007.

Photo 6 (Year 2). Facing southeast towards southeastern creation cell, 04-Aug-2009.

Photo 6 (Year 3). Facing southeast towards southeastern creation cell, 10-Sept-2010.

Photo 7 (Year 1). Facing northwest at lower creation cell from southeastern boundary (over PEM towards PSS) during mitigation monitoring, 16-Sep-2008.

Photo 7 (Year 2). Facing northwest at lower creation cell from southeastern boundary (over PEM towards PSS) during mitigation monitoring, 04-Aug-2009.

Photo 7 (Year 3). Facing northwest at lower creation cell from southeastern boundary (over PEM towards PSS) during mitigation monitoring, 10-Sept-2010.

Photo 8 (Year 1). Facing west across lower creation cell from northeastern boundary (over PEM), 16-Sep-2008.

Photo 8 (Year 2). Facing west across lower creation cell from northeastern boundary (over PEM), 04-Aug-2009.

Photo 8 (Year 3). Facing west across lower creation cell from northeastern boundary (over PEM), 10-Sept-2010.

Photo 9 (Year 1). Facing west across the upper wetland creation cell from the southwestern boundary, 16-Sep-2008.

Photo 9 (Year 2). Facing west across the upper wetland creation cell from the southwestern boundary, 05-Sep-2009.

Photo 9 (Year 3). Facing west across upper creation cell from southwestern boundary. Newly created portion in foreground of photo completely re-vegetated, 10-Sept-2010.

Photo 10 (Year 1). Facing south/southwest across the eastern half of the upper creation cell, planted trees and shrubs are obscured by the herbaceous vegetation and photo washout in this picture, 16-Sep-2008.

Photo 10 (Year 2). Facing south/southwest across the eastern half of the upper creation cell, planted trees and shrubs are less obscured by the herbaceous vegetation during the 2009 growing season than the 2008 growing season, 05-Aug-2009.

Photo 10 (Year 3). Facing south/southwest across the eastern half of the upper creation cell, 10-September-2010.

Photo 11 (Year 1). Facing north/northwest across the eastern half of the upper creation area, 17-Sep-2008.

Photo 11 (Year 2). Facing north/northwest across the eastern half of the upper creation area, 05-Aug-2009.

Photo 11 (Year 3). Facing north/northwest across the eastern half of the upper creation area, 10-Sept-2010.

Photo 12 (Year 1). Facing north/northwest across the western half of the upper creation cell, towards the quarry – planted shrubs and trees can be seen well in this picture, 17-Sep-2008.

Photo 12 (Year 2). Facing north/northwest across the western half of the upper creation cell, towards the quarry – planted shrubs and trees can be seen well in this picture, 05-Aug-2009.

Photo 12 (Year 3). Facinf north/northwest across the western half of the upper creation cell, towards the quarry, 10-Sept-2010.

Appendix D. Tables

Table 1. Soil profile 1 in southwestern PEM creation area (HSUS7 Indicator A11).

Depth	Horizon	Matrix	Redox	Texture
0-8	A	10YR 3/2	None observed	fSL
8-16	B1	10Y 5/1	10YR 6/6 – 15%	SiC
16-20+	B2	10Y45/1	10Y 7/1 – 2% 10YR 6/6 – 10%	SiC

Table 2. Soil profile 2 in southern PSS creation area (HSUS7 Indicator A11).

Depth	Horizon	Matrix	Redox	Texture
0-10	A	10YR 3/2	7.5YR 4/6 – 2%	fSL
10-13	B	2.5Y6/2	7.5YR 5/6 (10%)	SCL
13+	Refusal			

Table 3. Soil profile 3 in southeastern PEM creation area (HSUS7 Indictor A11).

Depth	Horizon	Matrix	Redox	Texture
0 -11	A	10YR 3/1	None observed	fSL
11-20+	B	10Y 5/1	7.5YR 4/4 (10%)	LC

Table 4. Soil profile 4 in northern PSS/PFO creation area (HSUS7 Indicator F3).

Depth	Horizon	Matrix	Redox	Texture
0-6	B	10YR 4/2	10yr 5/6 – 2% oxidized rhizospheres on root channels observed	SL
6-18	Bh	10YR 4/3	7.5YR 5/6 (2%) 10YR 4/4 (12%)	LS
18+	Refusal			

Table 5. Soil profile 5 in northern PEM creation area (HSUS7 Indicator A11).

Depth	Horizon	Matrix	Redox	Texture
0-3	A	10YR 3/1	None observed	vfSL
3-20+	B	2.5Y 7/1	7.5YR 5/6 – 20%	S

Table 6: Fauna Species List April through October 2008-2010 (wetland creation area)

Common Name	Scientific Name	Field ID Methodology	Use
Birds:			
Black-capped chickadee	*Parus atricapillus*	visual	feeding, nesting
American goldfinch	*Carduelis tristis*	visual	feeding, nesting
Song sparrow	*Melospiza melodia*	visual	feeding, nesting
Cedar waxwing	*Bombycilla cedrorum*	visual	feeding
Red-tailed hawk	*Buteo jamaicensis*	visual	feeding
American crow	*Corvus brachyrhynchos*	visual	feeding, roosting
Savannah sparrow	*Passerculus sandwichensis*	visual	feeding
Mallard	*Anas platyrhynchos*	visual	feeding
Killdeer	*Charadrius vociferus*	visual	feeding, nesting
European starlings	*Sturnus vulgaris*	visual	feeding
Wild turkey	*Meleagris gallopavo*	visual	feeding
Blue jay	*Cyanocitta cristata*	visual	feeding
Pileated woodpecker	*Dryocopus pileatus*	visual	feeding, roosting
Gray catbird	*Dumetella carolinensis*	visual	feeding
American robin	*Turdus migratorius*	visual	feeding
Flycatcher species	Empidonax species	visual	feeding
Northern flicker	*Colaptes auratus*	song	feeding
White-breasted nuthatch	*Sitta carolinensis*	visual	feeding
Red-breasted nuthatch	*Sitta canadensis*	visual	feeding
Chipping sparrow	*Spizella passerine*	visual	feeding
American woodcock	*Scolopax minor*	visual	feeding
Northern shrike	*Lanius excubitor*	visual	roosting
Snow buntings	*Plectrophenax nivalis*	visual	feeding
American kestrel	*Falco sparverius*	visual	feeding
Northern harrier	*Circus cyaneus*	visual	Feeding
Eastern bluebird	*Sialia sialis*	visual	Feeding, roosting, nesting
Red-winged blackbird	*Agelaius phoeniceus*	visual	Feeding
White-crowned sparrow	*Zonotrichia leucophrys*	visual	roosting
Mammals:			
White-tailed deer	*Odocoileus virginianus*	scat, tracks	feeding
Moose	*Alces alces*	tracks	feeding
Fox	*Vulpes vulpes*	visual	feeding
Raccoon	*Procyon lotor*	tracks	feeding
Coyote	*Canis latrans*	tracks	feeding
North American Porcupine	*Erethizon dorsatum*	visual	feeding
Amphibians:			
Green frog	*Rana clamitans*	visual	feeding, breeding
Wood frog	*Rana sylvatica*	visual	feeding, breeding
American toad	*Bufo americanus*	visual	feeding, breeding
Leopard frog	*Rana pipiens*	visual	feeding
Wood turtle*	*Glyptemys insculpta*	visual	feeding
Gray tree frog	*Hyla versicolor*	Heard	feeding, breeding
Spring Peeper	*Hyla crucifer*	heard	feeding, breeding

*****Maine Species of Special Concern

Table 7. Cabelas Wetland Mitigation Year Three Monitoring Results - 2010
Scrub/Shrub and Forested Wetland Areas

Plot # ("S"=southern, lower cell; "N"=northern, upper cell) (Date Surveyed)	Length (ft) Width (ft)	Area (sq. ft. then acreage)	Plants	Number of Plants	Tree & Shrub Species/Acre	Trees /Acre	Shrubs /Acre
S5	78	468	Alin	5	**1024**	**279**	**745**
(10/14/2010)	6	0.011	Cose	1			
			Frpe	2			
			Pist	1			
			Vica	1			
			Vide	1			
			Total	**11**			
S6	153	918	Alin	25	**2088**	**427**	**1661**
(10/14/2010)	6	0.021	Frpe	1			
			Lala	3			
			Pist	1			
			Qubi	1			
			Sadi	1			
			Ulam	3			
			Vica	9			
			Total	**44**			
S7	172	1032	Alin	14	**1351**	**169**	**1182**
(10/14/2010)	6	0.024	Bepo	1			
			Cose	2			
			Frpe	1			
			Lala	1			
			Pist	1			
			Qubi	1			
			Sadi	4			
			Vaco	2			
			Vica	4			
			Vide	1			
			Total	**32**			
S8	179	1074	Acru	1	**1014**	**487**	**527**
(10/14/2010)	6	0.025	Alin	7			
			Bepo	1			
			Cose	3			
			Frpe	3			
			Ilve	2			
			Pist	5			
			Qubi	1			
			Ulam	1			
			Vaco	1			
			Total	**25**			
S9	153	918	Alin	9	**1518**	**285**	**1234**
(10/18/2010)	6	0.021	Arme	1			
			Bepo	2			
			Cose	2			
			Frpe	2			
			Ilve	3			
			Pist	1			
			Qubi	3			
			Sadi	2			
			Vaco	2			
			Vica	2			
			Vide	3			
			Total	**32**			
S10	126	756	Alin	2	**922**	**461**	**461**
(10/18/2010)	6	0.017	Arme	1			
			Bepo	2			
			Cose	2			
			Ilve	2			
			Lala	2			
			Pist	2			
			Qubi	2			
			Sadi	1			
			Total	**16**			

Plot # ("S"=southern, lower cell; "N"=northern, upper cell) (Date Surveyed)	**Length (ft) Width (ft)**	**Area (sq. ft. then acreage)**	**Plants**	**Number of Plants**	**Tree & Shrub Species/Acre**	**Trees /Acre**	**Shrubs /Acre**
S11	97	582	Acru	1	**1647**	**599**	**1048**
(10/18/2010)	6	0.013	Alin	8			
			Arme	1			
			Bepo	2			
			Frpe	2			
			Lala	1			
			Pist	1			
			Qubi	1			
			Vica	4			
			Vide	1			
			Total	**22**			
S12	67	402	Alin	7	**1192**	**325**	**867**
(10/18/2010)	6	0.009	Bepo	1			
			Lala	1			
			Ulam	1			
			Vica	1			
			Total	**11**			
N2	25	150	Cose	1	**581**	**0**	**581**
(10/18/2010)	6	0.003	Vide	1			
			Total	**2**			
N3	84	504	Bepo	1	**691**	**173**	**519**
(10/18/2010)	6	0.012	Qubi	2			
			Vaco	1			
			Vica	2			
			Vide	2			
			Total	**8**			
N4	110	660	Acru	3	**1188**	**462**	**726**
(10/18/2010)	6	0.015	Arme	3			
			Cose	3			
			Frpe	4			
			Sadi	2			
			Vide	3			
			Total	**18**			
N5	130	780	Bepo	2	**614**	**335**	**279**
(10/18/2010)	6	0.018	Cose	1			
			Frpe	3			
			Pist	1			
			Qubi	1			
			Ulam	1			
			Vica	2			
			Total	**11**			
N6	130	780	Acru	1	**1675**	**223**	**1340**
(10/18/2010)	6	0.018	Arme	3			
			Bepo	5			
			Cose	5			
			Frpe	3			
			Ilve	1			
			Sadi	4			
			Ulam	3			
			Vaco	1			
			Vica	4			
			Total	**30**			

Plot # ("S"=southern, lower cell; "N"=northern, upper cell) (Date Surveyed)	**Length (ft) Width (ft)**	**Area (sq. ft. then acreage)**	**Plants**	**Number of Plants**	**Tree & Shrub Species/Acre**	**Trees /Acre**	**Shrubs /Acre**
N7	126	756	Acru	1	**1152**	**461**	**634**
(10/18/2010)	6	0.017	Frpe	1			
			Ilve	4			
			Lala	1			
			Pist	4			
			Qubi	2			
			Sadi	1			
			Vaco	2			
			Vica	2			
			Vide	2			
			Total	**20**			
N8	141	846	Alin	2	**927**	**257**	**669**
(10/18/2010)	6	0.019	Arme	1			
			Cose	2			
			Ilve	2			
			Lala	2			
			Qubi	2			
			Ulam	1			
			Sadi	1			
			Vaco	2			
			Vica	2			
			Vide	1			
			Total	**18**			
N9	130	780	Acru	1	**838**	**168**	**670**
(10/18/2010)	6	0.018	Arme	1			
			Bepo	2			
			Cose	3			
			Ilve	1			
			Qubi	1			
			Ulam	1			
			Vica	3			
			Vaco	2			
			Total	**15**			
N10	122	732	Arme	2	**536**	**119**	**417**
(10/18/2010)	6	0.017	Cose	1			
			Qubi	1			
			Ulam	1			
			Vica	3			
			Vide	1			
			Total	**9**			
N11	111	666	Cose	2	**654**	**131**	**523**
(10/19/2010)	6	0.015	Frpe	1			
			Ulam	1			
			Vaco	6			
			Total	**10**			
N12	114	684	Bepo	1	**446**	**255**	**191**
(10/19/2010)	6	0.016	Cose	1			
			Frpe	1			
			Pist	1			
			Ulam	2			
			Vide	1			
			Total	**7**			
N13	108	648	Cose	2	**538**	**134**	**403**
(10/19/2010)	6	0.015	Frpe	1			
			Qubi	1			
			Sadi	2			
			Vide	2			
			Total	**8**			

Plot # ("S"=southern, lower cell; "N"=northern, upper cell) (Date Surveyed)	**Length (ft) Width (ft)**	**Area (sq. ft. then acreage)**	**Plants**	**Number of Plants**	**Tree & Shrub Species/Acre**	**Trees /Acre**	**Shrubs /Acre**
N14	110	660	Acru	1	**1122**	**198**	**924**
(10/19/2010)	6	0.015	Bepo	3			
			Cose	1			
			Ilve	4			
			Qubi	1			
			Ulam	1			
			Vaco	5			
			Vide	1			
			Total	**17**			
N15	101	606	Bepo	1	**503**	**72**	**431**
(10/19/2010)	6	0.014	Ilve	1			
			Qubi	1			
			Sadi	2			
			Vide	2			
			Total	**7**			
N16	70	420	Frpen	1	**104**	**104**	**0**
(10/19/2010)	6	0.010	**Total**	**1**			
N17	18	108			**0**	**0**	**0**
(10/19/2010)	6	0.002	**Total**	**0**			
N18	22	132			**0**	**0**	**0**
(10/19/2010)	6	0.003	**Total**	**0**			
N19	57	342			**0**	**0**	**0**
(10/19/2010)	6	0.008	**Total**	**0**			
N20	66	396	Bepo	1	**550**	**220**	**330**
(10/19/2010)	6	0.009	Cose	2			
			Frpa	1			
			Ulam	1			
			Total	**5**			
N21	71	426	Cose	3	**409**	**102**	**307**
(10/19/2010)	6	0.010	Ulam	1			
			Total	**4**			
N22	77	462	Acru	1	**754**	**283**	**471**
(10/19/2010)	6	0.011	Bepo	2			
			Cose	2			
			Ulam	2			
			Vide	1			
			Total	**8**			
N23	80	480	Acru	2	**635**	**454**	**182**
(10/19/2010)	6	0.011	Bepo	2			
			Ulam	3			
			Total	**7**			
N24	90	540	Acru	3	**807**	**645**	**161**
(10/19/2010)	6	0.012	Qubi	1			
			Ulam	4			
			Vide	2			
			Total	**10**			

Plot # ("S"=southern, lower cell; "N"=northern, upper cell) (Date Surveyed)	**Length (ft) Width (ft)**	**Area (sq. ft. then acreage)**	**Plants**	**Number of Plants**	**Tree & Shrub Species/Acre**	**Trees /Acre**	**Shrubs /Acre**
N25	95	570	Acru	2	**841**	**535**	**306**
(10/19/2010)	6	0.013	Cose	2			
			Lala	1			
			Qubi	2			
			Ulam	2			
			Vaco	1			
			Vide	1			
			Total	**11**			
N26	87	522	Acru	1	**501**	**250**	**250**
(10/19/2010)	6	0.012	Cose	1			
			Ilve	1			
			Lala	1			
			Ulam	1			
			Vaco	1			
			Total	**6**			
N27	83	498	Acru	1	**875**	**525**	**350**
(10/19/2010)	6	0.011	Arme	1			
			Frpe	1			
			Ilve	1			
			Lala	2			
			Ulam	2			
			Vaco	1			
			Vide	1			
			Total	**10**			
N28	77	462	Acru	1	**1320**	**566**	**754**
(10/19/2010)	6	0.011	Arme	2			
			Bepo	1			
			Ilve	4			
			Lala	1			
			Pist	1			
			Ulam	3			
			Vaco	1			
			Total	**14**			
N29	78	468	Acru	2	**931**	**372**	**558**
(10/19/2010)	6	0.011	Arme	2			
			Ilve	1			
			Qubi	1			
			Ulam	1			
			Vaco	1			
			Vica	2			
			Total	**10**			
N30	74	444	Acru	1	**1374**	**491**	**883**
(10/19/2010)	6	0.010	Arme	3			
			Qubi	1			
			Ulam	3			
			Vaco	4			
			Vica	1			
			Vide	1			
			Total	**14**			
N31	67	402	Acru	1	**975**	**217**	**759**
(10/19/2010)	6	0.009	Ilve	3			
			Ulam	1			
			Vaco	3			
			Vica	1			
			Total	**9**			
N32	58	348	Qubi	1	**751**	**376**	**376**
(10/19/2010)	6	0.008	Ulam	2			
			Vaco	1			
			Vide	2			
			Total	**6**			
N33	53	318	Acru	1	**685**	**411**	**274**
(10/19/2010)	6	0.007	Ulam	2			
			Vide	2			
			Total	**5**			

Plot # ("S"=southern, lower cell; "N"=northern, upper cell) (Date Surveyed)	**Length (ft) Width (ft)**	**Area (sq. ft. then acreage)**	**Plants**	**Number of Plants**	**Tree & Shrub Species/Acre**	**Trees /Acre**	**Shrubs /Acre**
N34	59	354	Acru	1	**1107**	**738**	**369**
(10/19/2010)	6	0.008	Cose	2			
			Frap	2			
			Sadi	1			
			Ulam	3			
			Total	**9**			
N35	66	396	Acru	1	**1210**	**330**	**880**
(10/19/2010)	6	0.009	Arme	5			
			Frap	1			
			Qubi	1			
			Sadi	3			
			Total	**11**			
N36	72	432	Acru	1	**1311**	**303**	**1008**
(10/19/2010)	6	0.010	Bepo	1			
			Cose	1			
			Frpe	1			
			Ilve	1			
			Qubi	1			
			Sadi	3			
			Vaco	1			
			Vica	1			
			Vide	2			
			Total	**13**			
N37	71	426	Acru	2	**1636**	**511**	**1125**
(10/19/2010)	6	0.010	Arme	3			
			Bepo	2			
			Cose	1			
			Frpe	1			
			Qubi	2			
			Sadi	1			
			Vica	3			
			Vide	1			
			Total	**16**			
N38	70	420	Acru	1	**1556**	**830**	**726**
(10/19/2010)	6	0.010	Arme	1			
			Bepo	1			
			Frpe	4			
			Pist	1			
			Qubi	1			
			Ulam	1			
			Sadi	1			
			Vaco	2			
			Vide	2			
			Total	**15**			
N39	75	450	Alin	2	**1258**	**484**	**774**
(10/19/2010)	6	0.010	Acru	1			
			Bepo	1			
			Cose	3			
			Frpe	2			
			Ilve	1			
			Pist	1			
			Qubi	1			
			Vide	1			
			Total	**13**			

Plot # ("S"=southern, lower cell; "N"=northern, upper cell) (Date Surveyed)	Length (ft) Width (ft)	Area (sq. ft. then acreage)	Plants	Number of Plants	Tree & Shrub Species/Acre	Trees /Acre	Shrubs /Acre
N40	78	468	Arme	1	**1582**	**372**	**1210**
(10/19/2010)	6	0.011	Bepo	2			
			Cose	2			
			Ilve	3			
			Lala	1			
			Ulam	3			
			Vica	1			
			Vide	4			
			Total	**17**			
N41	78	468	Bepo	3	**1768**	**838**	**745**
(10/29/2010)	6	0.011	Cose	4			
			Frpe	1			
			Lala	2			
			Qubi	4			
			Sadi	1			
			Ulam	2			
			Vaco	2			
			Total	**19**			
N42	95	570	Acru	1	**1528**	**611**	**917**
(10/29/2010)	6	0.013	Cose	1			
			Lala	1			
			Pist	1			
			Qubi	3			
			Sadi	1			
			Ulam	2			
			Vaco	1			
			Vica	9			
			Total	**20**			
N43	67	402	Ilve	1	**1300**	**542**	**759**
(10/29/2010)	6	0.009	Lala	2			
			Pist	3			
			Sadi	3			
			Vica	3			
			Total	**12**			

			Species/Acre
Total sq ft PSS/PFO Surveyed	27126	**PSS Creation Average**	**610**
Total acreage PSS/PFO Surveyed	0.62	**PFO Creation Average**	**343**
		Total Woody Plants per Acre	**960**

Table 8: Cabelas Wetland Creation Area Year Three Herbaceous Vegetation (Plot Data) - 2010

Scientific Name	Common Name	Reg. 1 Indicator Status	SW PEM Creation	S PSS/PFO Creation	SE PEM Creation	N PEM Creation	N PSS/PFO Creation	Average Creation Area
Agrostis gigantea	Redtop	FACW		2		3	3	2
**Agrostis stolonifera*	Creeping Bentgrass	FACW	35	15	2	20	20	18
Ambrosia sp.	Ragweed	NI					1	0
Aster vimineus	Small White Aster	FAC	5	5		1	1	2
**Bidens cernua*	Nodding-Bur Marigold	OBL		1				0
Carex intumescens	Greater Bladder Sedge	FACW			5	2		1
Carex crinita	Fringed Sedge	OBL			3			1
Carex lurida	Shallow Sedge	OBL	10	10	20	10	7	11
Carex scoparia	Pointed Broom Sedge	FACW	15	5	10	12	7	10
**Carex vulpinoidea*	Fox Sedge	OBL	2	5			5	2
Comptonia peregrina	Sweet fern	UPL	1	2				1
Echinochloa crus-galli	Barnyard Grass	FACU					1	0
Eleocharis obtusa	Blunt Spike-Rush	OBL	1					0
**Elymus virginicus*	Virginia Wild Rye	FACW				3	3	1
**Eupatorium perfoliatum*	Common Boneset	FACW	2	7	10		1	4
**Euthamia graminifolia*	Grass leaved goldenrod	FAC	1	7	7	3	5	5
**Festuca rubra*	Creeping Red Fescue	FACU						0
Iris versicolor	Blue Flag	OBL		1				0
Juncus bufonius	Toad Rush	FACW		2				0
Juncus canadensis	Canada Rush	OBL	1	2	7	2		2
**Juncus effusus*	Soft Rush	FACW	25	35	40	25	15	28
Juncus tenuis	Path Rush	FAC	1					0
Lotus corniculatus	Bird's-foot Trefoil	FACU	2	1		5	5	3
Panicum clandestinum	Deertongue	FAC		3	1			1
**Panicum virgatum*	Switchgrass	FAC	1	6	2	13	10	6
Phalaris arundinacea	Reed canarygrass	FACW		2	5	2	5	3
Polygonum pennsylvanicum	Pennsylvania Smartweed	FACW		1		1	5	1
Rubus hispdus	Bristly Dewberry	FACW		1	1	1	2	1
Rumex orbiculatus	Greater Water Dock	OBL					1	0
Schizachyrium scoparium	Little Bluestem	FACU-		2				
Scirpus atrovirens	Black bulrush	OBL			2		1	1
**Scirpus cyperinus*	Woolgrass	FACW	5	2	5	1	2	3
Setaria pumila	Yellow Foxtail	FAC					1	0
Solidago rugosa	Rough-Stemmed Goldenrod	FAC		2			1	1
Symphyotrichum novi-angliae	New England Aster	FACW	5	2		2	5	3
**Symphyotrichum novi-belgii*	New York Aster	FACW		1	2	1		1
Trifolium arvense	Haresfoot Clover	NI	2	2		2	2	2
Trifolium pratense	Red Clover	FACU	2	1		1	3	1
Trifolium repens	White Clover	FACU	2	1			1	1
Typha latifolia	Broad-leaved Cattail	OBL			10	2		2
**Verbena hastata*	Blue Vervain	FACW	2	3	3	3	5	3
Vicia cracca	Cow Vetch	UPL		1			2	1

Overall Average % aerial cover by herbaceous vegetation	120	130	135	115	120
Overall Average % cover of non-invasive herbaceous vegetation	118	127	120	106	108
Average % cover of hydrophytic non-invasive herbaceous vegetation in plot	115	120	120	105	99
Average % cover of planted woody vegetation (= % hydrophytes)	2	20	5	0	23
% aerial cover of non-invasive herbaceous & woody veg	120	147	125	106	131
% aerial cover of non-invasive herbaceous & woody hydrophytes	117	140	125	105	122

* in seed mix

Red plants are considered invasive or noxious.

Green plants are hydrophytes.

Appendix E: Permits

Submitted in earlier reports. Copies of permits are available upon request.

Appendix F: Army Corps Memorandum

CENAE-R-PT 24 September 2010

MEMORANDUM FOR File

SUBJECT: Site visit to Larrabee Farms mitigation site for Gateway at Scarborough (Cabelas); Scarborough, Maine; File No. NAE-2005-4220

Inspection Date: 24 September 2010
Time arrived: 1130 Time departed: 1200
Weather conditions: overcast, 70 degrees

Construction of this site was completed in the Fall of 2007, with a 0.5 acre portion redone in Spring 2009. It is one of the three existing mitigation projects at this pooled mitigation site.

There have been concerns with adequate grading and hydrology in parts of this site, but modifications made in 2009 seem to be leading to improvement of the site.

The portion of the site nearest the active mining pit is dominated by grasses (*Panicum* and/or *Agrostis*). Moving into the site from there is an area of dense composites, *Solidago* and *Aster* spp. The central portion of the site seems to have the best success with woody plantings where they seem to be coming in well. The wettest, inner portion of the site has some *Typha latifolia*, but also *Juncus effusus* and *Scirpus cyperinus*. There appear to be fewer woody plants and less woody plant survival in the inner sections of the site.

Other herbaceous species observed at the site include *Euthamia graminifolia*, *Verbena hastata*, *Carex lurida*, *C. vulpinoidea*, *C. scoparia*, and *Eupatorium perfoliatum*. Woody species include *Alnus* sp., *Pinus strobus*, *Ulmus americana*, *Quercus bicolor*, *Betula populifolia*, *Aronia* sp., *Viburnum dentatum*, *Spiraea* sp., *Fraxinus pensylvanicus*, *Cornus* sp., and *Acer rubrum*.

This site has improved since the last site visit.

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