Wetland Mitigation Monitoring

Project: Miller/E Commerce Park (98-036)
Date: November 9, 2007
Investigator: Brian Tremback

On November 9, 2007, I investigated the survival and condition of the trees and shrubs planted in the wetland mitigation area at E Commerce Park The mitigation project consists of initiating forest cover on a former agricultural field. The species to be planted were green ash (*Fraxinus pennsylvanica*), swamp white oak (*Quercus bicolor*), American hornbeam (*Carpinus caroliniana*), and red-osier dogwood (*Cornus sericea*).

To evaluate the health of the plantings, I selected a 500-foot transect running between Photo Stations P1 and P4. For a distance of 10 feet to either side of the centerline of the transect, I identified and assessed the vigor of the plants. Dead twigs were identified as those that were desiccated or lacked winter buds, and dead plants those that lacked live twigs. Included in the transect were:

1. 14 green ash trees. These trees were typically between 3 and 4 feet tall. Out of the 14 trees, one was apparently dead.
2. 23 swamp white oaks. These trees were between 3 and 4 feet tall. 8 of the trees appeared dead.
3. 1 American hornbeam. Only one 3 to 4-foot tall American hornbeam was noticed in the transect. The tree appeared healthy.
4. 15 red-osier dogwoods. Between 2 and 3 feet tall, only 1 was apparently dead.

Observations

As noted in the comments above, mortality appeared to be low for 3 of the 4 species. Swamp white oak mortality was very high, however – about 35%.

Only 1 American hornbeam was encountered in the transect. This could be because these trees were clustered in other portions of the site.

There was some bark damage by gnawing, probably rabbits. This was not so severe that it girdled the stems, but it could seriously limit the trees' growth potential.

A significant proportion of the trees appeared to be insufficiently anchored and were leaning at angles of 45° or more. While this did not affect the trees' current health, snow and ice during the winter could bring them to the ground where rabbits and rodents can more easily eat the bark and buds. This could easily contribute to additional mortality.

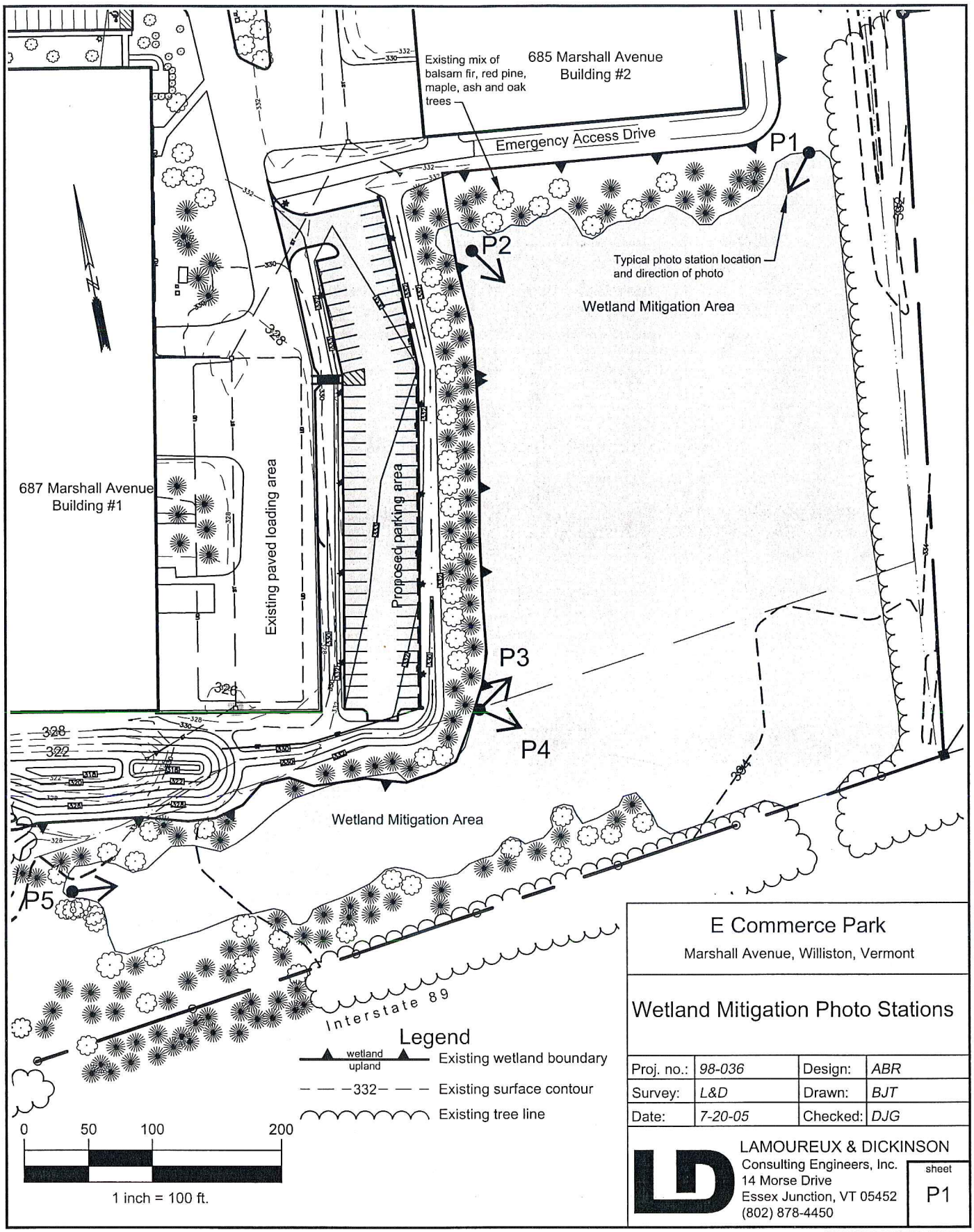
Woody debris has not been placed. There is, however, a 6-foot high x 25-foot long x 20-foot wide brush pile at the northeastern corner of the Wetland Mitigation Area.

Recommendations

We recommend that any leaning trees be anchored upright, or replaced to meet the minimum density of 500 trees/shrubs per acre.

We recommend that an estimate of the survival of the planted trees and shrubs should be performed in the spring just after leaf-out when the viability of the plantings will be more obvious. Further plantings may need to be installed if the required 500 live trees/shrubs per acre are not present.

We recommend that coarse woody material be placed randomly in the field as described in the project specifications. The plans specified that this was to be done before plantings were installed. Now that the trees and shrubs are already planted, it will be more difficult to place the woody material and extra care must be taken to avoid damaging the plantings. Based on the project specifications, there should be also be coarser material (stumps and thicker branches) as well as brush and leaves. We recommend that woody debris be placed in the spring after the trees and shrubs leaf out and they're more visible against the stems of the dead herbaceous plants. It may be possible to flag out routes that would allow a truck to be driven into the mitigation area without damaging the plantings.



E Commerce Park

Marshall Avenue, Williston, Vermont

Wetland Mitigation Photo Stations

Proj. no.:	98-036	Design:	ABR
Survey:	L&D	Drawn:	BJT
Date:	7-20-05	Checked:	DJG

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P1

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E Commerce Park, Williston, Vermont
USACE file no. NAE-2005-90

Photo Station P1
November 9, 2007

E Commerce Park, Williston, Vermont
USACE file no. NAE-2005-90

Photo Station P2
November 9, 2007

E Commerce Park, Williston, Vermont
USACE file no. NAE-2005-90

Photo Station P3
November 9, 2007

E Commerce Park, Williston, Vermont
USACE file no. NAE-2005-90

Photo Station P4
November 9, 2007

E Commerce Park, Williston, Vermont
USACE file no. NAE-2005-90

Photo Station P5
November 9, 2007