Czepiga, Page (EEA)

From: ritchcutts@aol.com
Sent: Friday, June 30, 2017 1:29 PM
To: Beaton, Matthew (EEA); Czepiga, Page (EEA)
Subject: MEPA Comment Letter - Eversource Sudbury-Hudson Transmission Line - Part 2
Attachments: Comment Ltr - EFSB - Cutting, HR - June 12 2017.pdf; Exhibit 1 - EFSB - Cutting Comment Ltr.pdf; Exhibit 2 - EFSB - Cutting Comment Ltr.pdf; Exhibit 3 - EFSB - Cutting Comment Ltr.pdf; Exhibit 4 - EFSB - Cutting Comment Ltr.pdf

Dear Secretary Beaton and MEPA reviewer Ms. Czepiga,

Attached you will find Exhibit A to my comment letter on MEPA EEA#15703

I am sending my comment in two parts due to the size of the exhibits.

Thank you for your patience and attention,

Rebecca Cutting
Sudbury

June 12, 2017

H. Rebecca Cutting, Esq.
381 Maynard Road
Sudbury, MA 01776
ritchcutts@aol.com

Stephen August, Esq., Presiding Officer
Energy Facilities Siting Board
One South Station
Boston, MA 02110

Re: Public Comment Hearing – EFSB 17-02/D.P.U. 17-82/17-83
Eversource Proposed 115kv line from Sudbury to Hudson

Dear Presiding Officer August:

Please accept and enter my written comments on the above-captioned proposal as part of the administrative record of the Public Comment Hearing for the referenced three (3) petitions filed by Eversource with the Energy Facilities Siting Board ("EFSB"). I am a life-long resident of Sudbury but I am not an abutter to the proposed project ("the Project"). I attended the Public Comment Hearing held in Sudbury on May 24, 2017, but did not speak at the hearing. However, as set forth in the "Notice of Adjudication and Notice of Public Comment Hearing", I submit these written comments to the record.

I am an attorney with a private environmental practice in Massachusetts, recently retired from the litigation group of the Department of Environmental Protection. I am a member of the local land trust, Sudbury Valley Trustees ("SVT"), which owns and manages the "Memorial Forest" which abuts much of Project to the south of the rail line. I have also supported Protect Sudbury's efforts to realign the Project to installation in existing public ways rather than over the abandoned Central Mass. Railway ("the rail line").

I am familiar with the petitions before you (proposed for consolidation) and the facts of these matters. I have concluded that, under the broad "public interest" inquiry required by G.L. c. 164, § 72, the Project as presently proposed in the "Primary Route" and "Noticed Variation to the Primary Route" is not consistent with the "public interest" due to the extensive impacts, and for the reasons, set forth herein. Further, that what may be perceived as "local concerns" are sufficiently broad impacts so as to qualify as "general public interests" e.g., avoiding damage to unique habitat, significant loss of property value/tax revenues and threats to public water supply. Use of the MBTA right of way, while apparently less costly in dollars will cause long term damage to significant and broad public interests. If this "reliability project" is indeed as necessary as represented (and it appears it may not be), then there are at least two alternatives that should be considered: additional routing along the existing Northboro to Hudson line and placement entirely in existing active public ways, not just in Hudson. Although on paper the MBTA right of way is a nice straight line, on the ground it poses numerous issues, such as the number of bridge replacements in sensitive areas, which a public way route will not.

Because commenters at the hearing frequently mentioned the "Memorial Forest" area, I have attached (**Exhibit 1**)[1] information from the SVT website which I commend to you at www.svtweb.org. Here you will find additional information on the environmental significance of this unique area which has come to be known as "the Desert". Ironically, however, this area is as far from that moniker as could be possible. It is, instead, a habitat similar to that of Cape Cod's pitch pine/oak forests and both are products of fire, high water table and deep sandy soils lain down (as Mr. Porter of the Sudbury Conservation Commission explained at the hearing) by glacial lakes that once occupied the area[2]. As explained in Exhibit 1 these "...Pitch Pine Barrens are **globally rare natural communities** and represent one of the **highest conservation priorities in Massachusetts** for preserving regional biodiversity." (emphasis added).

As a consequence of these sandy soils and high water table, this area and the area to the north of the rail line, the Assabet River National Wildlife Refuge (a nationally owned refuge under U.S. Fish & Wildlife management), was once in cranberry cultivation. At the time (1920-40), Middlesex County produced more cranberries than any other in the Commonwealth. Those farms were displaced by the Army during World War II in order to hide munitions[3], later becoming the national wildlife refuge that it is today.

There are species here that one only expects to find on Cape Cod as well as other inland species that thrive in its unique and extensive wooded wetlands fed by the deep sandy soils[4]. I attach a 2013 letter from Massachusetts "Natural Heritage and Endangered Species Program" of the Division of Fisheries and Wildlife ("NHESP") listing the state-listed rare species that can be found in this area. See, **Exhibit 2.** Consequently, NHESP has been very involved in advising the restoration efforts at Memorial Forest, on City of Marlborough Conservation Lands and the Assabet River National Wildlife Refuge.

These same soils also provide substantial groundwater flows to major streams that flow through, and sustain, Sudbury's Raymond Road wellfields. Attached are several maps showing the context of the rail line (**Exhibit** 3). On these maps Cranberry Brook and Trout Brook are shown as they feed into Hop Brook, a major tributary to the Sudbury River. The broad Hop Brook marshes to the east and south of the rail line sustain the aquifer from which the Raymond Road wellfields draw. These wellfields are a critical major source of Sudbury's public water supply and lie along the path of the Project just south of Route 20. This wellfield has been threatened in the past with industrial contamination in groundwater flows in the same direction as the Project.

As you heard at the hearing, Sudbury is fortunate to have a plentiful supply of groundwater that sustains (primarily through this one well field) its public water supply. Over the years, the Town and SVT have acquired surrounding wetlands along the rail line in order to protect these groundwater flows. Under state regulations governing public water systems at 310 CMR 22.00, the "Zone 2", the "zone of

---

[1] Exhibit 1 explains the collaborative restoration effort with a goal of enhancing biodiversity that has been undertaken at Memorial Forest between state, local and federal conservation entities: Mass. DCR, USFWS, the City of Marlborough (using MassWildlife grant funds) and the Town of Sudbury.

[2] The Cape Cod sandy soils were the result of terminal and lateral moraines laid down by the retreating glacier. In Sudbury such moraines, eskers and drumlins acted as dams creating vast glacial lakes that covered such areas as "The Desert".

[3] The refuge became Army property, passing from a munitions depot to use for Army activities related to Natick Laboratories and Fort Devens and finally excessed by the Dept. of Defense to the U.S. Fish & Wildlife Service in or about 2003.

[4] The Plymouth/Carver aquifer is another example of how such soils retain groundwaters essential to pure drinking water. Cape Cod relies upon its sandy aquifer for all of its drinking water and is known as "a sole source aquifer".

contribution" is to be protected by various means including acquisition and zoning. Sudbury has enacted several such bylaws to protect its aquifer, floodplains and wetlands. The streams that originate in the Memorial Forest area feed the Raymond Road wellfield. They are remarkable for their clarity and sustain cold water fisheries due to their cool subsurface origin. The Town is fortunate to have such protected resources. The disturbance of railbed contaminated soils including the deep trenching for the cable itself (5' x 4') and backfilling will not serve the Town's interests in this substantial public benefit, nor will herbiciding the right of way.

Finally, as the EFSB may have previously heard, there are two other local public conservation entities whose properties lie along the rail line: (1) Sudbury's Hop Brook Conservation Land; and (2) Marlboro State Forest. Thus, within the 4.6 miles within Sudbury, four (4) conservation organizations (3 public and one private) have extensive holdings. Hop Brook, as Sudbury's Conservation Administrator, Debbie Dineen, explained at the Public Comment Hearing was Sudbury's first conservation land acquisition entirely publicly funded by federal and state funds as well as local taxes. Such contrary uses betray the public trust that these investments were intended to preserve. Marlboro State Forest in Hudson and Marlboro is a DCR[5] property and thus also publicly funded open space.

I am sure that I was not alone at the hearing in finding the Eversource video oddly both overly glib and contradictory of prior information that the residents have been able to glean from Eversource's various presentations. If I recall correctly, there was mention of a width of impacts that did not match either the dimensions of the right of way or the clear cutting to eighty-two (82) feet that we were led to believe was necessary for the overhead option. Although Eversource has changed its preferred option to underground this may not in fact reduce impacts. The supplemental work descriptions attached to the petitions illustrate this. Although the underground route ostensibly reduces permanent clear cutting to thirty (30) feet or more for roots, the vault installations, construction staging areas and permanent access will require clear cutting well beyond the 30-50 feet of the cable installation. In fact, there has been considerable research done on the impacts of the originally preferred overhead pole installation versus the now preferred underground installation. The findings indicate that in addition to the soil disturbances of vaults, staging and access, the MBTA retained right to rekindle rail use will necessitate that the underground cable will have to be offset from the center line involving more cutting and filling in wetland and other sensitive habitat areas than the overhead might. Of course the overhead lines in such close proximity to such densely residential areas pose another set of risks. Eversource's filings do not address these issues except in the most glossy of terms, entirely lacking in specifics.

The disturbance of contaminated soils along the rail line in such immediate proximity to sensitive protected species (amphibians in particular) and their habitats cannot be overlooked. I attach a copy of DEP's[6] protocol for rail trails, "Best Management Practices for Controlling Exposure to Soil during the Development of Rail Trails" (**Exhibit** 4) which explains the procedures for much less intrusive bike trail projects on rail lines and how such contamination needs to be assessed prior to construction and managed accordingly. Thus far, there has been no mention by Eversource of such potential contamination impacts of the Project except a reference to this document.

In addition, the video added a feature that we had not heard much about, the large subsurface access chambers or vaults set about every quarter mile (every 1,500 feet) that would require disturbance beyond the underground option's purported thirty (30) to fifty (50) foot clear cut. This is a

---

[5]DCR is the Massachusetts Department of Conservation and Recreation - manager of state forests and parks.
[6] The Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup.

heavily wooded right of way with sizeable wetlands and streams. The vault size indicated to many of us at the hearing that their installation may well require work outside the right of way adding to the clearing, filling and potential contamination impacts as well as potentially encroaching on private and/or public land. Sudbury's prior experiences with Eversource do not inspire much faith in their ability to avoid private damage and encroachment. Thus, clarity on the extent of all of the aspects of the work seems not only useful but essential at an early stage in these proceedings. By way of example, I estimate that four (4) of these vaults will fall along the "Memorial Forest" frontage. Yet, this is not the end of the planned disturbance along the fifty to one hundred foot wide right of way, there will also be staging areas during construction and "access roadways" in addition to the installation itself. Thus far, there has been no mention at all of how the impacts from any of these installations are to be addressed.

In addition, I lend my voice and experience to that of those who spoke at the hearing describing Eversource's unfathomable course of conduct in Sudbury, and perhaps elsewere. It was not always so. When the underground cables were laid up Goodman's Hill, Boston Edison was a very good "neighbor" explaining impacts to the residents and mitigating those and providing and explaining safety considerations. I remember it well as I grew up on Goodman's Hill and watched the progress of the work with great interest.

By contrast, when Eversource decided to clear along its overhead lines off Pelham Island Road and Landham Road in South Sudbury in recent years, they simply showed up with their machinery and clear cut the area including landscaping on residential lots. No notice was given to residents or to the Town nor was any civil explanation offered beyond the necessity of the devastating and over blown work. The Sudbury Selectmen attempted to intervene to alter the nature of the conflict and were met with similar, remarkable, incivility from Eversource. This has spawned an unfortunate climate of mistrust which Eversource's conduct in these particular matters has only reinforced; the public was not informed of meetings with the Selectmen until just before Eversource filed its initial petition. It would seem that this public utility has forgotten this aspect of the public interest. Residents of the Town appreciate the reliability of their electric power and, not only do not deserve to be misled or overpowered by this utility, but are owed simple courtesies of notice and explanation. These simple courtesies are particularly compelling when the utility is a public utility and when its actions directly affect private property and public health.

The foregoing observations lead me to another topic which Eversource has repeatedly denied, most recently at its public meeting with the Sudbury Board of Selectmen on October 26, 2016; the impact on property values of the proposed use of the rail line for the Project. Two sets of facts bear repeating and reinforcing: (1) the Sudbury Assessors have found that properties abutting the rail line are devalued by 15%; and (2) properties along the rail line are declining further in value as a result of failed real estate transactions.

At the Public Comment Hearing you heard from one Sudbury realtor, Carole Daniels[7], who cited a number of specific examples of residential properties within three hundred (300) feet of the Project that were unable to sell after substantial price reductions or only sold after making such substantial reductions. One of these cases she cited included a $94,000 loss in value. I ask that the EFSB take these substantial property losses into account when weighing the public benefits of this project. While these are private properties, as several at the Public Comment Hearing pointed out, the loss of tax revenue to Sudbury will be a clear public detriment. The number of such properties suffering substantial loss in value is such that it creates a class of persons whose interests are being harmed. None of these impacts

[7] Carole Daniels has been a realtor in Sudbury for 30 years, Hearing Statement (oral).

have been taken into account in Eversource's cost estimates and they do not exist in the public way option.

In closing, I wish to underscore the comments of Julie Lieberman made at the Public Comment Hearing, that the underlying assumptions made in 2009, were overestimated at the time and are clearly outdated at this late date. I do not think it unreasonable and well within the authority of the EFSB to ask Eversource to revisit by way of an update, the need for this particular redundancy project. In addition, there is a fourth alternative that was presented by National Grid which should be re-examined in light of the cost of the Eversource proposals before you; to install backup along the existing Northboro to Hudson corridor. This option is also more proximate to the communities to be benefitted as well as being less detrimental to significant public interests of safety and environment than the current Eversource proposals before you.

Thank you for your consideration of these comments.

Sincerely,

H. Rebecca Cutting, Esq. (BBO #548843)
381 Maynard Road
Sudbury, MA 01776
ritchcutts@aol.com

Enc.

cc: Sudbury Valley Trustees
Protect Sudbury
Sudbury Cons. Commn. & Selectmen

Cutting
EXHIBIT 1

DESERT NATURAL AREA PITCH PINE-SCRUB OAK BARRENS HABITAT RESTORATION

(http://northernwoodlands.org/articles/article/tarheels-pitch-pine-colonial-america)

At SVT's Memorial Forest in Sudbury, which is part of a much larger Desert Natural Area, we have been working with our abutting conservation land owners and the Massachusetts Natural Heritage & Endangered Species Program (MNHESP) to restore the former expanses of Pitch Pine – Scrub Oak Barrens. Across the Northeast region of the United States this natural community type has been diminishing due to fire suppression, vegetative succession, invasive species, and land development. This habitat provides homes for several rare species and other species experiencing population declines. Of note at the Desert Natural Area are whip-poor-wills and wild lupine, which we have observed precipitously declining over the last 20 years.

By selectively cutting trees and re-introducing fire to this ecosystem, we will rejuvenate habitat that supports the native diversity of this landscape. Visitors will enjoy a walk through a pleasingly diverse array of habitats and be provided the chance to see or hear a greater diversity of wildlife. An additional benefit of this management is that it will help to prevent wild fires that could wipe out substantial sections of forest and harm nearby homes.

» Curent Project Status
» Conservation Significance

- Project Description
- Photos and Videos
- Funding
- FAQ: 2013 (Phase 1) (http://www.svtweb.org/properties/stewardship/desert-na-restoration/fire-faqs)
- FAQ: 2016 (Phase II) (http://www.svtweb.org/properties/stewardship/desert-na-restoration/memorial-forest-restoration-phase-ii-faqs)

CURRENT PROJECT STATUS

Help Us to Help the Birds! Birds have begun nesting in and around our restoration areas. These rare birds, including whip-poor-will and American woodcock, nest on or near the ground. We are asking visitors to please leash your dogs in the Bird Nesting Zones (http://www.svtweb.org/sites/default/files/imce/20/desert_birdnestingzones.pdf). These zones are located around trail points C, D, E, F and P in Marlborough and Sudbury (http://www.svtweb.org/sites/default/files/imce/20/desert_birdnestingzones.pdf).

The City of Marlborough is implementing invasive plant control on their land this spring. Most of this work will be occurring on the Old Concord Road trail. The City will work to reduce invasive plant abundance over the next few years. Funding is being provided by MassWildlife's Habitat Management Grant program.

Phase II of our efforts to restore the globally rare Pitch-pine/scrub oak barrens at Memorial Forest was completed this past winter. We ask all visitors to stay on marked trails so that our restoration can be successful.

Phase II of the habitat restoration includes heavy thinning of 15 acres, where white pines are being removed and pitch pine (seen here) are left standing.

(http://www.svtweb.org/sites/default/files/imce/20/20161226_110036s.jpg)

The Phase II management area is located between the old rail line, Hop Brook and Cranberry Brook. **Unit A (http://www.svtweb.org/sites/default/files/Phase2_IllustrationAerial.pdf)**, 15 acres, was heavily thinned (50%) in preparation for a burn that will likely take place in 3 to 5 years. We will be observing regeneration and conducting surveys over the next couple of years to evaluate conditions. The work in this unit is very similar to what occurred in the 14-acre unit that was burned in May, 2014. **Unit B (http://www.svtweb.org/sites/default/files/Phase2_IllustrationAerial.pdf)**, 35 acres, was thinned and no further action will be taken for approximately 10 years or more. **(Please see map of Units A and B (http://www.svtweb.org/sites/default/files/Phase2_IllustrationAerial.pdf).)**

The Phase I management area, 14 acres located near trail points E and F, has grown back vigorously. Due to excessive regrowth of tree oaks (rather than scrub oak), we will be mowing the area and conducting

selective herbicide treatments next year.

Find out more about the ongoing habitat managment project below. SVT hosted a presentation about the project last year, slides from the presentation can be found at these links:

- **SVT's Desert Natural Area Presentation (http://www.svtweb.org/sites/default/files/DesertPresentation_SVT_20150429.pdf)**
- **DCR's Marlboro-Sudbury State Forest Hansen Lot Presentation (http://www.svtweb.org/sites/default/files/HansenLotPresentation_DCR_20150429.pdf)**

(http://www.svtweb.org/sites/default/files/Phase2_IllustrationAerial.pdf)

The Massachusetts Department of Conservation & Recreation (DCR) Bureau of Forestry **has finalized a prescription that is posted on their web site.** (http://www.mass.gov/eea/docs/dcr/stewardship/forestry/manage/forest-product/hansen-prescription.pdf)Their proposal includes thinning of dying red pine stands, improving oak and white pine stands and 23 acres of pitch pine-scrub oak habitat restoration.

Over the last five years, SVT has been removing and treating invasive plants throughout the Memorial Forest. Many volunteer groups have been manually removing glossy buckthorn. SVT hired a contractor to conduct cut and dab treatments of larger invasive shrubs along the Cranberry Brook and Hop Brook corridors (with necessary approvals from the Sudbury Conservation Commission). These efforts will improve plant diversity over time and mitigate the spread of invasive plants to other areas.

The City of Marlborough is focusing on continued invasive plant control over the next couple of years, before conducting any further tree removal or prescribed fire. The City was recently awarded a grant from MassWildlife to implement invasive plant control this spring, 2017.

Biological monitoring inlcudes an annual breeding bird survey, vegetation monitoring, and insect surveys. Vernal pool monitoring and wildlife observation will also continue. All of these efforts allow us to evaluate the success of the management and adapt as necessary.

See our **Prescribed Fire FAQ Page (http://www.svtweb.org/properties/stewardship/desert-na-restoration/fire-faqs)** and a **list of resources for additional information (http://www.svtweb.org/properties/stewardship/desert-na-restoration/prescribed-fire-links)** to learn more information about this project and prescribed fire in the northeast, or download our **Prescribed Fire FAQs brochure (http://www.svtweb.org/www.sudburyvalleytrustees.org/sites/default/files/SVTFireFAQBrochureW**

CONSERVATION SIGNIFICANCE

This project is part of a larger statewide and regional effort to protect biological diversity. Below are quotes from some of our partners and other conservation professionals.

"In the impressive protected confluence area of Sudbury, Marlborough, Hudson, and Stow, a legacy of our heritage is being thoughtfully restored by the Sudbury Valley Trustees. The rare pitch pine/scrub oak habitat is reappearing, a local version of Myles Standish State Forest and the New Jersey Pine Barrens.

Bulging with uncommon plants and animals on sandy soils, even sustained by occasional fire, the place will highlight a key piece of the region's history. Like priceless resources in a museum or a town library, this habitat warrants our careful restoration and sustained protection. Imagine an inspirational and educational spot so close to us all!" - Richard T. T. Forman, SVT Board Member, and editor, *Pine Barrens: Ecosystem and Landscape*

"*Inland Pine Barrens such as those occurring in the Desert Natural Area are globally rare natural communities and represent one of the highest conservation priorities in Massachusetts for preserving regional biodiversity. Unfortunately, the majority of Inland Pine Barren communities that remain in the state are now highly degraded due to nearly a century of fire suppression across the landscape. Considering the rarity of this community-type and its general continued decline across its range, it's very exciting to see the restoration and management efforts that are taking place at The Desert. Opportunities to restore functioning Inland Pine Barren communities have become increasingly rare across the Northeast, making the work undertaken at The Desert an important project in the regional conservation of this important resource.*" - Chris Buelow, Restoration Ecologist, Massachusetts Natural Heritage & Endangered Species Program (http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/)

"Pitch Pine - Scrub Oak Barrens are an important habitat for many species, including some that depend specifically on barrens habitat. Sudbury Valley Trustees' efforts at the Desert Natural Area is highly beneficial for a suite of plants and wildlife including many rare and declining species. This is exactly the kind of stewardship that is needed in Massachusetts if we are to save our natural heritage statewide and regionally. Much of this habitat has been lost or is highly degraded in the Northeast. Larger and functioning habitats based on natural processes or those that mimic natural processes are more resilient to threats including those from impending climate change. Furthermore, having been involved in similar barrens management across Massachusetts, visitors overwhelmingly enjoy these habitats after restoration finding the open woodlands and small clearings both aesthetically and recreationally interesting." - Russ Hopping, Ecology Program Director, The Trustees (http://www.thetrustees.org/)

"SVT's pitch pine-scrub oak restoration project in Memorial Forest will help stem the decline of bird species who are dependent on early successional habitat, such as the Eastern Whip-poor-will, Prairie Warbler, and Brown Thrasher. Early successional habitat is a natural component of pitch pine-scrub oak forests, and thoughtfully applied forestry and prescribed burns can effectively restore the ecological function in these systems." - Jeff Ritterson, Forest Bird Conservation Fellow, MassAudubon (http://www.massaudubon.org/our-conservation-work/wildlife-research-conservation) (Learn more about the **State of Birds (http://www.massaudubon.org/our-conservation-work/wildlife-research-conservation/statewide-bird-monitoring)** in Massachusetts.)

"*Grassroots Wildlife Conservation, a non-profit dedicated to rare species conservation in Massachusetts, is fully in support of Sudbury Valley Trustees' management plan to thin existing forest in the Desert Natural Area and to maintain the resulting savanna, meadow and scrub habitat with occasional prescribed fires. We know, from our own experience, that non-forested and thinly wooded areas of sandy upland are among the rarest and most critical habitat features in our Massachusetts landscape. Dozens of rare and declining species, from birds such as brown thrasher and blue-winged warbler, to reptiles such as eastern box turtles and black racers, to insects, such as frosted elfin butterflies and twelve-spotted tiger beetles, to rare wildflowers, including New England blazing star and butterfly milkweed, depend on open areas with dry, sandy soil. In the past, frequent natural fires would have maintained many open sandplains in New England. Grassroots Wildlife Conservation commends the SVT for their*

innovative and well-considered management actions and proposals for greatly boosting the value of the Desert Natural Area to our local biodiversity." - Bryan Windmiller, Executive Director, Grassroots Wildlife Conservation (http://www.grassrootswildlife.org/)

PROJECT DESCRIPTION

The Desert Natural Area (http://www.svtweb.org/properties/page/memorial-forest), located in Sudbury and Marlborough, is a 900-acre ecosystem complex within a larger area of over 4,000 acres of protected conservation lands. This ecosystem complex contains fire and disturbance-dependent communities of pitch pine-scrub oak barrens in a habitat mosaic with red maple swamps, cold-water streams, and associated wetlands.

In 2009, abutting landowners came together to define overall management goals for the ecosystem complex. Cooperating landowners include USF&WS Assabet River National Wildlife Refuge (DCR), Massachusetts Department of Conservation & Recreation (DCR), City of Marlborough, Town of Sudbury, Massachusetts General Federation of Women's Clubs (MGFWC) and Sudbury Valley Trustees (SVT). In 2010, Marlborough, Sudbury, MGFWC, and SVT each had Forest Stewardship Plans prepared for their respective properties based on the ecological goals established by the group. In 2016, the DCR finalized a **forest prescription (http://www.mass.gov/eea/docs/dcr/stewardship/forestry/manage/forest-product/hansen-prescription.pdf)**, including 23 acres targeted for pitch pine-scrub oak barrens restoration. The USFWS ARNWR is in the planning stage for the southern unit of the refuge.

THE ECOLOGICAL GOALS FOR THE DESERT NATURAL AREA ARE:

- Restore pitch pine-scrub oak barrens
- Control invasive species
- Enhance habitats for migratory bird species that are declining in population (such as whip-poor-will, Eastern towhee and brown thrasher)
- Maintain rare turtle habitat (Eastern box turtle and wood turtle)
- Maintain high quality cold water streams (Cranberry Brook and Trout Brook)
- Maintain vernal pools and upland habitat required by vernal pool breeding amphibians.

In additon to these ecological goals, partners intend to maintain high quality passive recreational opportunities, preserve cultural and archeological resources and educate the public about the resources and management of the area.

Two coldwater streams, Cranberry and Trout Brooks, run through the Desert Natural Area. These streams provide high quality habitat to native brook trout and a diversity of macroinvertebrates. Such high quality streams are uncommon in the Metrowest Boston area. Management will be designed to protect the integrity of these streams.

There are several vernal pools that provide critical breeding habitat for blue and yellow spotted salamanders, and wood frogs. These pools are also important to turtles for spring feeding. SVT initiated long term monitoring of the vernal pool on their property. Care will be taken with any management actions to assure protection of upland habitat requirements of the vernal pool obligate species.

Recreational access and trail improvements have been on-going for many years by all of the landowners in the Desert. There is an on-going effort to eliminate illicit off-road vehicle use. SVT updated a trail map for the entire area. There are over six miles of trails open for passive recreation. Most landowners permit hunting and mountain bike riding although these activities are not allowed on MGFWC land.

INVASIVE SPECIES CONTROL

Mapping of invasive plant species and distribution was completed in 2009 and 2010. Since 2011, SVT and the City of Marlborough have used mechanical methods and selective herbicide application to reduce the abundance and extent of invasive plants. Use of herbicides is essential for certain species such as Oriental bittersweet, black swallow-wort, phragmites and Japanese knotweed as well as for very large shrubs. We regularly organize volunteers to conduct manual removal of invasive plants where appropriate. These are on-going efforts.

SVT and the Town of Sudbury are implementing biological control of purple loosestrife in the marshes along Hop Brook. The Galerucella beetle is an insect from Eurasia that feeds exclusively on purple loosestrife. We have released these beetles in the Hop Brook Marsh. For more infrmation on this program, please visit **SuAsCo CISMA's site (http://cisma-suasco.org/projects/partner-projects)**.

Invasive plant control was initially funded by a grant from the National Fish & Wildlife Foundation's (NFWF) Pulling Together Initiative. This work continued with funding from the Sudbury Foundation and the Foundation for MetroWest.

PITCH PINE-SCRUB OAK BARRENS RESTORATION

The goals of this project are to restore pitch pine-scrub oak barrens habitat, including habitat for rare and declining species; and to educate area residents about the ecology, management, and significance of the barrens ecosystem. Relict pitch pine-scrub oak barrens are located on SVT, Marlborough, DCR and ARNWR property. Across the region this natural community type has been languishing due to fire suppression, natural vegetative succession, invasive species, and land development.

Ideally, this project will restore 50 - 100 acres of an imperiled natural community that is targeted for protection in the **Massachusetts Wildlife Action Plan (http://www.mass.gov/eea/agencies/dfg/dfw/wildlife-habitat-conservation/state-wildlife-conservation-strategy.html).** We anticipate that several rare and declining species of flora and fauna will benefit from habitat restoration including: whip-poor-will, prairie warbler, Eastern towhee, brown thrasher, barrens buckmoth, frosted elfin (butterfly), slender clearwing (moth), purple tiger beetle, wild lupine, and box and wood turtles. This project will also help prevent wildfires that could pose a health and safety risk to nearby residential areas.

Sudbury Valley Trustees, the City of Marlborough, and the DCR are partnering with the Massachusetts Natural Heritage and Endangered Species Program (MNHESP) to implement this project on their lands. Tim Simmons, former Restoration Ecologist with the MNHESP provided extensive technical expertise and guidance over the first seven years of this project. His successor, Chris Buelow, has offered his assistance as the project progresses. Additionally, the U.S. Fish & Wildlife Service (USFWS) is providing technical and

logistical support. The USFWS hopes to conduct similar management on their property in the near future.

The project is being implemented in phases. In the first phase, SVT and Marlborough implemented a prescribed fire on 14 acres located at the town boundary, on either side of the gas pipeline (trail interstection "E"). The first controlled burn took place on May 7, 2014 under the supervision of Joel Carlson, Northeast Forest & Fire Management, LLC. The burn was preceded by site preparation that included the mowing of shrubs and trees up to 6 inches in diameter. (**Read a *Metrowest Daily News* article about the burn. (http://www.metrowestdailynews.com/article/20140508/NEWS/140506782)**)

See our **Prescribed Fire FAQ Page (http://www.svtweb.org/properties/stewardship/desert-na-restoration/fire-faqs)** and a **list of resources for additional information** (http://www.svtweb.org/properties/stewardship/desert-na-restoration/prescribed-fire-links) to learn more information about this project and prescribed fire in the northeast, or download our **Prescribed Fire FAQs brochure (http://www.svtweb.org/sites/default/files/SVTFireFAQBrochureWeb.pdf)**.

SVT is initiating the second phase at their Memorial Forest in late fall, 2016 (**see map (http://www.svtweb.org/sites/default/files/Phase2_IllustrationAerial.pdf)**). "Unit A," depicted as 5a on the forest stewardship plan, will be heavily mowed and thinned in preparation for a prescribed fire to occur within a few years. "Unit B," depicted as 4 on the forest stewardship plan, will be thinned only at this time. DCR proposes to conduct thinning of various types on their land in 2015, conditions permitting. Using adaptive management, partners will adjust the phasing and scale of management actions to accommodate practical logistics and to respond to on-the-ground ecological conditions. The proposed methods have been developed through a 12-year cooperative research and management program conducted by UMASS and MassWildlife.

SVT and the City of Marlborough collaborated on outreach to local communities. DCR is now joining that collaboration. We will continue to host public forums and site walks. Informational signage will be maintained on site. An informational brochure was produced and distributed to neighbors, other stakeholders and the general public.

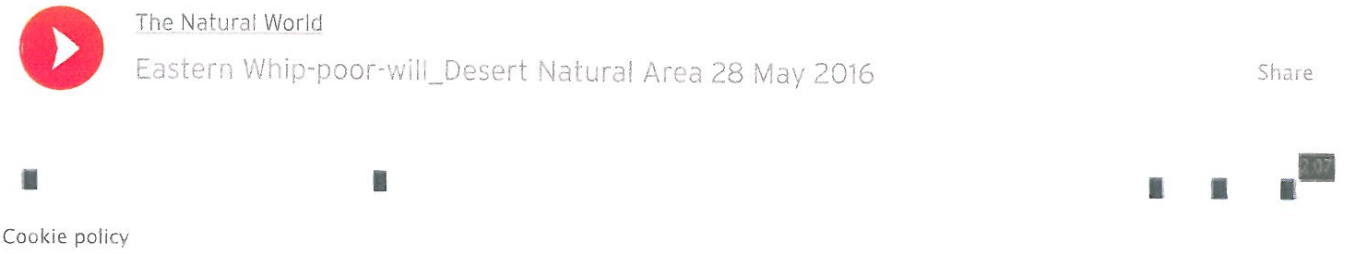
FOREST STEWARDSHIP PLANS FOR CONSERVATION LANDS WITHIN THE DESERT NATURAL AREA:

- Forest Stewardship Plan for SVT's General Federation of Women's Clubs of Massachusetts Memorial Forest (http://www.svtweb.org/sites/default/files/imce/20/svt_memorial_forest_stewplan.pdf)
- Forest Stewardship Plan for The City of Marlborough's Desert Natural Area (http://www.svtweb.org/sites/default/files/imce/20/marlboro_dnarea_stewplan.pdf)
- Forest Stewardship Plan for the Town of Sudbury's Hop Brook Brook Conservation Area (http://sudbury.ma.us/departments/Conservation/doc6010/HopBrookConservationAreaForestStewar
- Forest Management Proposal for the Department of Conservation & Recreation Bureau of Forestry (http://www.svtweb.org/sites/default/files/imce/20/hansen-lot.pdf)

PHOTOS AND VIDEOS

The audio player below features the calls of about a dozen bird species, recorded at the site a month after the burn by Chris Renna.

This recording was made by Norm Levey from the burn area on May 28, 2016 and features the calls of eastern whip-poor-wills.



FUNDING

This project has required a concerted fundraising effort. The City of Marlborough received funding from the DCR Community Forestry program to prepare their land for the first phase controlled burn. SVT was granted a contract with the USDA Environmental Quality Incentives Program (EQIP) and the Massachusetts Landowner Incentives Program (LIP). The National Fish &Wildlife Foundation's Pulling-Together Initiative provided funding for initial invasive plant control throughout the Desert Natural Area and for the prescribed fire.

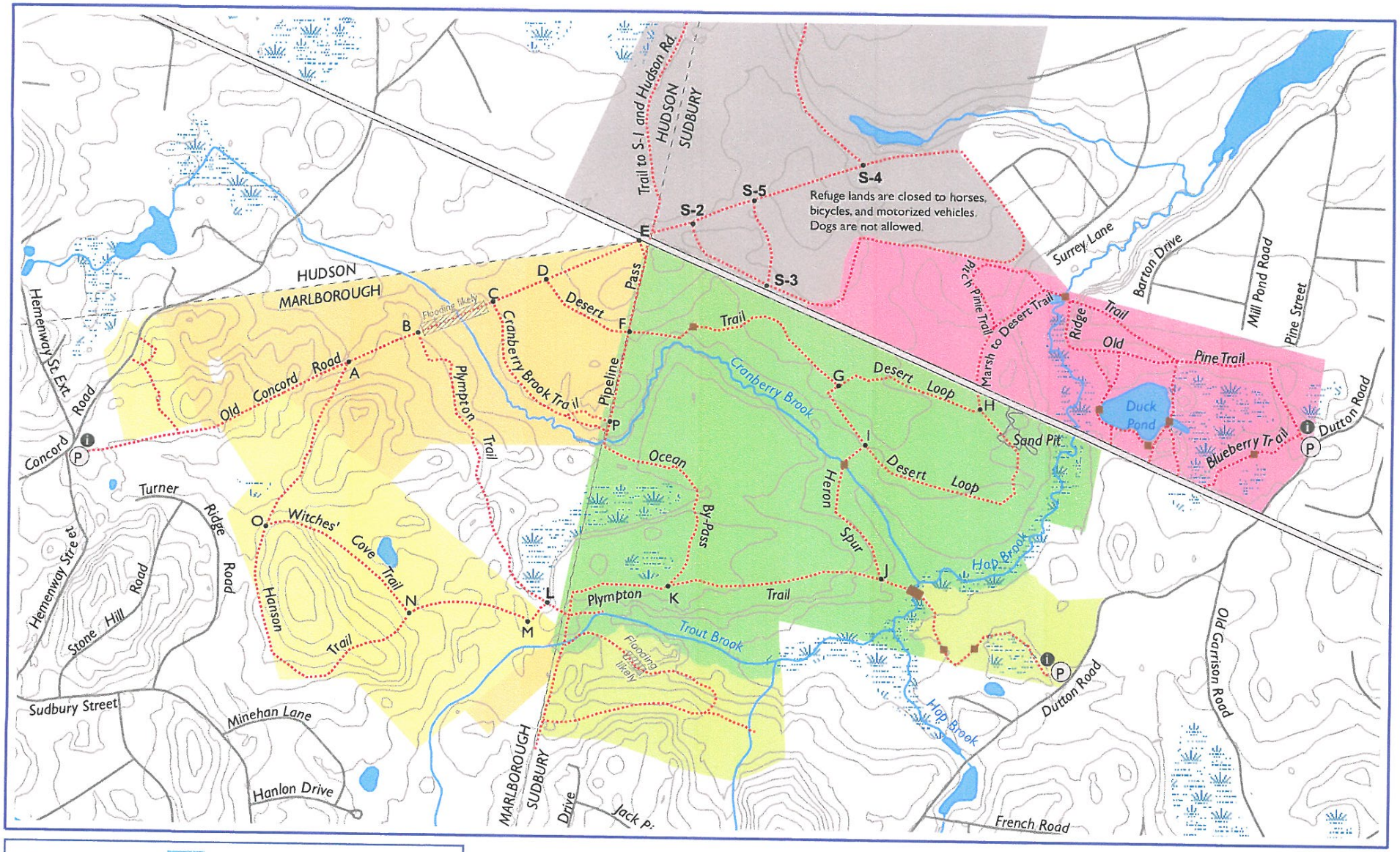
The Sudbury Foundation granted funds for continued restoration work in 2015 and 2016. Foundation for Metrowest has provided funding to support invasive plant control.

THIS PROJECT IS SUPPORTED BY GRANTS FROM:

- The Sudbury Foundation (http://www.sudburyfoundation.org/)
- Foundation for Metrowest (http://www.foundationformetrowest.org/)
- National Fish & Wildlife Foundation's Pulling Together Initiative (http://www.nfwf.org/AM/Template.cfm?Section=Charter_Programs_List&CONTENTID=25307&TEMPLATE=/CM/HTMLDisplay.cfm)
- USDA NRCS Environmental Quality Incentives Program (EQIP) (http://www.ma.nrcs.usda.gov/programs/eqip/index.html)
- Massachusetts Department of Conservation and Recreation Forest Stewardship Program (http://www.mass.gov/dcr/stewardship/forestry/service/steward.htm)

- MassWildlife Landowner Incentives Program (LIP) (http://www.mass.gov/dfwele/dfw/habitat/grants/lip/lip_home.htm)

- TRAIL MAPS (HTTP://WWW.SVTWEB.ORG/PROPERTIES)
- STEWARDSHIP (/PROPERTIES/STEWARDSHIP)
  - DESERT N.A. RESTORATION (/PROPERTIES/STEWARDSHIP/DESERT-NA-RESTORATION)
    - FIRE FAQS (/PROPERTIES/STEWARDSHIP/DESERT-NA-RESTORATION/FIRE-FAQS)
    - PRESCRIBED FIRE LINKS (/PROPERTIES/STEWARDSHIP/DESERT-NA-RESTORATION/PRESCRIBED-FIRE-LINKS)
    - PHASE II FAQS (/PROPERTIES/STEWARDSHIP/DESERT-NA-RESTORATION/MEMORIAL-FOREST-RESTORATION-PHASE-II-FAQS)
  - PROJECTS (/PROPERTIES/STEWARDSHIP/PROJECTS)
  - STEWARDSHIP POLICIES (/PROPERTIES/STEWARDSHIP/STEWARDSHIP-POLICIES)
  - YOUTH STEWARDS (/PROPERTIES/STEWARDSHIP/YOUTH-STEWARDS)
- REGULATIONS (/PROPERTIES/REGULATIONS)
- NATURE SIGHTINGS (/PROPERTIES/NATURE-SIGHTINGS)
- TRAIL GUIDE (/PROPERTIES/TRAIL-GUIDE)
- WOLBACH FARM (/PROPERTIES/WOLBACH-FARM)
- GLACIAL FEATURES WALK (/GLACIALFEATURESWALK)
- LETTERBOXING (/PROPERTIES/LETTERBOXING)



- Junction
- Parking
- Kiosk
- Bridge
- Abandoned Railroad
- Trail
- Stream
- Pond
- Wetland
- SVT: GFWCM Memorial Forest
- Town of Sudbury: Hop Brook Marsh
- City of Marlborough: Desert Conservation Land
- DCR: Marlborough-Sudbury State Forest
- Assabet River National Wildlife Refuge
- General Federation of Women's Clubs of Mass.

Memorial Forest
Sudbury, MA

0 0.25 0.5 Miles

N

Sudbury Valley Trustees

Cutler
EXHIBIT 2

Commonwealth of Massachusetts

Division of Fisheries & Wildlife

MassWildlife

Wayne F. MacCallum, *Director*

June 19, 2013

Gene Crouch
Vanasse Hangen Brustlin, Inc.
PO Box 9151
101 Walnut St
Watertown MA 02471

RE: Project Location: former Massachusetts Central Railroad
Town: BERLIN, HUDSON, SUDBURY, WAYLAND, WESTON, WALTHAM
NHESP Tracking No.: 13-32295

To Whom It May Concern:

Thank you for contacting the Natural Heritage and Endangered Species Program of the MA Division of Fisheries & Wildlife (the "Division") for information regarding state-listed rare species in the vicinity of the above referenced site. Based on the information provided, this project site, or a portion thereof, is located **within** *Priority Habitats 1305, 687, 1516* (PH 1305, PH 687, PH 1516) and *Estimated Habitats 485, 648, 38* (EH 485, EH 648, EH 38) as indicated in the *Massachusetts Natural Heritage Atlas* (13th Edition). Our database indicates that the following state-listed rare species have been found in the vicinity of the site:

PH 1305, EH 485

Scientific name	Common Name	Taxonomic Group	State Status
Emydoidea blandingii	Blanding's Turtle	Reptile	Threatened

PH 687, EH 648

Scientific name	Common Name	Taxonomic Group	State Status
Glyptemys insculpta	Wood Turtle	Reptile	Special Concern
Terrapene carolina	Eastern Box Turtle	Reptile	Special Concern

PH 1516, EH 38

Scientific name	Common Name	Taxonomic Group	State Status
Botaurus lentiginosus	American Bittern	Bird	Endangered
Ambystoma laterale	Blue-Spotted Salamander	Amphibian	Special Concern
Gallinula chloropus	Common Moorhen	Bird	Special Concern
Ixobrychus exilis	Least Bittern	Bird	Endangered
Podilymbus podiceps	Pied-Billed Grebe	Bird	Endangered

The species listed above are protected under the Massachusetts Endangered Species Act (MESA) (M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00). State-listed wildlife are also protected under the state's Wetlands Protection Act (WPA) (M.G.L. c. 131, s. 40) and its implementing regulations (310 CMR 10.00). Fact sheets for most state-listed rare species can be found on our website (www.nhesp.org).

Please note that projects and activities located within Priority and/or Estimated Habitat **must** be reviewed by the Division for compliance with the state-listed rare species protection provisions of MESA (321 CMR 10.00) and/or the WPA (310 CMR 10.00).

Wetlands Protection Act (WPA)

If the project site is within Estimated Habitat and a Notice of Intent (NOI) is required, then a copy of the NOI must be submitted to the Divisionso that it is received at the same time as the local conservation commission. If the Divisiondetermines that the proposed project will adversely affect the actual Resource Area habitat of state-protected wildlife, then the proposed project may not be permitted (310 CMR 10.37, 10.58(4)(b) & 10.59). In such a case, the project proponent may request a consultation with the Divisionto discuss potential project design modifications that would avoid adverse effects to rare wildlife habitat.

A streamlined joint MESA/WPA review process is available. When filing a Notice of Intent (NOI), the applicant may file concurrently under the MESA on the same NOI form and qualify for a 30-day streamlined joint review. For a copy of the NOI form, please visit the MA Department of Environmental Protection's website: http://www.mass.gov/dep/water/approvals/wpaform3.doc.

MA Endangered Species Act (MESA)

If the proposed project is located within Priority Habitat and is not exempt from review (see 321 CMR 10.14), then project plans, a fee, and other required materials must be sent to Natural Heritage Regulatory Review to determine whether a probable "take" under the MA Endangered Species Act would occur (321 CMR 10.18). Please note that all proposed and anticipated development must be disclosed, as MESA does not allow project segmentation (321 CMR 10.16). For a MESA filing checklist and additional information please see our website: www.nhesp.org ("Regulatory Review" tab).

We recommend that rare species habitat concerns be addressed during the project design phase prior to submission of a formal MESA filing, as avoidance and minimization of impacts to rare species and their habitats is likely to expedite endangered species regulatory review.

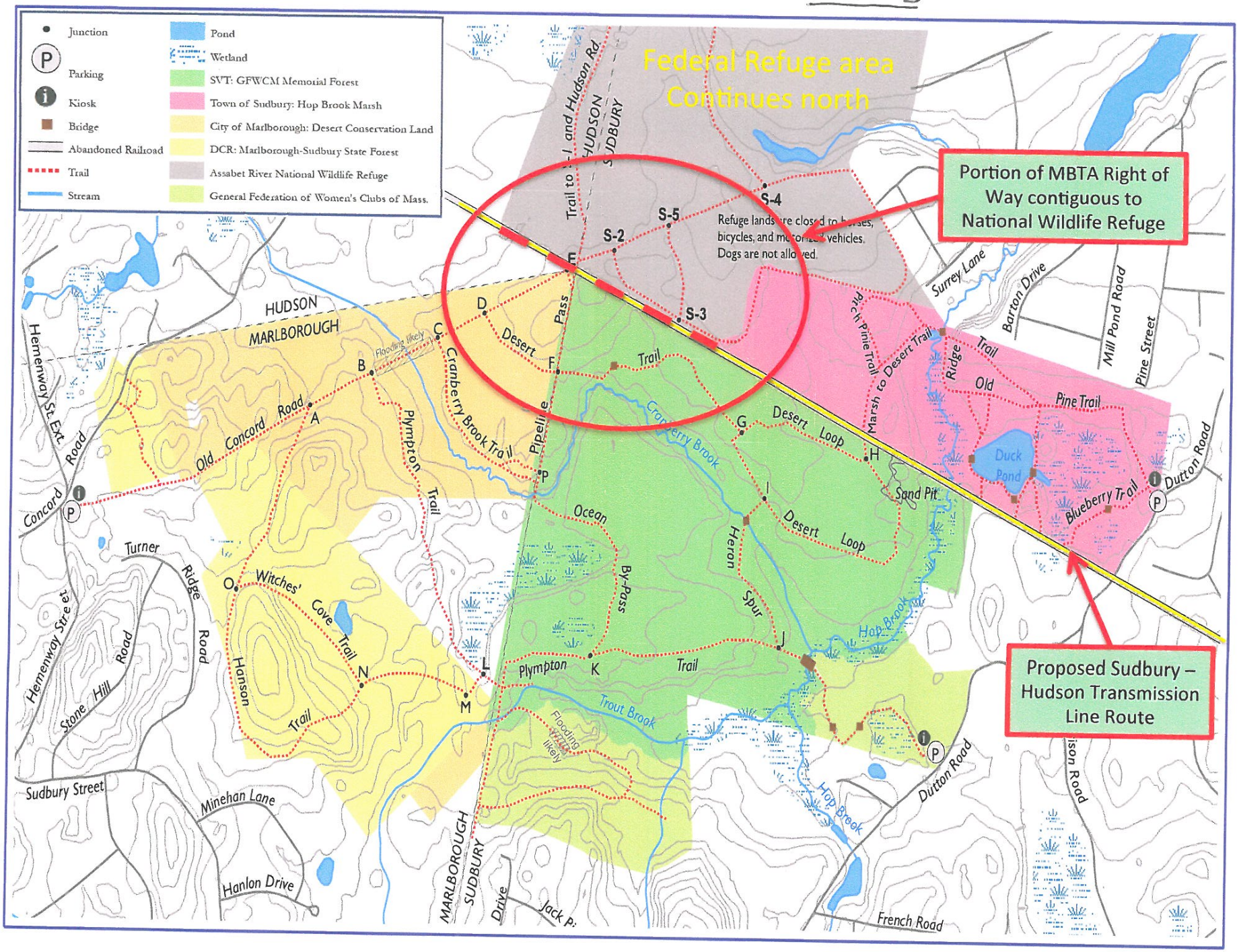
This evaluation is based on the most recent information available in the Natural Heritage database, which is constantly being expanded and updated through ongoing research and inventory. If you have any questions regarding this letter please contact Lauren Glorioso, Endangered Species Review Assistant, at (508) 389-6361.

Sincerely,

Thomas W. French

Thomas W. French, Ph.D.
Assistant Director

Cutting
EXHIBIT 3



Desert Natural Area Prescribed Burn info

An additional consideration is that the Eversource project will bisect the Desert Natural Area, a nationally important fire dependent community. This 900-acre ecosystem, which includes the southern part of the Assabet River National Wildlife Refuge, lies within the larger 4,000 acres of protected lands highlighted on previous slides. This ecosystem is the site of former expanses of Pitch Pine-Scrub Oak Barrens, among the most imperiled natural communities in the world and contribute significantly to the biological diversity of the northeast. Across the Northeast region of the United States this natural community type has been diminishing due to fire suppression, vegetative succession, invasive species, and land development. In Massachusetts 30% of Listed (Rare) Species Require Fire-Dependent Habitats. This habitat provides homes for several rare species and other species experiencing population declines.

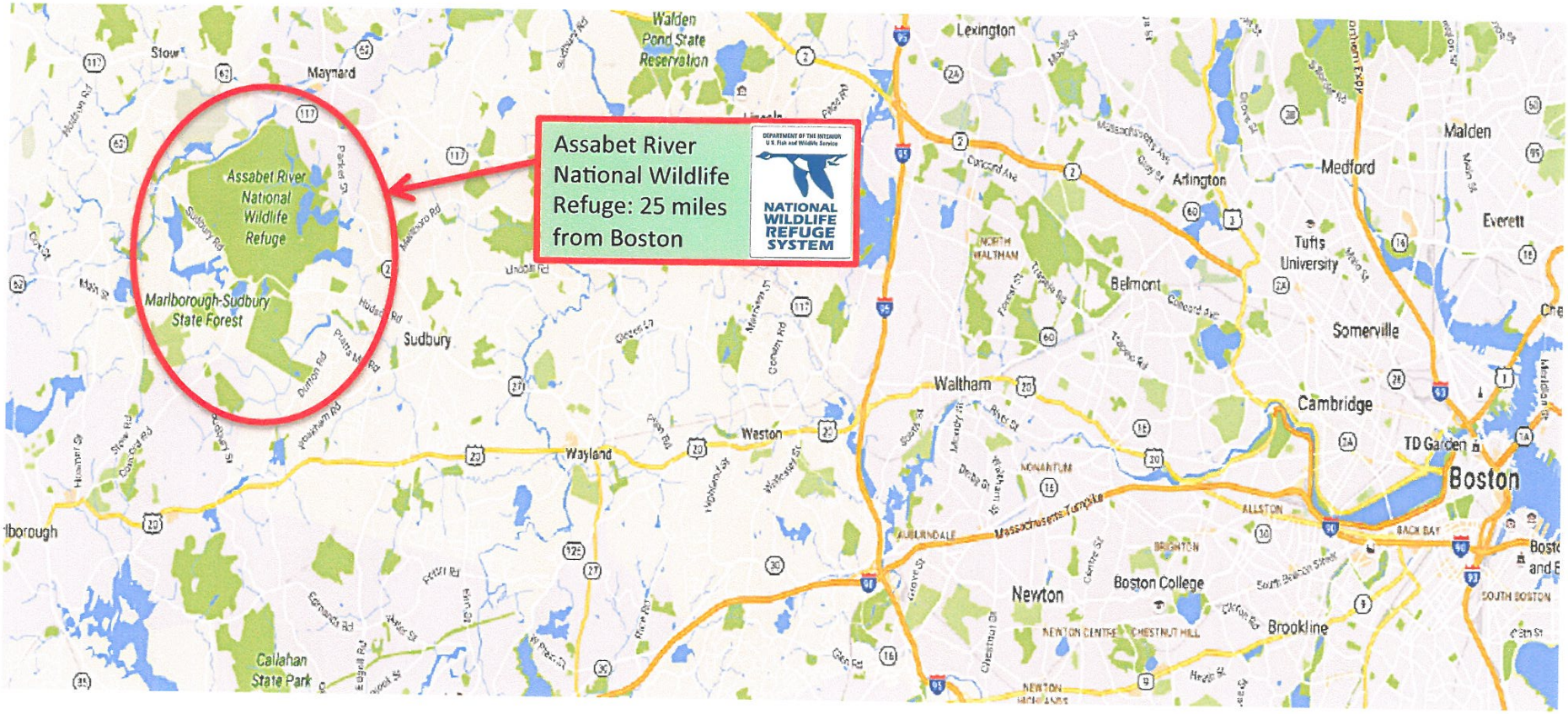
Because of its imperiled status, in 2009, a partnership of local, state and federal agencies have created a restoration management plan, which includes cutting and prescribed burns. The USDA Natural Resources Conservation Service and others have provided funding for the Desert Natural Area restoration project.

Spring 2014 controlled burn at the Desert Natural Area.

More info here:http://www.svtweb.org/sites/default/files/DesertPresentation_SVT_20150429.pdf & http://www.svtweb.org/properties/stewardship/desert-na-restoration

Eversource Sudbury-Hudson Transmission Line and the Assabet River National Wildlife Refuge

Eversource's proposed route for the Sudbury-Hudson Transmission line bisects a patchwork of federal, state, municipal and land trust protected and conserved lands. In all, it is over 4,000 acres, including the federally protected Assabet River National Wildlife Refuge.



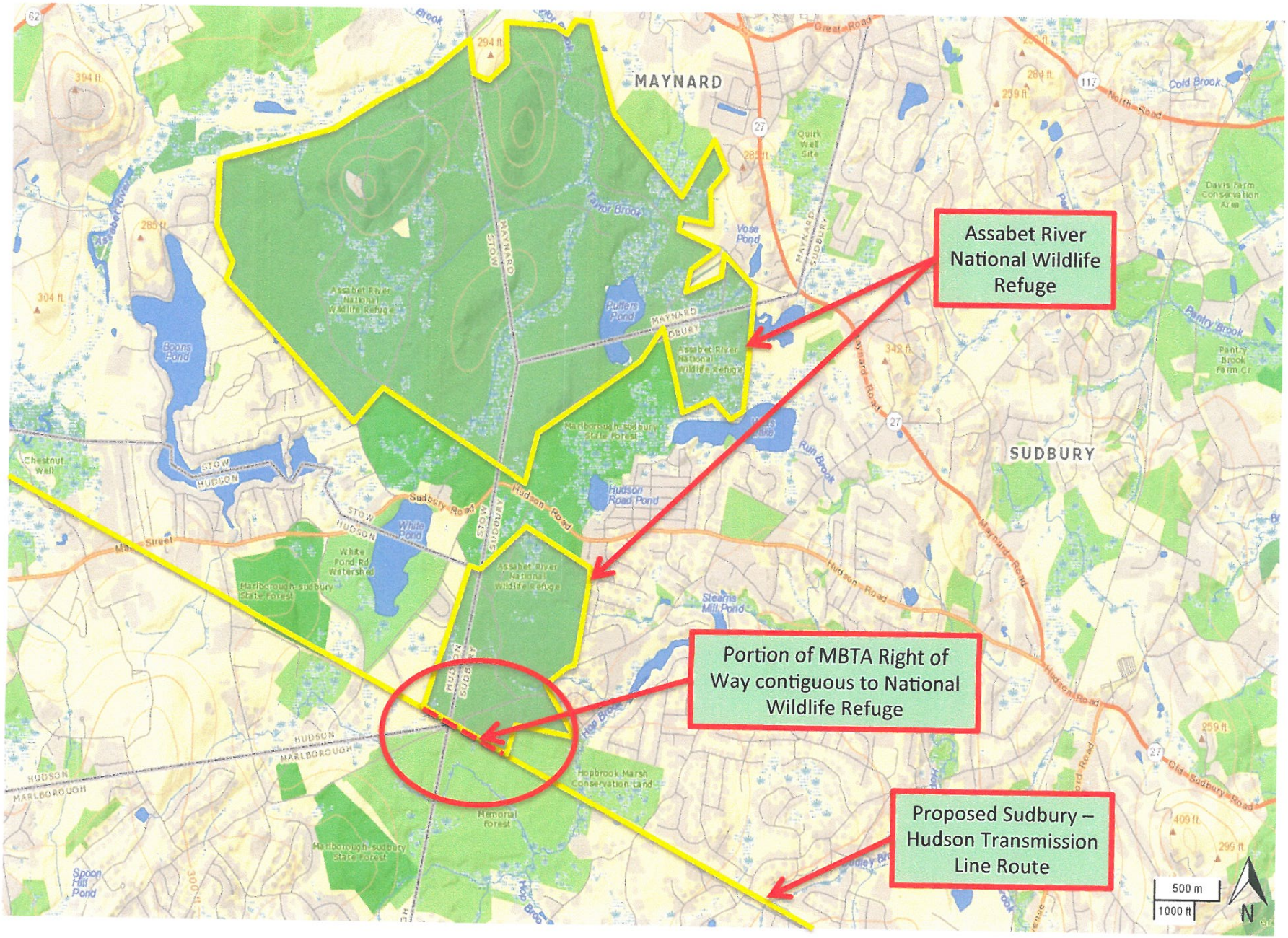

Assabet River National Wildlife Refuge
Portion of MBTA Right of Way contiguous to National Wildlife Refuge
Proposed Sudbury – Hudson Transmission Line Route
MAYNARD
SUDBURY
HUDSON
MARLBOROUGH
Assabet River National Wildlife Refuge
Marlborough-Sudbury State Forest
Hudson Road
Sudbury Road
Maynard Road
Great Road
North Road
Old Sudbury Road
Taylor Brook
Ruth Brook
Hop Brook
Pantry Brook
Cold Brook
Boons Pond
Puffers Pond
Vose Pond
Hudson Road Pond
White Pond
Stearns Mill Pond
Spoon Hill Pond
Hopbrook Marsh Conservation Land
Memorial Forest
Davis Farm Conservation Area
Pantry Brook Farm Cr
Quirk Well Site
Chestnut Well
White Pond Rd Watershed
500 m
1000 ft
N

EXHIBIT 4

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

MITT ROMNEY
Governor

KERRY HEALEY
Lieutenant Governor

ELLEN ROY HERZFELDER
Secretary

ROBERT W. GOLLEDGE, Jr.
Commissioner

Best Management Practices for Controlling Exposure to Soil during the Development of Rail Trails

This document summarizes **Best Management Practices ("BMPs")** that should be considered before, during, and after former railroad lines are converted to recreation trails. These BMPs have been developed to eliminate or minimize potential exposures to residual oil or hazardous materials commonly found along railroad rights-of-way being converted to rail trails. This document also identifies locations and conditions for which the application of BMPs alone may not be sufficiently protective of public health and the environment.

These BMPs have been developed specifically for situations where a municipality has acquired a property interest in a rail corridor from the Massachusetts Bay Transportation Authority (MBTA) in order to convert the corridor to a rail trail[1], This fact sheet is relevant to municipalities: (1) with specific knowledge of a release of oil or hazardous materials through testing or other means and/or (2) without specific knowledge of a release, that seek to prevent the exposure of persons to oil or hazardous materials that may be present in such corridor until a responsible person conducts response action under MGL Chapter 21E.

Background Information

The waxing and waning of railroad activity in Massachusetts over the past century has left the Commonwealth a legacy of under-utilized rights-of-way that may be redeveloped for new rail service (such as the Amtrak Downeaster and the Greenbush line) or recreational trails (such as the Minuteman Trail or the Mass Central Rail-Trail).

When active, these railroad lines were important transportation corridors serving the citizens and industries of Massachusetts. Now many communities are actively seeking to convert former railroad lines to create new links -- trails that link:

- commuter's homes to workplaces;
- children's schools to the playgrounds;
- tourists' curiosity to the region's history; and
- communities to their neighbors.

[1] More specifically, only for those situations addressed under Chapter 46 of the Acts of 2003

Many former rail lines were abandoned years ago and appear to be nearly reclaimed by nature. Other lines run parallel to active lines, or reveal rusted rails threading through industrial areas. In some instances adjacent industrial activities, historic loading practices, leaks during material transfers or storage, and repair activities have contaminated soil with oil or hazardous materials. In addition, residual contamination is often found along the length of the line, incidental to the maintenance and use of the railway itself.

Redevelopment of former rail lines to recreational trails can be accomplished in a way that protects public health and the environment. It requires recognizing potential problems and implementing actions to safeguard nearby residents, workers, and trail users throughout the life of the project.

Residual Contamination from Railroad Operations

Some historic railroad operations involved the use of chemicals that may have resulted in presence today of contamination. The most commonly reported contamination along rail lines includes metals, pesticides[2] (such as lead arsenate), and constituents of oil or fuel (petroleum products). These chemicals have been associated with normal railroad operations and are likely to be found anywhere along the line. For example, it would not be uncommon to find arsenic (up to ten times natural background levels) present in the soil along a right-of-way from old railroad ties dipped in an arsenic solution, arsenic weed-control sprays, and arsenic-laced slag used as railroad bed fill[3]. Lubricating oil and diesel that dripped from the trains are likely sources of the petroleum product found along the lines. Other sources of contaminants associated with historic railroad operation may include coal ash from engines, creosote from ties, and polynuclear aromatic hydrocarbons ("PAHs") from the diesel exhaust.

The BMPs outlined in this document are specifically designed to be protective of public health and provide a practical alternative to extensively testing for and possibly removing these "typical" residues expected from the historic operation of a rail line[4].

In some instances, a rail corridor may have been open for a relatively short time, during a period of time or in a region where chemicals were not used by the rail operator. Application of the BMPs would not provide any significant benefit in those instances. In the absence of good historic information, the only sure way to know whether residuals pose a risk to trail users is to collect environmental samples along the corridor. Location-specific sampling results may then be used to modify these measures or obviate the need for their use.

Elevated Contamination from Railroad Operations or Other Sources

Several potential sources of contamination along a rail line may pose significant health and environmental risks worthy of closer examination. These sources include operations at switching and repair yards, railroad accidents involving hazardous cargoes, and releases of chemicals on rail spurs and properties that abut rail lines, but which are unrelated to the railroad operations. The latter two examples may

---

[2] The application of pesticides consistent with their labeling is excluded from the definition of a "release" under M.G.L. Chapter 21E.

[3] Sampling along the abandoned Greenbush Line in the Fall of 2003, prior to its rehabilitation for commuter rail service, indicates the presence of arsenic concentrations up to 205 mg/kg, with 16% of the results greater than the MCP S-1 soil standard of 30 mg/kg, and 25% greater than the *proposed* standard of 20 mg/kg.

[4] Consistent with Section 8C of Chapter 46 of the Acts of 2003 (http://www.state.ma.us/legis/laws/seslaw03/sl030046.htm), the BMPs described in this document suitably prevent access to the residual oil or hazardous materials expected to be present along a railroad right-of-way.

involve almost any chemical, such as the phosphorus trichloride released in an April 3, 1980, tank car incident in Somerville, or the asbestos released from the Zonolite processing plant in Easthampton. The contamination in rail yards is somewhat more predictable, including petroleum; metals; pesticides and organic compounds emanating from equipment cleaning areas; fueling areas; maintenance and repair activities; and the railroad beds themselves.

An MCP Phase 1[5] level of investigation, tailored to the nature of the contaminant and source, would be appropriate to address these sources of elevated chemical contamination. A Phase 1 Preliminary Investigation would typically contain sufficient information in the following areas to determine the need for a Response Action or further detailed investigation:

- General Disposal Site Information (description of location and potential receptors in the area);
- Disposal Site Map (description of the property itself, with buildings, drains, and sampling locations noted);
- Disposal Site History (description of ownership, releases, chemical use, management of waste, compliance history);
- Site Hydrogeological Characteristics (description of groundwater flow, borings, wells, and the results of any investigations);
- Nature and Extent of Contamination (description of evidence of releases, laboratory results, thickness of NAPL, approximate location of contamination);
- Migration Pathways and Exposure Potential (description of contamination in air, water, soil, and discussion of potential human and environmental receptors);
- Evaluation for Immediate Response Actions; and
- Conclusions.

The results of such an investigation would be used to determine appropriate measures to implement to eliminate or reduce current and future exposure to the contaminated soils. Such measures could be similar to the BMPs proposed in this guidance, more extensive than these BMPs, or less stringent, depending on the outcome of the investigation.

Identifying Areas of Concern

As described above, locations along rail corridors could exhibit a wide range of chemical contamination, depending on the use of the line and adjacent properties. Trail developers can conduct historic research to categorize segments of a rail corridor by level of concern.

DEP has identified four categories of interest for the purpose of implementing the soil BMPs. Any given rail-trail may be comprised of one or more of these areas.

Residential, undeveloped or rural rights-of-way

These are stretches along a rail line that border historically residential, undeveloped or rural properties. These areas are likely to have been affected only by the normal operation of the rail line, with a residual level of contamination. The BMPs outlined in this document are considered appropriate for these locations, absent evidence of a specific release.

[5] The general content of a Phase I "Initial Site Investigation Report" is described in the Massachusetts Contingency Plan, 310 CMR 40.0483.

Stations and crossings
These relatively small stretches along a right-of-way would be expected to be associated with contamination elevated over the residual levels, due to more frequent/intense use of pesticides to improve sight lines and greater frequency/intensity of human activities. The BMPs outlined in this document are considered appropriate for these locations, absent evidence of a specific release.

Industrial corridors
Many rail-trails include segments that pass through industrial areas, even the predominantly rural trails of western and central Massachusetts. These stretches have a higher *potential* for contamination within the right-of-way that is unrelated to the historic railroad use. The BMPs outlined in this document may not be sufficiently protective of public health and the environment at these locations. A preliminary review is recommended in order to establish whether site-specific concerns indicate a need for further investigation, including soil testing. Absent a site-specific concern, the BMPs outlined in this document are considered appropriate for these locations.

Switching and Repair Yards
As discussed earlier, switching and repair yards have a greater range of potential contaminants of concern and a higher likelihood that the contaminants are present at significant levels. The BMPs outlined in this document are not considered sufficient by themselves to protect public health and the environment at these locations, absent further investigation.

Figure 1 outlines the decision-making steps trail developers should follow in identifying locations of interest along the corridor they are developing and whether the BMPs apply without the need for further site investigation, including soil testing.

Goals of Best Management Practices

DEP's goals in publishing BMPs for use in developing rail-trails include:

- promoting rail-trail conversions that are both health-protective and cost-effective[6];
- recognizing the potential presence of oil or hazardous material along the right-of-way;
- recognizing the potential health and environmental risks associated with developing the right-of-way;
- expediting trail development to prevent (or minimize) risk to current users of "beaten paths" along inactive rail corridors;
- preventing (or minimizing) exposures to oil or hazardous material before, during, and after construction of rail-trails; and
- preventing (or minimizing) off-site migration of contaminants before, during, and after the construction of rail-trails.

These BMPs are intended to be applied to those rail corridor segments where residual contamination from historic railroad operations is assumed to be present. Trail developers always have the option to conduct soil testing to rule-out the presence of contamination and tailor soil management practices to actual site conditions.

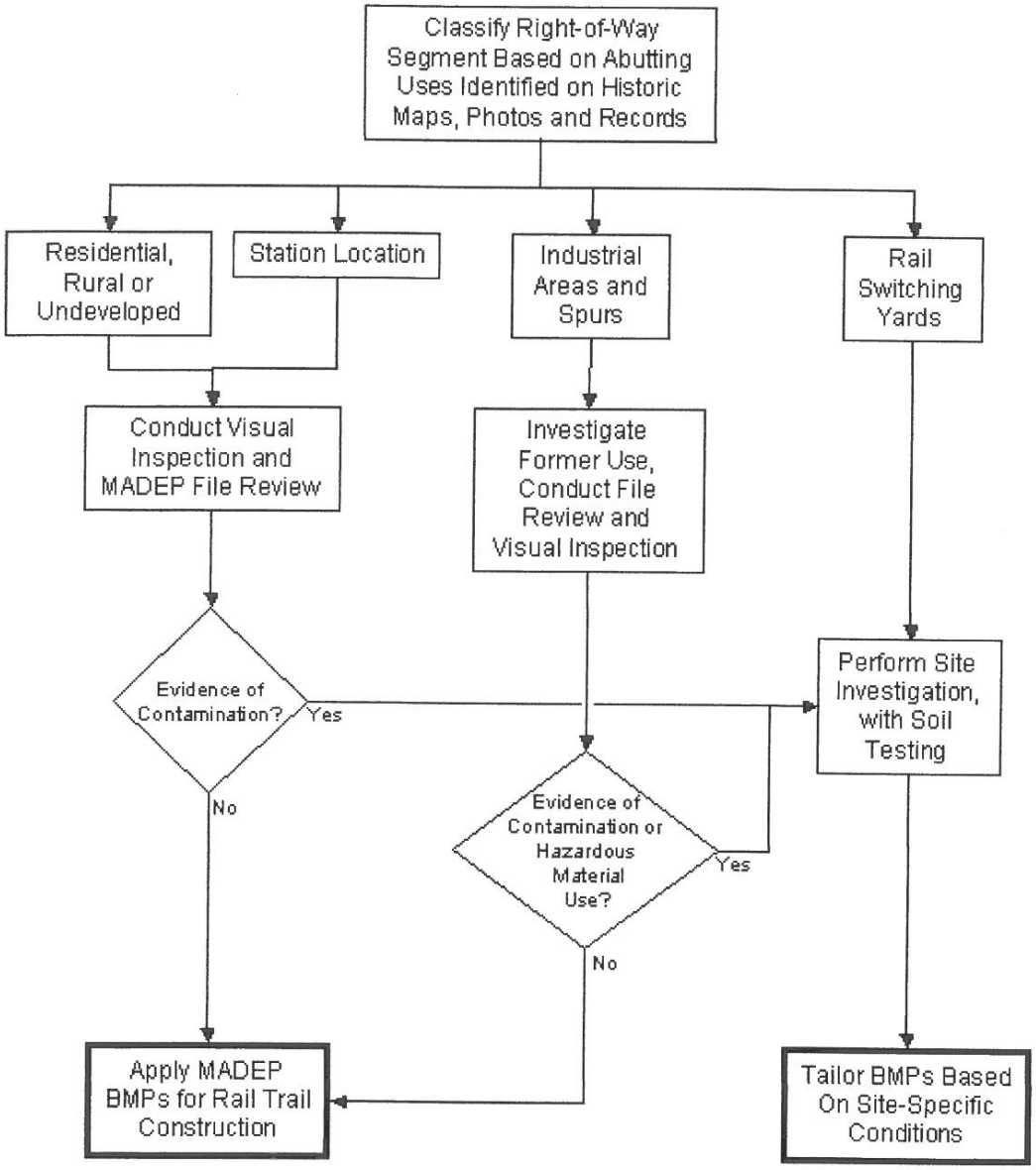
In addition to reducing risk of exposure to contaminants, the focus of this guidance, trails promote public health by encouraging active and healthy lifestyles.

The application of these BMPs to any portion of a rail corridor converted to residential use in conjunction with rail trail development is not appropriate. Only a site-specific investigation, including soil testing, can determine whether conversion to residential use is health protective.

Figure 1

Application of MADEP Best Management Practices at Rail Trail Conversions

(Pursuant to Section 8C of Chapter 46 of the Acts of 2003)



BMP Applicability

These BMPs were developed primarily for residential or rural rights-of-way, and stations and crossings. The BMPs will also be applicable in many industrial corridors, but those locations may need case-by-case review to determine the likelihood of contamination beyond the residual levels assumed here.

DEP does not believe that these BMPs are, by themselves, sufficient and appropriate for use without more extensive site investigation in industrial areas with known or likely non-railroad sources, or in rail yards.

Note that the focus of these BMPs is the potentially contaminated soil along the right-of-way and the human exposures and environmental exposures that may result from improperly managing that soil at or near the surface. This document is not intended to be a summary of all environmental requirements, such as wetlands permitting or Underground Storage Tank (UST) removal that may apply to a project. Municipalities developing rail trails are also obligated to contain the further release or threat of release of oil or hazardous materials from any structure or container within the corridor.

Phases of Project/Exposures of Concern

Rail-trail development occurs in three main phases, or time periods. Each phase has unique exposures that must be considered to identify appropriate BMPs. These phases are pre-construction, construction, and post-construction.

Pre-Construction Phase

The pre-construction phase covers the period up to the time construction actually begins. Depending on project finances and construction sequences, this phase may last several years as communities seek funds to develop a project. Trail design also occurs during the Pre-construction Phase.

While the right-of-way is not a designated rail-trail at this point, a potential may exist for people to be exposed to contaminated soil on or from the right-of-way. Dirt bikers, hikers, or children taking shortcuts, and adjacent residents may receive runoff or dust from the rail bed in its unimproved condition. Many future rail-trails also serve as utility corridors. Workers repairing or installing subsurface utilities (such as sewer lines) may have the highest potential for exposure, albeit short-term.

During trail design, developers should identify which soils will be handled during construction and plan the areas where people will congregate once the trail has been completed.

As the final grades are established, areas for playgrounds identified, and trailheads located, long-term exposures may be created to any contaminated soil remaining along the trail. By following the design guidelines provided below, designers can ensure that any long-term exposures are eliminated or minimized.

If any soil will be excavated from the right-of-way and reused off-site, the potential for exposure should also be considered.

Construction Phase

The construction phase has the potential to create significant exposures to contaminated soil as the old rail line is cleared, the right-of-way is prepared, and the trail is constructed. While construction activities may be sporadic and short-term on any given stretch of the line, the project itself may continue for many months, or even longer than a year.

The receptors of concern during the construction phase include:
demolition workers (clearing the brush; and removing the rails, ties, ballast, and debris);
construction workers (grading and shaping the trail; and creating, moving, and dissipating soil stockpiles);
adjacent residents (inhaling dust generated from the project; exploring the partially-built trail; coming in contact with soil pushed onto their property, etc...); and
environmentally sensitive areas/species.

Post –Construction Phase

After construction, trail managers must monitor activities along the trail corridor to ensure that the steps taken to reduce exposure remain effective. Trail managers should be involved in decisions to excavate material from the trail corridor to ensure that users are protected both during and after such excavation. Workers repairing or installing subsurface utilities (such as sewer lines) may have the highest potential for exposure, albeit short-term. Maintenance activities will be necessary to ensure the integrity of the trail surface, structures and landscaping that help serve to eliminate exposures.

Recommended BMPs

Absent analytical evidence to the contrary, all soil along the right-of-way should be presumed to have at least residual levels of lead, arsenic, and PAHs from historic railroad operations, as described above. The following BMPs should be considered for the pre-construction, construction, and post-construction phases of rail-trail development, as appropriate.

Pre-Construction

1. Conduct a thorough, pre-construction paper review of the right-of-way and adjacent properties.
   - Investigate the rail line history; locate old stations, crossings, spurs, and rail yards. The Valuation Plans and historic aerial photos for the properties abutting the rail line can provide much of this information[7].
   - Investigate site use and the history of adjacent properties; identify commercial and industrial stretches. The Valuation Plans and Sanborn Insurance maps can provide much of the information for the snapshot in time when they were developed. Local historical societies may have information on leading local industrialists and their local businesses.
   - Review the existing list of known or suspected disposal sites to see if any are located along the right-of-way[8]

[6]Rails-to-Trails Conservancy provides additional guidance in its publication "Acquiring Rail Corridors" p 95-97. (http://www.trailsandgreenways.org/resources/development/acquis/arc_book.asp)

- Inquire with neighbors, fire department personnel or the local historical society for further information on train crashes, accidents, and other incidents that may have released chemicals.[9]

2. Conduct a thorough, visual inspection of the right-of-way, looking for:
   - contaminated soil as evidenced by discoloration, odors, differences in soil properties, pipes, or buried debris;
   - signs of illegal dumping of waste from businesses or industry (not simply household trash);
   - stressed vegetation or "dead zones";
   - areas of soil run-off, both away from the right-of-way and toward the right-of-way;
   - signs of wind erosion sufficient to create a dust inhalation exposure;
   - signs of public use of the existing right-of-way (condoned or trespassing), such as dirt-bike trails, play forts, beverage cans, and fire pits.

3. Control current (pre-construction) exposures to soil in areas of concern by implementing one or more of the following measures, as indicated by site conditions:
   - install signs to redirect people from areas of concern; or
   - strategically place barriers to control use in the areas of concern; or
   - implement other measures to eliminate contact with soils in areas of concern.

   In the event these three measures do not prove successful, trail developers should consider covering areas of exposed soil or planting bushes (such as puckerbrush) to divert people away from areas of concern.

Design Guidelines to Reduce Exposure

While developing the design for the trail, the design engineer or architect should follow these guidelines in order to reduce potential exposures.

1. Within the tread way[10] and in areas designated for recreational use along the trail (such as rest areas, picnic areas, and playgrounds), eliminate contact with potentially contaminated soil by implementing one or more measures, as appropriate:
   - Place potentially contaminated soil under pavement or an equivalent layer of compacted stone dust; or
   - Place potentially contaminated soil under at least 12 inches of clean fill and mark with a geosynthetic barrier immediately above the potentially contaminated soil; or
   - Remove and appropriately dispose of potentially contaminated soil off-site. Replace with clean material (soil, stone dust, wood chips, etc.) to establish the path and maintain grade.

---

[7]The Massachusetts DEP databases (http://Mass.Gov/dep/cleanup/sites/sdown) have spills information from the early 1980's and list known and suspected locations of contamination by street address. If evidence exists that an off-site source may have contaminated the right-of-way, further investigation is needed. DEP files may contain sufficient information to determine whether the right-of-way has been affected.

[8]If evidence exists that an incident may have contaminated the right-of-way, further investigation is indicated. DEP files may contain sufficient information to determine the extent of the problem.

[9]The tread way includes any area intended for active use including jogging side paths and equestrian trails

2. Outside of the tread way, control contact with potentially contaminated soil by implementing one or more measures to minimize or eliminate contact with potential residual contamination, including:
   - Design landscaping, including the nature, location, and density of plantings, that channels recreational users of the trail to the tread way, disrupts the creation of informal tread ways (such as single track trails) and directs users away from potentially contaminated soil;
   - Create areas of congregation, such as benches, rest areas, and scenic areas, that draw recreational users of the trail and encourage congregation away from potentially contaminated soil;
   - Install signs informing users of upcoming congregation areas and/or advising users to remain on the path;
   - Stabilize the soil through plantings, grading, or other erosion control measures;
   - Install guardrails, curbing, or fences in areas to encourage users to stay the tread way; or
   - Implement other design features that would minimize or eliminate contact with residual contamination in the soil.

3. The design should identify areas where potentially contaminated soil will be removed and areas within the corridor where such soils can be safely stored temporarily so that the Construction Contractors can re-use as much material on-site as possible.

During Construction

The following BMPs presume the trail construction includes excavation, movement, placement and grading of soil. Trail construction activities that involve no movement of soil may be carried out with the application of standard dust control measures, such as spraying soil with water.

The following guidelines should be followed during construction involving soil grading and excavation and be incorporated into the construction bid documents in order to ensure the proper handling of soils during trail construction:

1. Hire an independent environmental monitor or task existing staff to oversee the Construction Contractor[11]. The monitor will:
   - Verify that construction-related plans and training are in place before construction begins ;
   - Oversee all excavation,
   - Visually inspect material that will be moved, and
   - Ensure proper management of soil along the right-of-way and the implementation of BMPs.

   During construction, the environmental monitor should be present whenever known contaminated soil will be excavated and should inspect construction-related BMPs several times each week.

[10]For example, a municipality may enter into an agreement with Mass Highway to manage a trail construction funded with federal transportation appropriations. The agreement should require that the construction contract include provisions requiring the contractor to follow the BMPs and the directions of the independent environmental monitor.

2. Minimize or eliminate exposure of construction workers to potentially contaminated soil.
   - Prepare site-specific soil management and health and safety plans.
   - Have employees and subcontractors complete a safety-training program covering the potential hazards associated with working with contaminated soil likely to be present along a rail line, before excavation work begins.
   - Educate employees and subcontractors in identifying contaminated soil and on handling and disposal procedures for contaminated soil.
   - Hold regular meetings to discuss and reinforce the health and safety procedures.
   - Prevent visible dust during excavation, transportation, and placement operations. Implement dust control measures, such as spraying soil with water, during excavation or grading operations. Exercise caution to prevent soil spillage during transport.

3. Minimize or eliminate exposure of adjacent residents and curious trespassers to potentially contaminated soil.
   - Prevent visible dust during excavation, transportation, and placement operations. Implement dust control measures, such as spraying soil with water, during excavation or grading operations. Exercise caution to prevent soil spillage during transport.
   - Install temporary signs and/or security fence to surround and secure areas where potentially contaminated soil may pose an Imminent Hazard to human health.
   - Avoid temporary stockpiling of potentially contaminated soils. Take the following precautions stockpiling, as necessary:
     - Identify long-term stockpile locations that are away from residences, schools or playgrounds;
     - Cover the stockpile with plastic sheeting or tarps to prevent dust generation and erosion;
     - Install a berm, hay bales, and/or silt fences around the stockpile to prevent runoff from leaving the area;
     - Do not stockpile in or near storm drains or watercourses; and
     - Clean-up materials should be staged near the storage area.

4. Minimize or eliminate the migration of potentially contaminated soil off-site.
   - Protect gutters, storm drains, catch basins, and other drainage system features on the site with hay bales and/or silt fences during construction. They should be cleaned following the completion of site work.
   - Prevent visible dust during excavation, transportation, and placement operations. Implement dust control measures, such as spraying soil with water, during excavation or grading operations.
   - Exercise caution to prevent soil spillage during transport.
   - Stabilize exposed areas of potentially contaminated soil and prevent run-off.

5. Prevent new leaks and spills and notify DEP, as appropriate, if they occur.

6. Transport and dispose potentially contaminated soil in accordance with the applicable rules and regulations of the United States Department of Transportation (USDOT), the United States Environmental Protection Agency (USEPA), and the Massachusetts Department of Environmental Protection (MADEP) (the specifications for the off-site management of contaminated soil supersede the procedures outlined in this BMP).

Post- Construction

1. Establish a protocol to ensure that future workers performing maintenance or construction within the right-of-way are made aware of the need for appropriate BMPs, including:
   - Posting of signage indicating that a permit from the trail manager is necessary before any excavation of the corridor begins.
   - Sending notice of the existence of such requirement to easement holders and the municipal engineer and/or public works department; and
   - Developing Standard Operating Procedures with local utilities, easement holders, DPWs, and other municipal offices for work in the right-of-way.

2. Establish a procedure for the trail manager to periodically travel the corridor and inspect the integrity of the trail surface, structures and landscaping and require appropriate action to correct any problems observed.

DEP Contact

For further information, please contact Paul Locke in the DEP Bureau of Waste Site Cleanup at (617) 556-1160 or Paul.Locke@state.ma.us.

Czepiga, Page (EEA)

From: ritchcutts@aol.com
Sent: Friday, June 30, 2017 1:24 PM
To: Beaton, Matthew (EEA); Czepiga, Page (EEA)
Subject: MEPA Comment Letter - Eversource Sudbury-Hudson Transmission Line - Part 1
Attachments: Comment Ltr MEPA EEA#15703 - June 30, 2017.pdf; mass-central-rail-trail-evaluation-of-existing-bridges-rev1 (1)- Exhibit C to MEPA Comment Ltr.pdf; MEPA Public Comment Ltr - EEA#15703 - Exhibit B.pdf

Dear Secretary Beaton and MEPA Reviewer Ms. Czepiga,

Please accept my personal comment letter for the record in EEA# 15703.

My contact information is at the signature line in the comment letter. I apologise for the incorrect address. I realize that it should have been 100 Cambridge St., Suite 900.
I hope this clerical error is not a problem. Please advise and I will revise and rescan if required.

I am sending a third exhibit (my EFSB filing and exhibits by separate email).

Rebecca Cutting
Sudbury

June 30, 2017

H. Rebecca Cutting, Esq.
381 Maynard Road
Sudbury, MA 01776
ritchcutts@aol.com

Matthew Beaton, Secretary
Executive Office of Energy & Environmental Affairs
One South Station
Boston, MA 02110

Re: Public Comment – Eversource - MEPA Filing – EEA#15703
Proposed 115kv line from Sudbury to Hudson
Environmental Notification Form (as amended June 12, 2017)

Dear Secretary Beaton:

Please accept and enter my written comments on the above-referenced Environmental Notification Form ("ENF") as part of the administrative record for EEA#15703, under the "Massachusetts Environmental Policy Act", M.G.L. c. 30, §§ 61 through 62H inclusive ("the Act") and the regulations promulgated thereunder at 301 C.M.R. 11.00 ("the Regulations"). I attended the site visit and public meeting held on June 12, 2017 by MEPA staff, Page Czepiga and provided oral comments both at the site and at the public meeting. I will reiterate those comments here and provide additional information that I believe will prove useful to the MEPA review process.

I am an attorney with a private environmental practice in Massachusetts, recently retired from the litigation group of the Department of Environmental Protection. I have resided in Sudbury for over 50 years observing its transformation from rural agricultural to commercial and residential uses. I am also a long-standing member of the local land trust, Sudbury Valley Trustees ("SVT"), which owns and manages the "Memorial Forest" which abuts much of the westerly section of the 115kv power line ("the Project") proposed to be located on the abandoned Massachusetts Central Railway right of way (the "ROW")[1]. I have also supported the local citizens' group, "Protect Sudbury", which opposes the use of the ROW and seeks to relocate the proposed 115kv power line ("the Project") to existing public ways rather than over the ROW. I support the positions of both organizations but write to you only in my individual capacity and not as a representative of either group.

I believe that MEPA staff person, Ms. Czepiga, obtained a clear sense of the opposition to the present alignment on the ROW during the site visit and the ensuing public meeting. The opposition is clearly not mere "nimby-ism" when one considers the breadth of the opposing parties: the Town of Sudbury, residents of both Hudson and Sudbury, the local land trust as well as concerns expressed by Representative Carmine Gentile and Senator Jamie Eldridge. In addition, the abutting federal wildlife

[1] The ROW is an abandoned rail line once owned and operated by the Boston & Maine RR. It was transferred by takings in 1977 to the MBTA. Boston & Maine's retained right of rail use was allowed to be abandoned by order of the U.S. District Court for Mass. in 1980. In 2010 the MBTA executed a lease with DCR establishing a "Corridor" for DCR, fifteen (15) feet wide with two (2) foot shoulders on either side for use as a rail trail. Under this lease the MBTA retained rights for "ancillary uses" and for "other uses as MBTA may permit". A copy of this lease is attached hereto as **Exhibit** 1. More recently the MBTA and Eversource have negotiated a draft of an "Option Agreement" to use the ROW for installation of the Project.

refuge, Assabet River NWR and DCR's Marlboro State Forest will be impacted. While the ROW appears as a conveniently straight shot from the Sudbury power station to the end point at the Hudson power station, we all know that at the time of construction in the late 1800's rail lines were typically put through wetlands as they were considered expendable and unusable. This ROW extends through extensive wetlands from east to west; it is a classic example of this practice. Since the turn of the century we have come to understand the connection between public health and safety (water supply, flood control, damage prevention and recreational opportunities) and wetland protection. This proposal to use the old railbed is a perfect example of the wrong use of key wetlands. Wetlands protected by the application of considerable public funds (as well as private) that should not now be undercut where there are viable alternatives.

Consequently, I ask that your Secretariat direct the involved agencies, including the Energy Facilities Siting Board ("EFSB") to reconsider and seriously review the other options. Specifically, to look back at the proposal that came before the EFSB to install a redundant/backup line on the existing Northboro to Hudson utility corridor. Also, in that look back to ascertain that the data that ISO relied upon in determining the need for this redundancy project remains valid. There has been testimony in the EFSB public hearing (toward the end of the hearing) that indicates that the original demand projections and peaks have not proven in the passage of time since to be true. See, Exhibit A (letter) attached. Finally,please also consider the alternative of placing the line, should it indeed prove necessary, in existing public ways as was done several decades ago when the Sudbury power station was constructed. Each of these avoids the considerable environmental impacts of the present proposal on the ROW.

On the wetlands impacts, I am not alone in finding that the filing of a "Corrected" Environmental Notification Form ("CENF") on the same day as the site visit and public meeting was very troubling, putting the public at a distinct disadvantage in providing meaningful comments to Ms. Czepiga on that same day. Aside from this unfortunate and unfair timing, the CENF, as was noted at the public meeting by Selectman Daniel Carty, contains multiple inconsistencies and contradicts itself; clearly a sign of hasty development and lack of reliability. Consequently, as I stated at the public meeting (repeating a request of the Sudbury Conservation Administrator), the delineation of the "Bordering Vegetated Wetland" ("BVW") should be closely scrutinized to ensure that the last minute assertion of the Applicant (Eversource) that the wetland review threshold at 301 CMR 11.03(3)(b)1.d, for BVW is not in fact triggered as the CENF asserts. Having walked the ROW along wetlands in Sudbury and Hudson I believe it is entirely possible that other wetland review thresholds will be triggered by both construction impacts and by the installation of the line itself and the necessity of repairing the numerous bridges. See Exhibit C attached.

I urge you and your staff to ensure to your own satisfaction that the wetland delineations are in fact accurate. For example, I believe that other review thresholds may be triggered such as for inland bank under 301 CMR 11.03 (3(b)1.b and for "other wetlands" under (b)1.f. As was noted on the site walk, there is a remarkable density of vernal pools immediately adjacent to the ROW; many within a few feet or less. Perhaps more notable is the presence of protected lupine and ground nesting birds directly on the ROW which triggers the threshold for "state species" at 301 CMR 11.03(2)(b)2 for priority "habitat". Please assure yourself that such thresholds have not been overlooked prior to issuing your certificate on the ENF/CENF.

Finally, the assertions by the Applicant that movement of soils for construction access and cutting of trees, canopy and other vegetation will pose merely "temporary impacts" is disingenuous. It is a known fact that removal of tree cover and canopy so proximate to vernal pools and other wetlands can, and most likely will, constitute an "alteration" under the "Wetlands Protection Act", G.L. c. 131, s. 40 and regulations. Thermal changes are the most obvious impacts but destruction of habitat cover and changes to drainage are also implicated. See, 310 CMR 10.04 definitions of "Activity" (changes in physical characteristics) and "Alter" (changes in wetland conditions). Also consider the impacts of disturbing contaminated soils along the ROW. I have attached my comments to the EFSB which include at Exhibit 4 a copy of the DEP protocol for soils management for bike trails. The Project however, is a much more extensive proposal in terms of its width, the installation of splice box vaults and bridge repairs.

I leave to others a more detailed description of the unique habitat which has been protected over many decades by public and private funds in the area of the "Memorial Forest". Suffice to say it is a product of glacial lake sediments that mimic the Cape Cod, Plymouth/Carver areas although twenty miles inland. These sandy soil aquifers provide significant volumes of quality groundwater to public water supplies at both Sudbury's Raymond Road wellfield and Hudson's Cranberry Well. They warrant protection so as to avoid loss of future supply and the unnecessary costs of treatment for contamination. As they are highly permeable soils with high water tables use of herbicides along the ROW should be examined carefully. I suggest that maintenance cutting alone will be sufficient should the ROW be the chosen route.

As you may be aware, Sudbury was the first colonial town established beyond the tides' influence, an outpost west of Watertown, described by early colonials as rich grasslands high as the shoulders of their horses. It was the site of one of the most devastating battles in Massachusetts early history during the King Philip War in 1675-76 (Haynes Garrison to Mill Village). The ROW passes through the Mill Village area where the Sudbury Historical Commission has preserved the "Old Signal House", all along the ROW are hummocks and highlands used prehistorically. A cultural resource survey should be required for both prehistoric and historic impacts. When the Assabet River NWR wished to build on similar terrain on Puffer Pond just to the north of the ROW significant prehistoric resources were identified. Please consider such a survey requirement for the work along the ROW should it be the chosen route.

Finally, I wish to note for your consideration and reconciliation the lease agreement between DCR and the MBTA regarding this ROW and its future use as a rail trail. The Applicant has asserted that installation of the power line on or under the ROW will be of assistance to DCR. I do not find this assertion credible except as a source of funding at the expense of the environment. This is because, at present the abandoned ROW is heavily wooded, surrounded by protected open space and wetlands; a pleasant rural experience for future bikers. The estimated width of the rail trail is about nineteen (19) feet or less lying within the existing footprint of the rail ties. By contrast, the width of the subsurface power line will be more than four times that at eighty (80) finished feet (not including construction impacts described as "temporary"). Construction access roads, installation of splicing vaults and removal of vegetation for thirty (30) feet on both sides will create extensive impacts. This is beyond the scope of a bike trail and is inconsistent with rail trail use and enjoyment. I urge you to discuss this with DCR. The Applicant's assertions of compatibility of both projects is not sustained on the facts. In this context the MEPA filing made by DCR for the Central Mass Rail Trail is instructive as to impacts especially the large number of stream crossings where extensive bridge repair will be required. See, Exhibit C attached. Please ensure that such impacts will be appropriately minimized by considering the alternative locations for the Project mentioned earlier in this letter.

Thank you and your staff for considering these comments. I am attaching several exhibits as listed below that I hope will be of assistance to you in your collective deliberations:

Exhibit A – My comments to the EFSB

Exhibit B –A listing compiled by Applicant for EFSB on required permits

Exhibit C – A compilation of the MCRT MEPA information on bridges

Sincerely,

H. Rebecca Cutting, Esq. (BBO #548843)
381 Maynard Road
Sudbury, MA 01776
ritchcutts@aol.com

Enc.

cc: Sudbury Valley Trustees
Protect Sudbury
Sudbury Cons. Commn. & Selectmen

Cutting - Exhibit B

REGULATORY AGENCY	PROGRAM / PERMIT	JURISDICTIONAL TRIGGER	STATUS
FEDERAL			
USEPA	NPDES General Permit for Storm Water Discharges from Construction Activities	Land disturbance greater than one acre	Projected filing Aug 2018; projected issuance Sept 2018
USACE	404 Clean Water Act General Permit for Massachusetts Pre-Construction Notification Form	Discharge of dredged or fill material to Waters of the U.S. in the Commonwealth of Massachusetts, Permanent impacts >5,000 sf but less <1 acre	Projected filing Nov 2017; projected issuance July 2018
FAA	FAA Form 7460-1 for Obstruction Evaluation / Airport Airspace Analysis	Proximity to airport	Projected filing Sept 2017; projected issuance Nov 2017
STATE			
EFSB/DPU	G.L. c. 164, § 72, approval to construct ("Section 72 Petition"); G.L. c. 40A, § 3, request for zoning exemptions ("Zoning Petition"); EFSB approval under MGL c.164 § 69J.	New transmission line with a design rating of more than 69 kV within a new transmission corridor; new transmission; grant of required zoning exemptions	Filed on April 21, 2017; projected issuance Sept 2018
EEA	MEPA ENF/EIR 301 CMR 11.00	Alteration of one or more acres of bordering vegetated wetlands	ENF filed on May 15, 2017; DEIR projected filing Sept 2017; FEIR projected filing Dec 2017; projected issuance Feb 2018
MassDEP	Individual 401 Water Quality Certificate 314 CMR 9.00	Discharge of dredged or fill material to Waters of the U.S. in the Commonwealth of Massachusetts, Permanent impacts >5,000 sf but less <1 acre	Projected filing Nov 2017; projected issuance July 2018
NHESP	MESA Project Review Checklist	For work in mapped Priority Habitat	Projected filing July 2017; projected determination Sept 2017
MassDEP	Chapter 91 Minor Modification Letters	For work on bridge crossings	Projected filing Dec 2017; projected provisional approval Jan 2018
MassDOT	State Highway Access Permit, G.L. c. 81, § 21/G.L. c. 85, § 2	Construction within or over a state roadway	Projected filing Apr 2018; projected issuance Aug 2018
MHC	G.L. c. 9, § 27C, Determination of effect on historic and archaeological properties; Project Notification Form ("PNF" or ENF)	Historic and prehistoric cultural resources	ENF (that served as the PNF) was filed on May 15, 2017.
LOCAL			
Conservation Commissions (Sudbury, Stow, Hudson)	Massachusetts Wetlands Protection Act ("WPA") and municipal wetland non-zoning bylaw filings, as necessary; Notice of Intent	Alteration of jurisdictional wetland resource areas	Projected filing for geotechnical investigations July 2017; projected issuance Sept 2017. Projected filing for Project Dec 2017; projected issuance June 2018.
Board of Selectmen (Sudbury, Hudson)	Grants of Location (or other temporary / permanent easements)	Construction over or within local streets.	Projected filing Apr 2018; projected issuance Aug 2018.
Tree Warden (Sudbury, Stow, Hudson, Marlborough)	Public Shade Tree Removal Petition – if required	Removal of public shade tree	Projected filing 2018; projected issuance Sept 2018

Mass Central Rail Trail Evaluation of Existing Bridges

Wayside Branch - Waltham to Berlin

Summary of Evaluation

Ten existing bridge structures are included in this evaluation; five steel structures and five timber structures. Four of the five steel bridges are recommended National Register Eligible; 2 lattice thru trusses and 2 deck plate girder bridges. The fifth steel bridge, a thru-plate girder constructed in 1960 is not National Register Eligible, however is in the best condition of all the structures and can be converted for the rail trail use with minor modifications. None of the timber bridges are eligible for the national register. All are multi-bent timber pile trestle bridges with timber beams supporting either an open tie/track deck or a wood deck supporting ballast, ties and track.

Steel Structures:

One of the deck plate girder bridges is partially submerged and will require raising the bridge and approach profiles unless the water level under the bridge can be lowered (this wetland area could possibly be flooded due to a beaver dam obstruction downstream from the bridge). For this bridge an alternative option to rehabilitation of the existing superstructure is proposed; installation of a new superstructure that would allow for adequate freeboard under the span, with a comparable cost to rehabilitation of the existing superstructure.

The paint on the four older structures is virtually gone with the steel covered with a rust patina. It is recommended that any necessary steel repairs be made and the bridges completely cleaned and repainted before retrofitting the bridges with new decks and bridge railings. It is noted that cleaning and painting these structures will require a significant portion of the rehabilitation costs.

The 1960 thru-plate girder bridge over I95/ Route 128 was last painted in 1988, and complete cleaning and painting of this bridge could be postponed for several years. The north elevation of this bridge is accessible by a catwalk, and consequently has been tagged with graffiti along with the interior faces of the girders. Cleaning and painting these areas is being recommended for cosmetic purposes. Conversion of this bridge to a rail trail will eliminate the need for the catwalk, and it is recommended that it be removed from the bridge.

Typically a new timber deck with timber bridge railings would be proposed for these steel structures. The 1960 thru-plate girder bridge has a steel plate deck with ballast, so this bridge will only require paving of the trail over the bridge (along with some upgrading of the deck drainage). For the lattice truss bridge over Linden Street in Waltham, a reinforced concrete bridge deck is proposed versus a timber deck, to minimize ice formation hazards to pedestrians and vehicles passing under the bridge. For the other three steel bridges, cost estimates assume the use of pressure treated timber for the decking and railings. If funding is available to upgrade the lumber to IPE, the lifespan of the timber components would be significantly increased.

The cost estimates for the steel structures includes miscellaneous steel repairs, cleaning and painting the steel, new transverse timber beams/ties to support a new timber deck and bridge railings on three of the bridges, construction of a new reinforced concrete deck and bridge railings on one bridge, and paving and drainage improvements to the ballasted deck thru-girder bridge. Repairs and modifications

to the substructure elements are also included. As previously noted, for one of the deck plate girder bridges, a cost estimate for an alternative replacement superstructure is provided.

Timber Structures:

All five bridges are located over water ways. Two of these bridges (located over the Sudbury and Assabet Rivers) should be further evaluated for hydraulic requirements and adequacy, before consideration is given to investing capital to rehabilitate these bridges for the proposed rail trail. Both bridges have multiple timber pile bents within the waterways and have some damage due to debris collision. It is also noted that adjacent highway bridges have been recently reconstructed as single span structures eliminating piers in the waterways near both bridge locations.

The other three bridges are located over smaller brooks, and although hydraulic studies may not be required, the multi-span bent configurations result in the buildup of debris against the pile bents impeding the stream flows. At one of these bridges where what appears to be a beaver dam, the obstruction resulted in the washout of the approach backfill behind the end pier and timber backwall.

Ideally all five bridges should be replaced with new bridges to eliminate the multiple pier configurations within the waterways. The age of these structures is unknown, and all will require significant repairs to retrofit the bridges for the proposed rail trail use.

If budget constraints do not permit the complete replacement of these bridges and hydraulic analysis results do not dictate the need to replace the structures, reusing the timber pile bents and as many other elements as possible will greatly reduced construction costs and construction impact on the wetland environments would be limited. Despite the weathered state of the timber pile bents and some isolated decay/damage that would need to be repaired and reinforced, these pile bents have sufficient structural integrity to support the proposed rail trail bridge retrofits. Some pile caps with advanced decay will need to be replaced, as well as some of the diagonal pile bracing. All bridges have end timber pile bents with timber backwalls supporting the approach backfill. These timber backwalls are generally decayed and will need to be removed and replaced. Widening of the approaches to provide for the proposed 14 feet wide trail, will also require u-wing walls adjacent to the new backwalls. The replacement backwalls and the new wingwalls should be constructed with a material other than timber such as; precast concrete, cast in- place concrete or concrete block.

The retrofitting these bridges for the proposed rail trail will require replacement of, and/or additional longitudinal timber beams, a new timber deck and timber bridge railings. The cost estimates for retrofitting these bridges assumes the use of pressure treated timber for the replacement and additional beams, new decking and bridge railings. Upgrading of the lumber to IPE is not recommended, since the lifespan of the re-used substructure components is expected to be less than that of the IPE deck and bridge railings.

The cost estimates for the timber bridges includes any repairs to substructure elements, replacement of or additional timber bridge beams, and the cost to construct new timber bridge decks and railings.

Steel Bridges Recommended for Rehabilitation:

Linden Street, Waltham: 1894 Riveted Lattice Thru Truss on Stone Abutments

Single span: 122 ft. (backwall to backwall)

Width: 15' – 3" clear between truss elements

Deficiencies:

- Some minor impact damage to secondary bracing members under the deck
- No paint remaining on the steel
- Cracked, loose and missing mortar in the stone abutments

Proposed Rehabilitation:

- Remove and dispose of existing timber ties and steel rails
- Repair bent, cracked/ broken gusset plates and bracing angles
- Clean and paint steel
- Replace mortar joints in the abutments
- Construct new concrete bridge deck, curbs and bridge railings (a concrete slab with curbs is recommended since this bridge is over roadway and pedestrian traffic to prevent ice hazards below)

Cost Estimate for Rehabilitation:

• Demolition – remove and dispose of existing track and ties:	$ 12,000.00
• Miscellaneous steel repairs:	$ 10,000.00
• Clean and paint steel:	$500,000.00
• New reinforced concrete deck:	$230,000.00
• New Bridge Railings:	$ 40,000.00
• Replace mortar joints in abutments:	$ 20,000.00
• Police Details (Allowance):	$ 75,000.00
Total:	$887,000.00

Route 128, Waltham: 1960 Two Span Thru Plate Girder on Concrete Abutments and Pier

Two Spans: 118'-6" (each span)

Transverse floor beams and longitudinal diaphragms support a steel plate deck and curbs with ballast

Width: 14 feet clear between steel plate curbs

Deficiencies:

- Paint is in fair condition, except for graffiti on the inside face of the both girders and on the outside face of the north girder (accessible by a catwalk). The underside of floor beams, diaphragms and deck plate has peeling paint. Bridge was last painted in 1988.
- Verify adequacy of existing bridge drainage, make upgrades as required.

Proposed Rehabilitation:

- Remove and dispose of existing timber ties and steel rails
- Clean and paint steel (cover graffiti surfaces only), entire structure will require future painting
- Upgrade bridge drainage system
- Pave pathway over the bridge
- Install a timber guardrails along the inside face of the girders
- Remove the catwalk along the north side of the bridge (potential safety hazard)

Cost Estimate for Rehabilitation:

• Demolition – remove and dispose of track and ties and catwalk:	$50,000.00
• Clean and paint steel (cover graffiti surfaces only):	$100,000.00
• Upgrade bridge drainage (Allowance):	$40,000.00
• Timber guardrails:	$10,000.00
• Police Details (Allowance):	$75,000.00
• Grade and pave pathway over bridge:	$25,000.00
Total:	$300,000.00

Over MBTA Fitchburg Line, Weston: 1896 Riveted Lattice Thru Truss on Stone Abutments

Truss Span: 98 feet, Approach decks built on granite U-wingwalls: East End 15 feet, West End 24 feet

Width: 15’ – 6” clear between truss elements

Deficiencies:

- No paint remaining on the steel
- Cracked, loose and missing mortar in the stone abutments and wingwalls
- Timber ties are in fair condition, but will need to be replaced to widen the bridge deck

Proposed Rehabilitation:

- Remove and dispose of existing timber ties and steel rails
- Clean and paint steel
- Replace mortar joints in the abutments
- Construct new timber bridge deck and railings
- Construct new backwalls/wingwalls to facilitate widening of the bridge deck to 14 feet

Cost Estimate for Rehabilitation:

• Demolition – remove and dispose of existing track and ties:	$20,000.00
• Clean and paint steel:	$500,000.00
• New timber transverse beams:	$65,000.00
• New timber deck and bridge railings:	$75,000.00
• New backwalls/wingwalls at approaches:	$25,000.00
• Replace mortar joints in abutments:	$20,000.00
• Temporary Protective Shielding:	$20,000.00
• MBTA Flagmen (Allowance):	$75,000.00
Total:	$800,000.00

#127 Hop Brook, Sudbury: 1881 Riveted Plate Deck Girder, Stone Abutments, Timber Piers

Total Length: 47'-3" (abutment to abutment)*

*Bottom of girders was submerged 12 inches at time of field visit. Previous study indicates this bridge is identical to #128 Hop Brook, Sudbury, which has three continuous spans supported on two intermediate timber bents.

Width: 12 feet out to out of timber tie deck, girder spacing 5'-9" center to center

Deficiencies:

- Bottom of Girders are submerged (possibly due to flooding of wetland from beaver dams)
- No paint remaining on the steel
- Timber ties are in poor condition, and will need to be replaced to widen the bridge deck
- Condition of abutments and intermediate piers cannot be determined due to flooding

Option 1: Proposed Rehabilitation

- Investigate the cause of flooding and rectify if possible
- If water level cannot be lowered, the bridge seats need to be raised and the girders reset (this will require considerable additional costs for raising the approach pathway profiles to meet the new bridge deck elevation
- Remove and dispose of existing timber ties and steel rails
- Complete miscellaneous repairs to steel as required
- Clean and paint steel
- Install new timber transverse beams
- Construct new timber bridge deck and railings
- Replace mortar joints in the abutments
- Construct new backwalls/wingwalls to facilitate widening of the bridge deck and approaches to the proposed 14 feet trail width and raising of the bridge deck elevation and approaches
- Repairs/ replacement of intermediate piers

Cost Estimate for Rehabilitation:

• Demolition – remove and dispose of existing track and ties:	$ 5,000.00
• Miscellaneous steel repairs:	$15,000.00
• Clean and paint steel:	$75,000.00
• New timber transverse beams:	$16,000.00
• New timber deck and bridge railings:	$20,000.00
• New backwalls/wingwalls, adjust approach profiles:	$50,000.00
• Replace mortar joints in abutments:	$ 4,000.00
• Rebuild/raise bridge seats:	$20,000.00
• Repair/ replace intermediate piers:	$20,000.00
• Lift and reset steel girders:	$10,000.00
• Water control for substructure repairs:	$15,000.00
Total:	$250,000.00

Option 2: Superstructure Replacement:

For this bridge an alternative option to rehabilitation of the existing superstructure is proposed; installation of a new superstructure that would allow for adequate freeboard under the span, with a comparable cost to rehabilitation of the existing superstructure.

Cost Estimate for Rehabilitation:

• Demolition – remove and dispose entire superstructure:	$10,000.00
• New steel beams:	$150,000.00
• New timber transverse beams:	$16,000.00
• New timber deck and bridge railings:	$20,000.00
• New backwalls/wingwalls:	$20,000.00
• Replace mortar joints in abutments:	$ 4,000.00
• Rebuild/raise bridge seats:	$20,000.00
• Water control for substructure repairs:	$15,000.00
Total:	$255,000.00

#128 Hop Brook, Sudbury: 1881 Riveted Plate Deck Girder, Stone Abutments, Timber Piers

Total Length: 43'-6" (abutment to abutment)

Three continuous spans supported on two intermediate timber bents

Width: 10 feet out to out of timber tie deck, girder spacing 5'-9" center to center

Deficiencies:

- No paint remaining on the steel, graffiti on inside faces of girders
- Timber ties are in poor condition, and will need to be replaced to widen the bridge deck
- Damp debris on bridge seats
- Missing, loose mortar joints in the stone abutments
- Ends of timber pier caps display some decay

Proposed Rehabilitation:

- Remove and dispose of existing timber ties and steel rails
- Complete miscellaneous steel repairs as required
- Clean and paint steel
- Replace mortar joints in the abutments
- Repair/replace pier caps
- Modify backwall to facilitate widening of bridge and approach to the proposed 14 feet trail width
- Construct new timber bridge deck and railings

Cost Estimate for Rehabilitation:

• Demolition – remove and dispose of existing track and ties:	$ 4,500.00
• Miscellaneous steel repairs:	$ 5,000.00
• Clean and paint steel:	$60,000.00
• Replace mortar joints in abutments:	$ 3,000.00
• Repair/replace timber pier caps (includes temporary shoring):	$10,000.00
• Modify backwalls for widening of the bridge:	$20,000.00
• New timber transverse beams:	$15,000.00
• New timber deck and bridge railings:	$17,500.00
• Water control for substructure repairs:	$ 5,000.00
Total:	$140,000.00

Timber Bridges Recommended for Rehabilitation or Replacement:

Clematis Brook, Waltham: Timber Pile Trestle (open timber tie deck)

Total length: 126 feet, 12 spans (vary from 10 feet to 11 feet)

Width: 10 feet out to out of timber ties, 12 feet out to out of pile bent caps

Superstructure: Timber ties supported on 4 timber beams

Substructure: 11 Intermediate pile bents and 2 end pile bents with timber backwalls

Deficiencies

- Timber ties are in poor condition, and need to be replaced to widen the bridge deck
- Timber backwalls have decay and need to be replaced
- Ends of timber pile caps display some decay
- Accumulating debris in stream is against the upstream side of the timber pile bents

Proposed Rehabilitation:

- Remove and dispose of existing timber ties and steel rails
- Remove timber backwalls and reconstruct new backwalls and wingwalls to support backfill
- Repair/ replace timber pile caps as required
- Clear stream bed of accumulated debris against the pile bents
- Install new additional longitudinal timber beams and construct new timber deck and railings

Cost Estimate for Rehabilitation:

• Demolition – remove and dispose of existing track and ties:	$12,500.00
• Remove timber backwalls and construct new backwalls/wingwalls:	$20,000.00
• Repair/ replace timber pile caps:	$25,000.00
• Additional new timber beams:	$42,500.00
• New timber deck and bridge railings:	$51,000.00
• Clear debris from stream:	$ 500.00
Total:	$151,500.00

Bruce's Pond, Hudson: Timber Pile Trestle (open timber tie deck)

Total length: 109 feet, 9 spans (vary 12 feet +/-)

Width: 12 feet out to out of timber ties, every 4th tie extends 5 feet to support a catwalk on the north side of the bridge, 16 feet out to out of pile bent caps

Superstructure: Timber ties supported on 4 timber beams

Substructure: 8 Intermediate pile bents and 2 end pile bents with timber backwalls

Deficiencies

- Timber ties are in poor condition, and need to be replaced to widen the bridge deck
- Timber backwalls have decay and need to be replaced
- One timber pile displays some decay
- Minor fire damage to timber ties and beams (damage to beams not significant)

Proposed Rehabilitation:

- Remove and dispose of existing timber ties, steel rails, remains of timber catwalk and fencing
- Remove timber backwalls and reconstruct new backwalls and wingwalls to support backfill
- Repair deteriorated timber pile (cut out decay/ splice/plate and bolt repair section)
- Install additional longitudinal beams and construct new timber deck and railings

Cost Estimate for Rehabilitation:

• Demolition – remove and dispose of existing track and ties:	$13,500.00
• Remove timber backwalls and construct new backwalls/wingwalls:	$20,000.00
• Additional new timber beams:	$37,000.00
• New timber deck and bridge railings:	$44,000.00
• Repair timber pile:	$ 1,500.00
Total:	$116,000.00

Assabet River, Hudson: Timber Pile Trestle (timber deck with ballast)

Total length: 97 feet, 8 spans (vary 12 feet +/-)

Width: 14 feet out to out of timber deck curbs

Superstructure: 9 Timber beams, timber deck and curbs, ballasted timber ties/track

Substructure: 7 Intermediate pile bents and 2 end pile bents with timber backwalls/wingwalls

Deficiencies

- Ballasted timber deck supports significant vegetation growth (trees up to 8 inch in diameter); the condition of the wood deck is suspect to decay, will likely need replacement
- Timber beams appear to be sound, some decay at top of beams can be expected
- Timber backwalls and wingwalls have decay and need to be replaced
- Some cross bracing on the timber pile bents is split, cracked and weathered, and at two locations has been cut off near the waterline on the upstream side of the bridge (possibly damaged from floating debris)
- Condition of piles below the waterline could not be determined

Proposed Rehabilitation:

Further in depth evaluation of this bridge should include an underwater inspection of timber piles and a hydraulic analysis of the bridge before consideration is given to investing capital to rehabilitate this bridge for the proposed rail trail. If it is determined that this structure warrants rehabilitation, the following is required:

- Remove and dispose of trees, timber ties, steel rails, and ballast
- Remove and dispose of timber curbs and timber decking
- Replace any deteriorated timber beams
- Remove timber backwalls and wingwalls; reconstruct new backwalls and wingwalls to support backfill
- Repair deteriorated timber pile cross bracing
- Construct new timber deck and railings

Cost Estimate for Rehabilitation:

• Demolition – remove/ dispose of existing track, ties, ballast and trees:	$19,000.00
• Remove/ dispose of timber curbs and decking:	$13,500.00
• Replace deteriorated beams as required:	$15,000.00
• Remove timber backwalls and construct new backwalls/wingwalls:	$20,000.00
• New timber deck and bridge railings:	$39,000.00
• Repair timber pile cross bracing:	$ 3,500.00
Total:	$110,000.00

Great Meadows Wildlife Refuge Sudbury River, Sudbury: Timber Pile Trestle (timber deck with ballast)

Total length: 118 feet, 10 spans (vary 12 feet +/-)

Width: 14 feet out to out of timber deck curbs

Superstructure: 9 Timber beams, timber deck and curbs, ballasted timber ties/track

Substructure: 9 Intermediate pile bents and 2 end pile bents with timber backwalls/wingwalls

Deficiencies

- Ballasted timber deck, the condition of the wood deck is suspect to decay, will likely need replacement
- Timber beams have some decay, expect some will require replacement
- Timber pile caps display some decay , with splits, cracks and weathering, suspect some may require repair or replacement
- One timber pile at mid span on the upstream side of the bridge is severed possibly damaged by floating debris, and will need to be spliced/reinforced
- Condition of piles below the waterline could not be determined
- Cross bracing on the timber pile bents is split, cracked and weathered

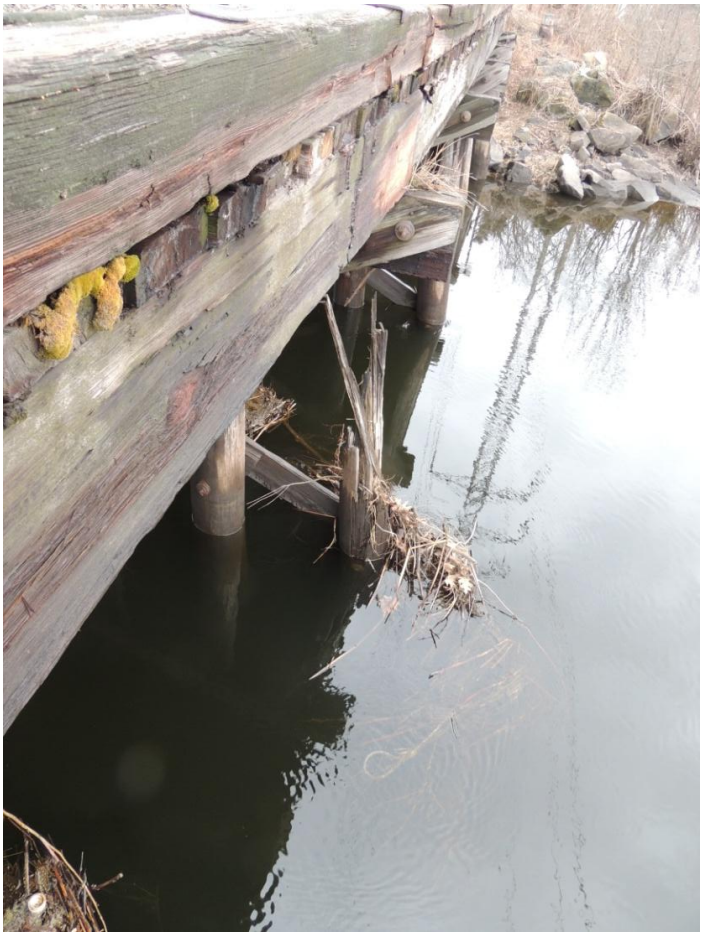
Proposed Rehabilitation:

Further in depth evaluation of this bridge should include an underwater inspection of timber piles and a hydraulic analysis of the bridge before consideration is given to investing capital to rehabilitate this bridge for the proposed rail trail. If it is determined that this structure warrants rehabilitation, the following is required:

- Remove and dispose timber ties, steel rails, and ballast
- Remove timber curbs and timber decking
- Repair severed timber pile
- Repair deteriorated timber pile cross bracing
- Repair/ replace deteriorated timber pile caps as required
- Replace deteriorated timber beams as required
- Construct new timber deck and railings

Cost Estimate for Rehabilitation:

• Demolition – remove/ dispose of existing track, ties, ballast:	$ 9,000.00
• Remove/ dispose of timber curbs and decking:	$ 6,000.00
• Remove timber backwalls and construct new backwalls/wingwalls:	$20,000.00
• Repair timber pile:	$ 5,000.00
• Repair timber pile cross bracing:	$ 5,000.00
• Repair/ replace timber pile caps:	$ 10,000.00
• Replace deteriorated timber beams:	$20,000.00
• New timber deck and bridge railings:	$47,500.00
Total:	$122,500.00



Fort Meadow Brook, Hudson: Timber Pile Trestle (open timber tie deck)

Total length: 50 feet, 4 spans (12'-6" each)

Width: 12 feet out to out of timber ties

Superstructure: Timber ties supported on 4 timber beams

Substructure: 3 Intermediate pile bents and 2 end pile bents with timber backwalls

Deficiencies

- Entire structure is in poor condition; timber ties, beams, pile caps and backwalls (timber piles may be able to be re-used)
- Heavy debris built up against the pile bents on the upstream side of the bridge (possibly a beaver dam) is obstructing the flow and the west approach has washed out behind the end pile bent and backwall.
- An attempt has been made to divert the flow around the obstruction using flexible drainage conduits

Proposed Rehabilitation: As noted above, the timber piles are the only elements that could possibly be re-used for rebuilding of this bridge. The current multiple pile bent configuration has facilitated the collection of debris, and the removal of these pile bents and a complete replacement of this bridge with a new single span structure would be the ideal option for this bridge location. If budget considerations dictate reusing of the existing timber piles and rebuilding of the bridge, the following items with estimated costs will be necessary:

- Remove and dispose of existing timber ties and steel rails, timber beams and timber pile caps
- Remove timber backwalls and reconstruct new backwalls and wingwalls to support backfill
- Restore west approach embankment
- Replace timber pile caps
- Install new timber beams, new timber deck and railings
- Obtain approval to design and install water level control devices (WLCD) to regulate the water level behind the beaver dam obstruction to avoid future washouts of the adjacent embankments

Cost Estimate for Rehabilitation:

• Demolition – remove and dispose track, ties beams and pile caps:	$10,000.00
• Remove timber backwalls and construct new backwalls/wingwalls:	$30,000.00
• Restore west approach embankment:	$ 3,000.00
• Replace timber pile caps:	$ 7,000.00
• Install new timber beams:	$25,000.00
• Install new timber decking and railings:	$20,000.00
• Water control for substructure repairs:	$20,000.00
• Install water level control devices:	$ 5,000.00
Total:	$120,000.00