

**Massachusetts Department of Conservation and Recreation
Division of Water Supply Protection, Office of Watershed Management
*Forest Management Project Summary***

Project Title: Lot 5251

DWSP Harvest Permit Number: 5251

DWSP Proposal ID: WA-15-132

DCR Forest Cutting Plan File Number: 282-7220-15

Site Information

Watershed: Wachusett

Town(s): Sterling

Acres: 43.6

Nearest Road: Beaman Road

Natural Heritage Atlas overlap?: No

Public Drinking Water Supply Watershed?: Yes

Forest Types: White pine-hardwood/Red oak

Area of Critical Environmental Concern (ACEC)?: No

Soils: Paxton fine sandy loam, extremely stony

Wetland Resources: Wilder Brook with its associated bordering vegetated wetlands forms the western boundary of this sale area. A small intermittent brook originates in the middle of this area and flows south while another intermittent brook in the north end of the area joins Wilder Brook.

Vernal Pools: None known.

Harvest Information

Harvest Start Date: 7/1/2015

Harvest End Date: 6/30/2017

Number of Wetland Crossings: None

Number of Stream Crossings: Two

Best Management Practices Applied

Stream Crossings:

Filter Strips:

Wetland Crossings:

Harvesting in Wetlands:

DWSP Forester supervising this harvest

Name: Greg Buzzell

Forester License number: 025

Phone number: 774-261-1841

Email: greg.buzzell@mass.gov

Narrative

General Description/Forest Composition/History

This area is located in Sterling on the south side of Beaman Road just to the east of Wilder Road. Wilder Brook flows through this property from north to south and forms the western boundary of this timber sale area. This forest originated following a prolonged history of abandonment of pastures on this property. The first pasture to be abandoned was in the far southeast corner of the property. The present forest here originated in about 1915 and is dominated by red oak with a thick understory of white pine. It's likely that this block first came back to white pine, as is common for abandoned pastures, following abandonment in the 1800's. The early 1900's was the era of the clear cutting of "old-field" white pine stands which commonly developed in fields and pastures abandoned throughout the 1800's. Prior to the advent of cardboard boxes, the pine box was the dominant form of shipping container. These stands commonly converted to hardwood stands with the removal of the pine overstory.

The other stands throughout this sale area followed later pasture abandonments from the 1930's into the 1960's. These stands are typical of these conditions with crooked, multi-stemmed white pines dominating the overstory. A harvest in the 1970's in one of these stands led to what today is a well-stocked pole stand of hardwoods with a good component of red oak. There is good advance regeneration beneath much of the pasture pine overstory comprised of oak, red maple, white ash, elm, hickory, black birch, yellow birch and sugar maple.

Site Selection

The ideal watershed protection forest is one which best serves the function of the land as a producer of high quality drinking water in both short- and long-term. This forest must be vigorous and diverse in tree species and ages, be actively accumulating biomass and actively regenerating. Such a forest will be ideally suited to be resilient to and quickly recover from small- and large-scale disturbances such as diseases, insect infestations, ice storms and hurricanes.

Due the history of the forest in this area, there is diversity of age classes with 9% of the forest under 20 years old, 20% is 21 to 40 years old, 19% 41 to 60 years old, 36% 61 to 80 years old and 16% 81 to 100 years old. However, there is still a deficiency in the proportion of the forest in the youngest age class. A combination regeneration and terrestrial invasive plant sampling scheme found adequate advance regeneration in 51% of the plots taken and another 25% of the plots with marginally adequate levels of regeneration. Given the general lack of young, free-to-grow forest, now is the time to capitalize on the well-distributed regeneration present and to create a piece of the Wachusett forest that is among the most diverse in the watershed.

Invasive species are present in this forest and were found on 16% of the plots taken. Most of these plots were in the north end of the sale area near Wilder Brook and its small tributary. A wide variety of invasive species are present including buckthorn, winged euonymus, honeysuckle, barberry and privet. Only one plot had greater than 25% ground cover of invasives with the other plots having far less.

Silvicultural Objectives

There is ample advance regeneration of a species mix appropriate to the site to warrant release of a new age cohort by the removal of the overstory in patches. To that end, 11 openings in

the overstory are being created. These openings range in size from 0.25 to 1 acre in size with an average of 0.5 acres. These have been well distributed throughout the working unit with adequate spacing between the patches to allow for future patches of a similar range of sizes. They have also been placed as to avoid the areas where invasive species are present at levels that we would expect to present a challenge to the success of the release of the regeneration. Standards regarding green retention (live trees left within patches for structure and seed) have been followed.

Cultural Resources

This lot was reviewed by the DCR archaeologist and all recommendations will be followed. There is no known cultural significance to this former pasture, either historically or pre-European contact. All stone walls on DCR property are valued as a cultural resource, so the stone walls on this property will be protected from damage to the extent possible.

Rare or Endangered Species

There are no critical habitats or known rare or endangered plants or wildlife. All DWSP Best Management Practices for wildlife management such as the maintenance and encouragement of mast-producing species, snag and den trees are being followed.

Figures

1. Figure 1. Forest Cutting Plan
2. Figure 2. Maps of harvest area showing approximate boundary, proposed openings and other features
3. Figure 3. General locus map showing the location of the proposed timber harvest
4. Figure 4. Pre-Harvest Photographs, A-C
5. Figure 5. Post-Harvest Photographs, A-C

Figure 1. Forest Cutting Plan

Forest Cutting Plan

and Notice of Intent under M.G.L. Chapter 132 – The Forest Cutting Practices Act, 304 CMR 11.00 (Effective Date: 1/1/04)

OCT 9 2 2014

For DCR Use Only:

File Number 2013-1000-15 Case No. _____
 Date Rec'd 10-2-14 Nat. Hert. NO
 Earliest Start 10-20-14 Nat. Hert. Imp. NO
 River Basin NESQUIA Pub. Dr. Wat. WACHUSETT
 Gen. Obj. LT ACEC NO

Site Information

Location

Town Sterling Lot 5251
 Road Beaman Road
 Acres 35.4 Proposed Start Date 12/1/14
 Vol. MBF 39.1 Vol. Cds. 55 Vol. Tons 132
43.6 64

Plan Preparer

Name Gregory S. Buzzell
 Address 180 Beaman Rd.
 Town, State, Zip West Boylston, MA, 01583
 Phone 508-792-7806 Ext 317
 Type of Preparer Mass. Licensed Forester
 *Mass. Forester License # 25
 *Required for land under Ch61, Ch61A or Forest Stewardship

Landowner

Name DCR/DWSP/OWM Wachusett/Sudbury
 Mailing Address 180 Beaman St.
 Town, State, Zip West Boylston, MA 01583
 Phone 608-792-7806
 Ch61 Ch61A Stew *Case # _____
 Est. Stumpage Value _____

Licensed Timber Harvester**

Name To be supplied when known.
 Address _____
 Town, State, Zip _____
 Phone _____
 Mass. Lic. Harvester # _____
 **This information may be supplied after the plan is approved, but before work begins.

Best Management Practices

Stream Crossings

Indicate location on map	SC-1	SC-2	SC-3	SC-4
Type of Crossing	BR/PO	BR/PO		
Existing Structure	No	No		
Type of Bottom	ST	ST		
Bank Height (ft)	< 1'	< 1'		
Stabilization	CO	CO		

Wetland Crossings

Indicate location on map	WC-1	WC-2	WC-3	WC-4
Length of Crossing				
Mitigation				
Stabilization				

Filter Strips

Indicate location on map	FS-1	FS-2	FS-3	FS-4
Width (50', 100', or VA)	VA	VA		

Harvesting in Wetlands

Indicate location on map	HW-1	HW-2	HW-3	HW-4
Forest Type (see pg 2)				
Acres to be Harvested				
Resid. Basal Area (>50%?)				

Service Forester Comments

* ALL SLID TRAILS/ROADS ARE EXISTING
 * BUFFER STRIP ALONG ALL PUBLIC ROADS.

Codes

Type of Preparer	Type of Crossing	Stabilization	Mitigation	Type of Bottom
LF Mass. Lic. For.	CU Culvert	SE Seed	FR Frozen	LE Ledge
TH Lic. Tim. Har	BR Bridge	MU Mulch	DR Dry	ST Stony
TB Timber Buyer	FO Ford	CO Corduroy	OT Other	MU Mud
LO Landowner	PO Poled	ST Stone		GR Gravel
OT Other	OT Other	HB Hay Bales		OT Other
		OT Other		

Note:
 Applicant must provide DCR with all relevant information before plan may be approved and cutting may begin. Some forestry activities, such as prescribed burning and pesticide or fertilizer application may require additional permits. Consult MA Forestry BMP Manual for further information.

If Other (OT) is used in any category an explanation must be given on an attached narrative page

Forest Products

Products to be Harvested*

Table with columns: Species, Mbfs/Cds, Mbfs/Cds. Rows include White Pine, Red Pine, Pitch Pine, Hemlock, Spruce, Other Sftwd., White Ash, Beech, White Birch, B & Y Birch, Black Cherry.

*Note: Volumes and values indicated in the Plan are as reported by the plan preparer and have not been independently verified by the service forester upon approval. Mbfs = thousand board feet.

Stand Treatment

Cutting Standards

Table with columns: Indicate location on map, ST-1, ST-2, ST-3, ST-4. Rows include Forest Type, Acres, Landowner Objective, Designation of Trees, Type of Cut, Source of Regeneration.

Landowner

Landowner Signature

The most important information on a cutting plan is the Landowner's objective, as this will determine which trees will be harvested and which will remain; this decision will also determine the future condition of the forest for decades to come.

[X] LT - Long-term Forest Management
Planned management of the forest to achieve one or more of the following objectives: produce immediate and maximize long-term income, enhance wildlife habitat, improve recreational opportunities, protect soil and water quality, or produce forest specialty products.

[] ST - Short-term Harvest
Harvest of trees with the main intention of producing short-term income with minimal consideration given to improving the future forest condition, which often results in a forest dominated by poor quality and low value species.

I (we) have read the Massachusetts Cutting Plan Information Sheet, and am aware of my (our) management options. I (we) hereby certify that I (we) have the legal authority to carry out the operation described above.

Signature of landowner(s) [Handwritten Signature] Date 10/2/14

Service Forester

Determination and Status

Form with checkboxes for Approved, Disapproved, Expires, Extension, Amendment. Includes handwritten signature and date 10-15-2014.

Final Report and Comments

I hereby certify that the afore described Forest Cutting Plan and all relevant statutes have been substantially complied with.

Signature of Service Forester/Director's Agent Date

Codes

Table with columns: Forest Types, Designation of Trees, Type of Cut, Source of Regeneration. Lists various codes like WP, HK, OM, CT, SH, AD, etc.

*If Other (OT) or a non-standard system is used an explanation must be given on attached narrative page no 4 of 5

Forest Cutting Plan

Narrative Page

Landowner: DCR, DWSF

Town: Steering

File Number: 282-7220-15

Use only if further explanation is required of information on pages one or two or if "other" was used in any category.

BMPs	<p><u>SC-1 and SC-2 are on intermittent streams. Bridging will not be required if the streams are dry. In this case, tops or poles will be used to prevent damage to the stream. The approaches to the streams will be protected with tops unless the ground is adequately frozen or snow-covered.</u></p>
Silviculture	<p><u>In order to release advance regeneration, 12 openings in the overstory are being created, covering 4.9 acres. These openings range from 1/4 to 1/2 acre in size with an average of 0.4 acres. They are well distributed throughout the area taking advantage of the advance regeneration comprised of white pine, oaks and other hardwoods. A thinning will occur on an additional 3 acres in a small piece of Stand 1 and all of Stand 3 where 25-30% of the stocking will be removed. The trees of poorest vigor are the targets for removal with an overall goal of encouraging improved growth on the better residual trees.</u></p>
Objectives	<p><u>The objective of this operation is to diversify the age structure of the forest by removing the overstory in patches thereby releasing the advance regeneration. The current age structure is limited with an insufficient component of young forest although there is diversity in middle-aged and older stands owing to the gradual abandonment of these former pastures.</u></p>
Other	

Figure 2. Maps of harvest area showing approximate boundary, proposed openings and other features

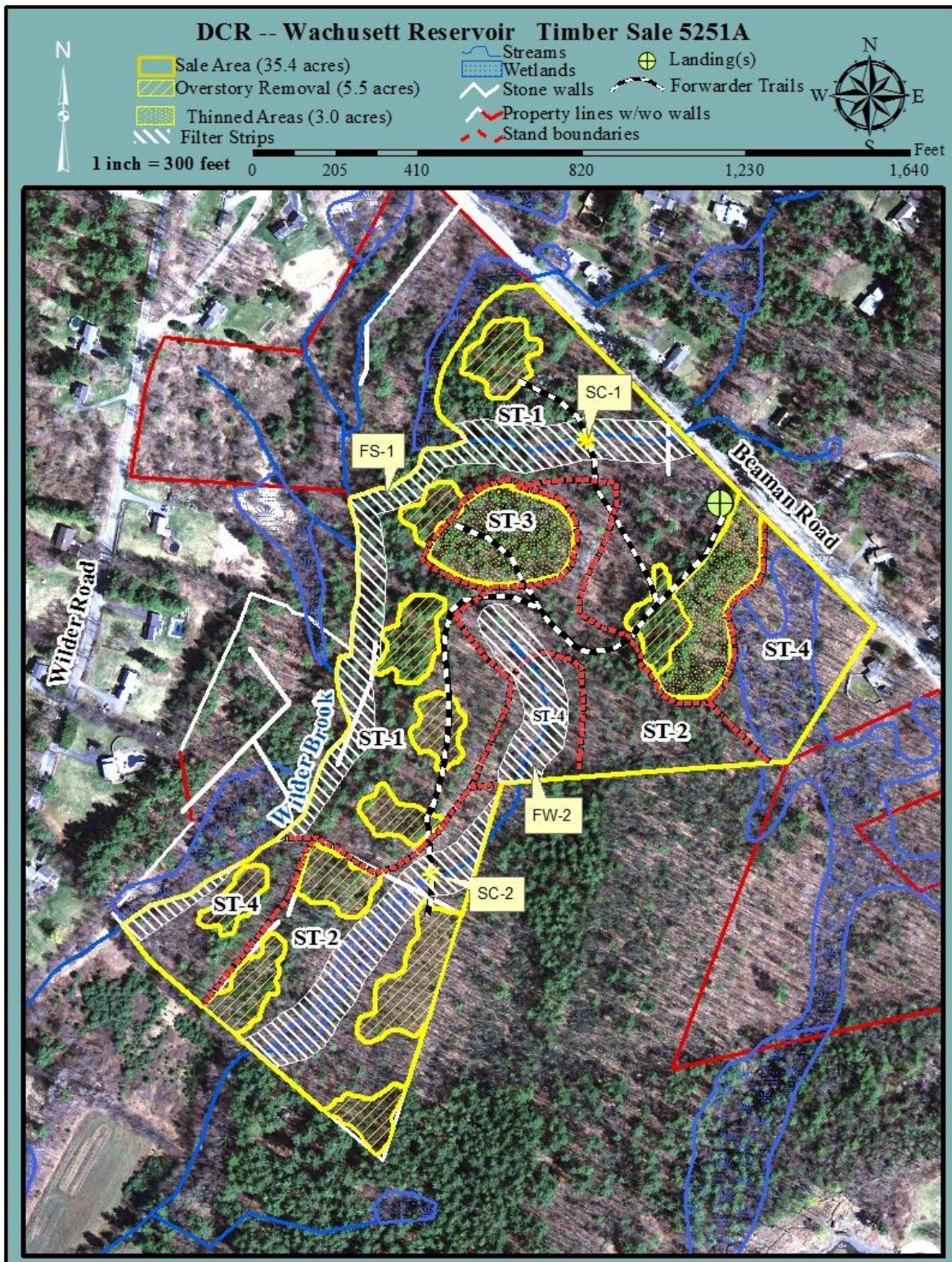


Figure 3. General locus map showing the location of the proposed timber harvest

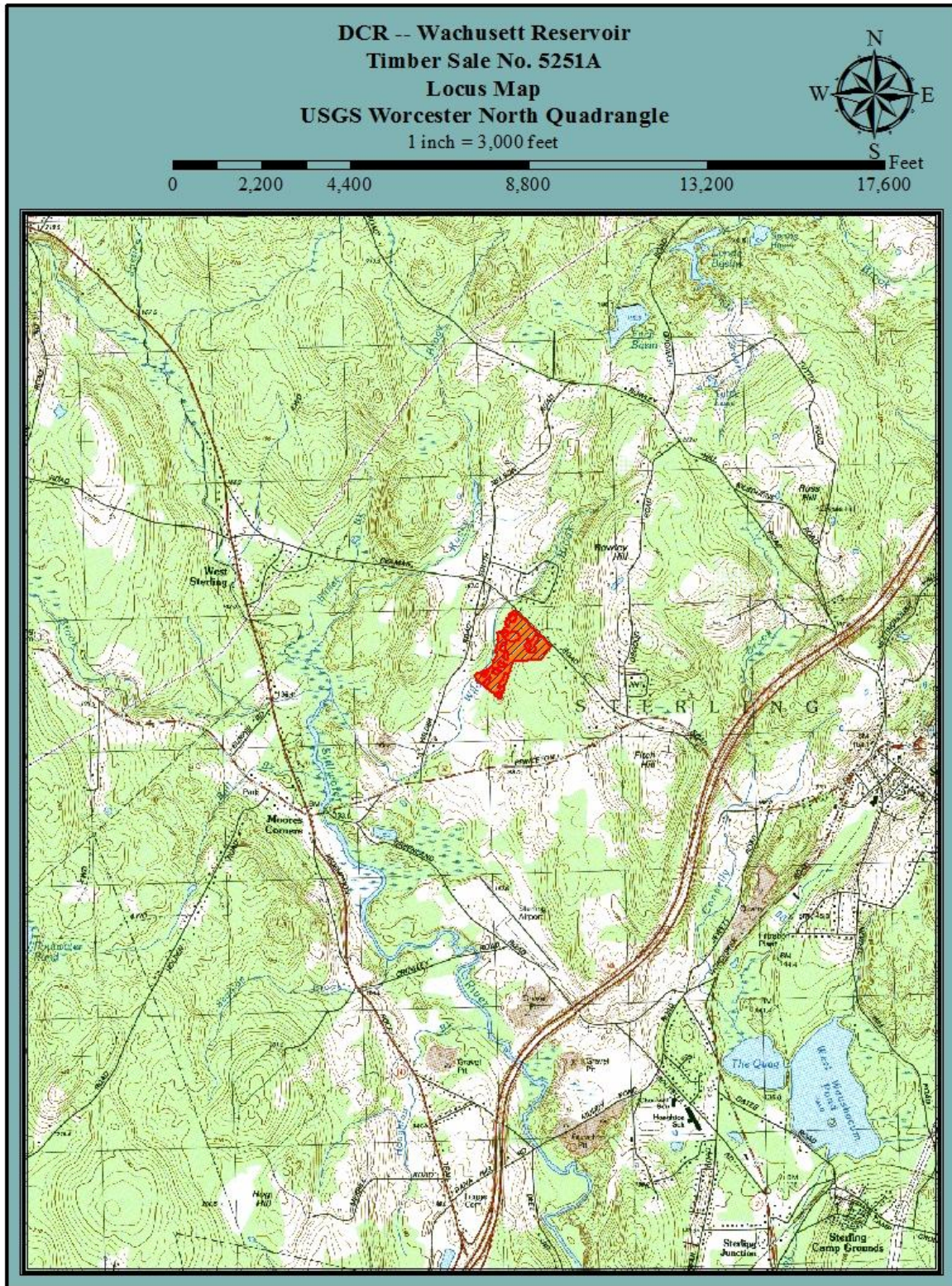


Figure 4. Pre-Harvest Photographs, A-C



A. One of the overstory removal patches in the oak stand with good white pine regeneration. Note the stone wall in the background that once formed the boundary of this former pasture.



B. Another opening in the oak stand. The two oaks (one nearer to the viewer than the other) in the center of the photo are not being cut so as to provide valuable structure diversity to this future young patch of forest.



C. This is an overstory removal patch in the white pine-hardwood stand. There is a good understory of hardwood species including a good amount of oak. The white pine in the middle of the photo and the paper birch to the right are being retained.

Figure 5. Post-Harvest Photographs, A-C



A. This opening was made in the oak stand to release the young white pine and oak regeneration. The white oak on the left side of the photo was retained in order to provide valuable structure in this now younger patch of forest.



B. This opening was made in a portion of the white pine-hardwood stand near Wilder Brook. In addition to the white pine regeneration, there is a wide diversity of hardwood species including oaks, black cherry, elm, red maple and sassafras.



C. Another opening showing a variety of species being released from the shade of the overstory. As is visible in the other photos as well, there is an unfortunate amount of browsing by deer on the hardwood stump sprout clumps. A couple of these can be seen in the center-foreground of this photo.