

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

Project Title: Lot 5275

DWSP Harvest Permit Number: 5275

DWSP Proposal ID: WA-17-219

DCR Forest Cutting Plan File Number: 241-9482-19

Site Information

Watershed: Wachusett

Town(s): Princeton

Acres: 69

Nearest Road: Worcester Road (Rt. 31)

Natural Heritage Atlas overlap?: Yes

Public Drinking Water Supply Watershed?: Yes

Forest Types: Northern red oak; White pine-Oak; White pine-Mixed Hardwood

Area of Critical Environmental Concern (ACEC)?: No

Soils: Woodbridge-Paxton fine sandy loam

Wetland Resources: A bordering vegetated wetland along Governor Brook forms the southern and southeastern borders of this sale area.

Vernal Pools: There are 5 vernal pools in this area.

Harvest Information

Harvest Start Date: 9/12/2018

Harvest End Date: 12/4/2020

Number of Wetland Crossings: None

Number of Stream Crossings: One

Best Management Practices Applied

Stream Crossings: Where the small intermittent brook crosses the old Gill Road, bridging will be used if the stream is flowing.

Filter Strips: No trees are marked in the filter strip.

Wetland Crossings: There are no wetland crossings.

Harvesting in Wetlands: There is no harvesting in the 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 property was acquired in 1997. The dominant species by far is red oak followed by white pine, white oak, black birch, red maple, hickory and paper birch. There's some yellow birch and white ash associated with the stream, some sugar maple especially along the southwest facing slope along the stream and along the internal stone wall on the north and beech on a rocky slope in the middle of the area. The red oak is generally of very good quality throughout the area as is the white pine. This area was heavily impacted by the ice storm in 2008 although there has not been a lot of mortality and the crowns are recovering well. One positive effect of the ice storm has been the continued development of the understory including the advance regeneration. Regeneration sampling shows that 42% of the plots have adequate regeneration and another 21% have at least marginally acceptable regeneration. This advance regeneration is comprised primarily of white pine, red oak, red maple, sugar maple and beech along with some hickory and eastern hophornbeam. Oak was present in 51% of all plots taken.

The shrub layer is primarily witch-hazel and hazelnut along with mt. laurel, striped maple, maple-leaved viburnum and blueberry. 27% of the plots had interfering levels of native shrubs, both witch-hazel and mt. laurel.

The age structure of working unit is as follows: 0%, 0-20 years old, 0%, 21-40 years, 0%, 41-60 years, 93%, 61-80 years, 0%, 81-100 years and 7%, >100 years old. The oldest stand is 4.7 acres that dates to about 1870.

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.

This area was chosen due to the lack of young forest both in these 69 acres as well as the 848 DCR-owned acres that flow into Trout Brook and ultimately into the Wachusett Reservoir.

Silvicultural Objectives

Given the good advance regeneration present, openings will be made to release this regeneration resulting in a new age cohort. One third of 64 acres would result in 21 acres of new age class. As a result of this operation the age structure of this working unit will be one step closer to our ultimate goal of having at least 3 distinct age cohorts within each of our working units. The species composition of this new cohort will be roughly the same as it is now from the perspective of diversity since the advance regeneration is nearly as diverse as the overstory. However, the proportions of the species will be quite different as the new cohort will not be overwhelmingly dominated by red oak but will be a more diverse mix of red oak, white pine and other hardwoods. Partial cutting will occur on about 6 acres with the goal of continuing the overall improvement of the vigor and quality of the overstory by removing trees of poor form and vigor.

Cultural Resources

The only possible landing for this sale (as well as for any other sale in this 390 area in the future) is the hayfield inside Gate P4 immediately south of 83 Worcester Road. About 200 feet into the field is a well with a large, flat capstone and a sumac growing from it. Just to the east of the well is the remains of a large foundation/retaining wall that's about 100 feet long. This, according to local legend, may be the site of the Governor Moses Gill mansion which stood from about 1767 to 1820. It appears more likely however, based on a 1792 engraving and an 1802 plan, that the mansion itself sat to the north of DCR property. Additionally, a 2006 joint DCR/Freedom's Way Heritage Association Report states that the foundation of the mansion, "...is between 73 and 83 Worcester Road." Regardless of whether the mansion itself stood on DCR land or if out-buildings associated with the mansion once stood in the DCR hayfield, this is clearly a culturally significant site. On the recommendation from the DCR Archeologist, this area will be cordoned off to prevent access by logging equipment.

Rare or Endangered Species

This area intersects with a NHESP Priority Habitat of Rare Species for the marbled salamander which has been identified in the most southerly of the vernal pools. See the Cutting Plan narrative page for a more detailed discussion.

Figures

- Figure 1. Forest Cutting Plan
- 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-B
- 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)

For DCR Use Only:

File Number 241-0062-19 Case No. _____
Date Rec'd 8/15/18 Nat. Hert. YES /
Earliest Start 9/30/18 Nat. Hert. Imp. NO
River Basin NPSHQA Pub. Dr. Wat. WACHUSETT
Gen. Obj. LT ACEC NO

Location

Town Princeton Lot 5275
Road Rt. 31 (Worcester Road)
Acres 69 Proposed Start Date 9/18
Vol. MBF 120.3 Vol. Cds. 255 Vol. Tons 29

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.

Stream Crossings

Indicate location on map	SC-1	SC-2	SC-3	SC-4
Type of Crossing	BR			
Existing Structure	No			
Type of Bottom	OT			
Bank Height (ft)	1			
Stabilization	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	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 SKIDROADS/TRAILS ARE EXISTING
*SEE NHESP LETTER => NO IMPACT

Site Information

Best Management Practices

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.

Forest Products

Products to be Harvested*

Species	Mbf/Cds		Mbf/Cds
White Pine	31.4	Red Maple	
Red Pine		Sugar Maple	
Pitch Pine		Red Oak	73.4
Hemlock		Black Oak	14.4
Spruce		White Oak	1.1
Other Sftwd.		Other Hdwd.	
White Ash		Total Mbf	120.3
Beech		Cordwood (Cds)	255
White Birch		SW Pulp (Tons)	29
B & Y Birch		HW Pulp (Tons)	
Black Cherry		Chips (Tons)	

*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. Mbf = thousand board feet.

Stand Treatment

Cutting Standards

Indicate location on map	ST-1	ST-2	ST-3	ST-4
Forest Type	OR	WO	WH	
Acres	53.7	10.0	5.3	
Landowner Objective	LT	LT	LT	
Designation of Trees	CT	CT	CT	
Type of Cut	SH	SH	SH	
Source of Regeneration	AD	AD	AD	

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. After having read the Massachusetts Forest Cutting Plan Information Sheet on page one, indicate your objective by checking the appropriate box below.

☒ 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.

I (we) certify that I (we) have notified the Conservation Commission in the town in which the operation is to take place and the abutters of record within two hundred feet of the area to be harvested.

I (we) understand that the volumes and values (Ch61 only) in this plan have not been independently verified by the service forester upon approval and will report final values and volumes to the Director or his/her agent if the final figures differ from those reported.

Patricia E. Austin

Signature of landowner(s)

8/14/18

Date

Service Forester

Determination and Status

Approved Disapproved Expires

Cutting Plan

☒

☐

8-15-2020

[Signature]

8-29-2018

Signature of Service Forester/Director's Agent

Date

Extension

1 ☐

2 ☐

Expires

Ser. For. Ints.

Amendment

App 1

Dis 1

App 2

Dis 2

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

Forest Types				Designation of Trees	Type of Cut	Intermediate Harvests:	Source of Regeneration
WP White Pine	HK Hemlock	OM Mixed Oak	CT Cut Tree	SH Shelterwood	CT Commercial Thin	AD Advanced	SE Natural Seed
WK WP/Hem	HH Hem/Hdwd	RM Red Maple	LT Leave Tree	ST Seed Tree	NT Non Com Thin	PL Plant	CO Coppice
WH WP/Hdwd	BC Blck Cherry	BE Beech	SB Stand Boundary	SE Selection	HG Highgrade*	DS Direct Seed	OT Other
WO WP/Oak	BB Bee/Bir/Map	SF Spruce/Fir	OT Other	SA Salvage	DL Diameter Limit*		
RP Red Pine	OH Oak/Hdwd	SM Sugar Maple	Landowner Objective	SN Sanitation	OT Other*		
SR Red Spruce	OR N Red Oak	PP Pitch Pine	LT Long-term Mgt.				
			ST Short-term Har.				

*If Other (OT) or a non-standard system is used an explanation must be given on attached narrative page

pg 4 of 5

Forest Cutting Plan

Narrative Page

Page 1 of 2

Landowner: Hubert W. Hanson

Town: Ironston

File Number: 241-9482-19

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 is where the intermittent stream crosses on top of the former Gill Road. There is no visible drainage structure beneath the old road. If the stream is flowing when the job is active, then bridges (timber bridge, swamp mat, steel plates, etc.) will be used along with adequate corduroy or tops used to stabilize the approaches. Bridging will not be used if the stream is dry although material will still be used to minimize rutting and disturbance of the approaches and the stream course itself. Depending upon conditions at the time when work is being performed, an alternate stream crossing upstream of the presently mapped SC-1 location may be considered.</u></p>
Silviculture	<p><u>In order to release advance regeneration, 11 openings in the overstory are being created, covering 15 acres. These openings range from 0.4 to a little over 2 acres in size with an average of 1.3 acres. They are well distributed throughout the sale area focusing on where the advance regeneration is well established. 6.1 acres are being thinned in order to remove low quality oaks, red maples and black birch.</u></p>
Objectives	<p><u>The main objective of this operation is to diversify the age structure of the forest by removing the overstory in patches thereby releasing the generally excellent advance regeneration. The current age structure is limited with an insufficient component of young forest.</u></p>
Other	<p><u>The forwarder haul road from the landing to Gill Road is flagged as is haul road over Flagg Hill. The haul road within the sale area is an existing atv/snowmobile trail and is not flagged.</u></p>

Forest Cutting Plan

Narrative Page

2 of 2

Landowner: Deerfield Wildlife

Town: Franklin

File Number: 241-9482-19

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

Other

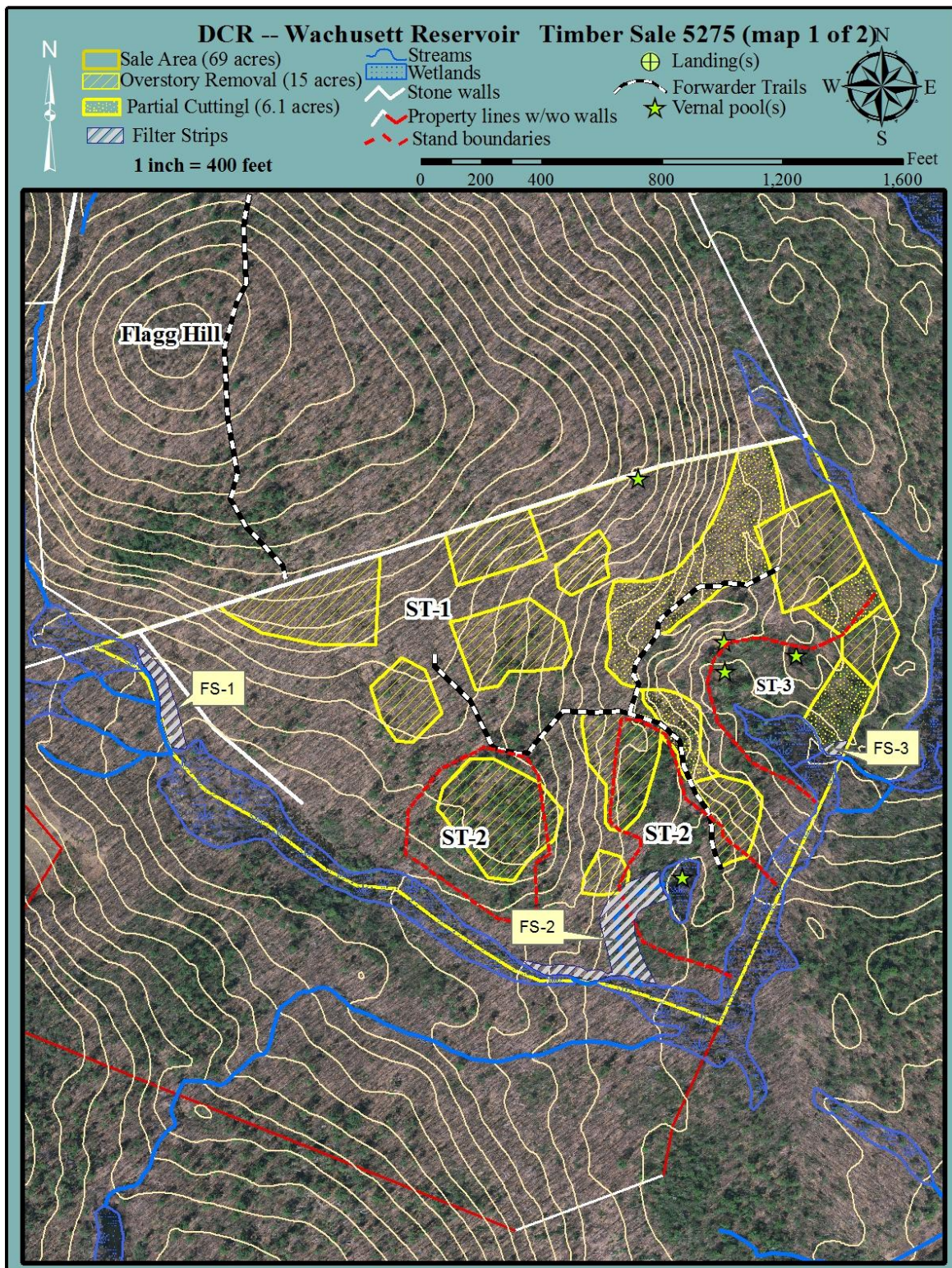
Most of this sale area is within the NHESP polygon (PH #606) deemed Priority Habitat for marbled salamander. The layout and marking of the overstory removal patches and the thinned areas is intended to conform with the Massachusetts Forestry Conservation Management Practices for MESA-Listed Mole Salamanders.

This is a primarily red oak forest that originated in about 1935. Other species present in the overstory are white pine, white oak, black oak, red maple, hickory, and paper birch. There's some white ash and yellow birch in the low, rocky areas near the stream and sugar maple on the southwest slope in the western corner of the area. There's also beech concentrated on a rocky slope in the middle of the sale area. The understory is dominated by advance regeneration as well as shrubs such as mountain laurel, witchhazel, hazelnut, maple-leaved viburnum, striped maple and blueberries. The understory, both trees species and shrubs, is well developed owing to a severe thunderstorm in 1989 and, more recently, the ice storm of 2008. Both of these events created and/or expanded small openings in the canopy allowing sunlight to reach the forest floor and helping the understory to persist.

GIS analysis shows that of the 49.8 acres that is between 50' and 450' from the 5 DCR-verified vernal pools in this area, 6.3 acres (12.7%) is in overstory removal patches, 2.5 acres (5.0%) is in thinned areas with roughly 50% basal area removal, 3.6 acres (7.2%) is in thinned areas with roughly 25% basal area removal and 37.3 acres (75%) is uncut. In the overstory removal patches, as is common practice for DWSP timber sales, 10-20 square feet of basal area in overstory trees are retained.

The 50' management zones from the vernal pools have been flagged with lime green flagging. The 450' management zone from the vernal pools has been flagged with orange flagging. Only the portions of the management zones that are within the sale area have been flagged.

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



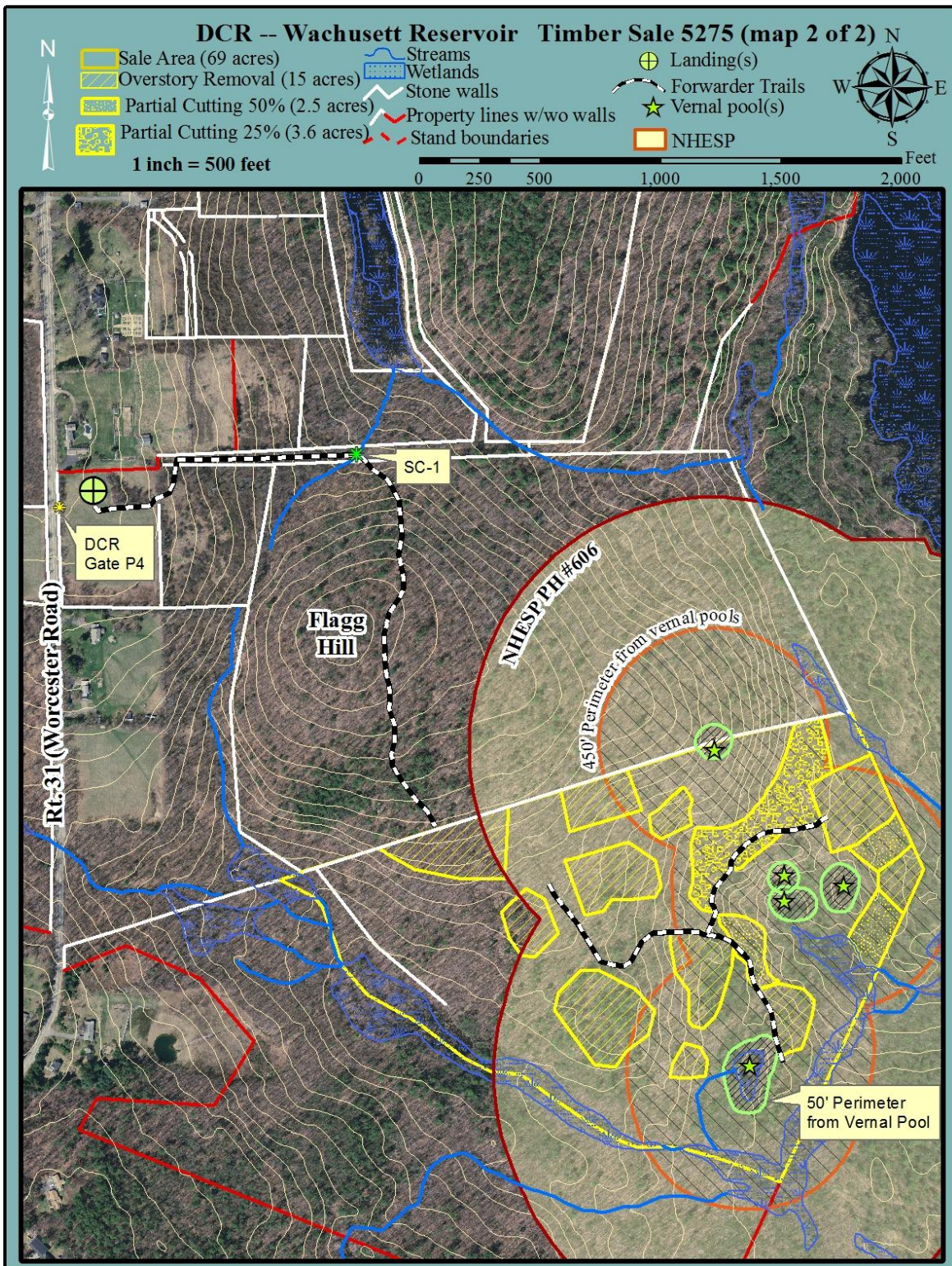


Figure 3. General locus map showing the location of the proposed timber harvest

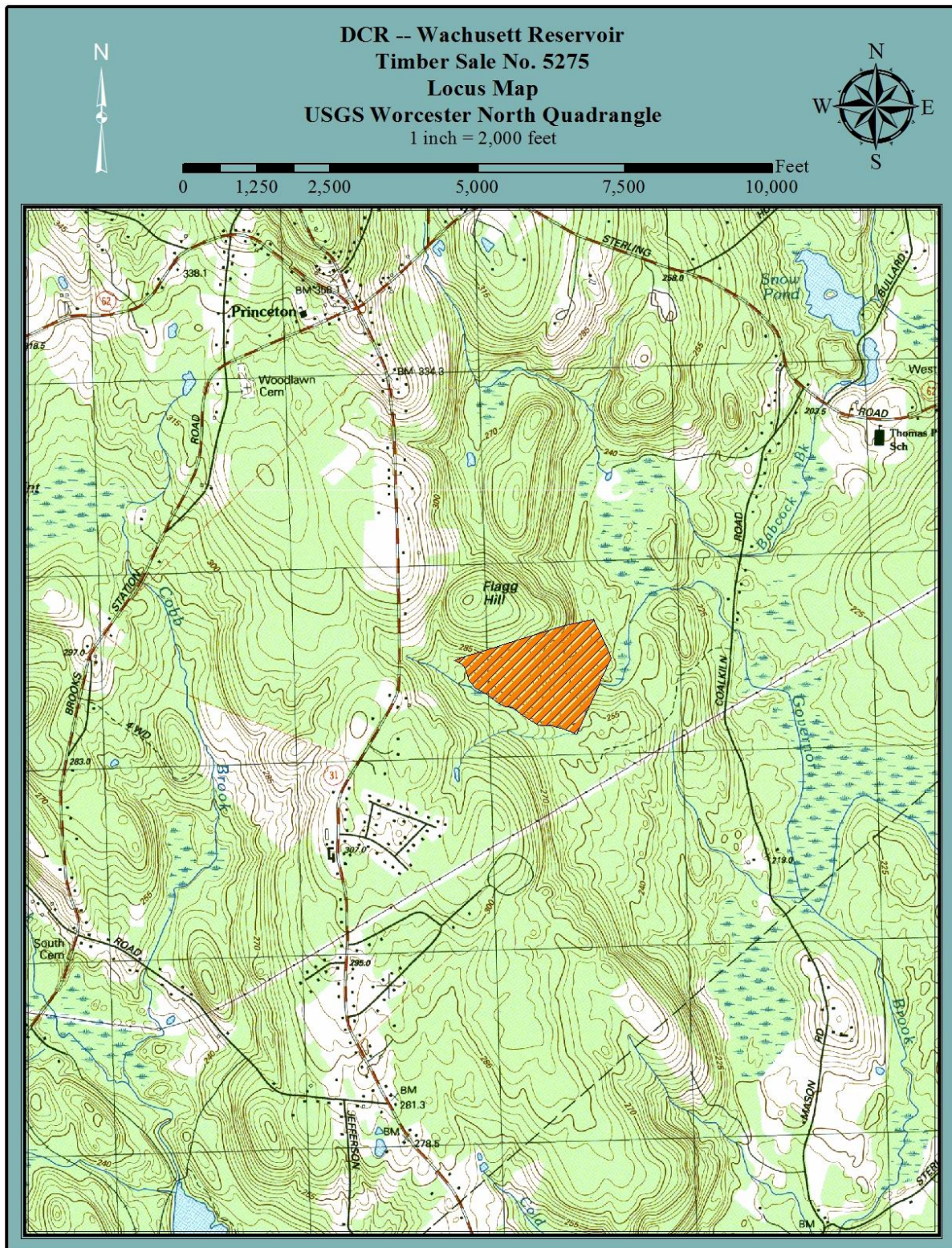


Figure 4. Pre-Harvest Photographs, A-B



A. The landing location inside Gate P4 on Worcester Road (Rt. 31) in Princeton. The trees in the background mark the location of the retaining wall that was part of one of the structures associated with the Governor Gill estate.



B. One of the areas of overstory removal. The red oak in the left foreground is being removed along with most other overstory trees in order to give the young seedlings and sapling the light and room they need to thrive. The red oak in the middle of the picture just to the left of the boulder is being retained. It will provide valuable vertical structure in this soon-to-be young patch of forest.

Figure 5. Post-Harvest Photographs, A-C



A. One of three water bars installed on the former Gill Road in order to prevent water from running down the road and causing erosion.



B. The overstory was removed here to give the seedlings and saplings light and room to thrive. The small group of white pines were intentionally retained to provide important structure and will continue to be a source of seeds, ensuring the success of regeneration in this area.



C. The young white pines and hardwoods in this area now have the light and room they need to continue to grow.