

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

Project Title:

DWSP Harvest Permit Number: 1051
DCR Forest Cutting Plan File Number: 124-8857-17

Site Information

Watershed: Quabbin Reservoir	Town(s): Hardwick
Acres: 35	Nearest Road: Greenwich Road
Natural Heritage Atlas overlap?: Yes	Public Drinking Water Supply Watershed?: Quabbin
Forest Types: Red pine, pine/oak, oak/hardwood	ACEC?: No
Soils: Montauk-Scituate-Canton association	
Wetland Resources: small streams and wetlands.	
Vernal Pools present or within 200 feet of harvest: None.	

Harvest Information

Harvest Start Date: TBD	Harvest End Date: TBD
Number of Wetland Crossings: 1 potentially 2 if done in winter.	Number of Stream Crossings: 1 and potentially a second.

Best Management Practices Applied

Stream Crossings	Portable bridge and poles required, approaches will be seeded after completion.
Filter Strips	Variable filter strips used with less than 50% of basal area cut if any was cut at all.
Wetland Crossings	Portable bridge and poles required, second one only used with frozen ground.
Harvesting in Wetlands	No harvesting in wetlands.

DWSP Forester supervising this harvest

Name: Steven J. Wood
Forester License #: 257
Phone #: 1 (413) 323-6921 ext. 156
Email: steven.wood@state.ma.us

NARRATIVE

General Description/Forest Composition/History:

The area to be harvested is located in the town of Hardwick, access through gate 43a or 44. Lot is on the north side of Shaft 12 Road across from intersection with Fitzpatrick Road and runs down towards the reservoir.

The stone walls on this lot attest to its history of being cleared for agriculture, mostly for pasture. When the farmland was abandoned, probably in the late 19th or early 20th century, it reverted to forest. Five separate upland areas were planted to red pine in the 1940's. See Cultural Resource section for further details on past use.

The primary tree species present are white and red pine and mixed oaks (predominately red oak). Other hardwoods include black and paper birch, red maple, ash, and hickories. Scattered hemlock is present mainly as suppressed mid-story trees. The red pine is infected with scale and root rot and there are numerous dead and dying stems present. Understory is mostly black birch and white pine and a lot of the pine is dropping out due to needle casts, competition and probably the recent gypsy moth defoliations. There is some scattered regeneration of the other common hardwoods throughout the area, most notably sugar maple in the north central part of the lot.

The excluded section in the north central section of lot appears to have been an old field which was at least partially planted to red pine, much of which has died. There are a couple of acres here now that is infested with Japanese knotweed which is spreading, mainly to the north and east. A buffer of red pine was left around this in an attempt to slow the invasives spread into the surrounding stand.

The soils on this lot are primarily Montauk-Scituate-Canton association and are stony with surface stone present on some sections. Soils are mostly well drained but there are a few low areas that get seasonally wet, these areas were mostly avoided.

Site Selection:

The primary goal of the watershed forest management program is to create and maintain a forest that provides high quality drinking water to current users and future generations. In order to achieve this, DWSP has determined that the forest should contain a diversity of species in various stages of development (seedlings through large legacy trees). In addition, the forest should be vigorous; actively growing and regenerating. A forest in this condition is resilient to and can quickly recover from small and large scale disturbances such as diseases, insect infestations, ice storms and hurricanes.

This area was selected for harvest due to the stands of declining red pine (infected with red pine scale and root rot). Additional surrounding acreage between the streams is treated to complete the treatment and avoid having to reenter this area for awhile. This limits stream crossings required and the frequency and duration of soil disturbance.

Silvicultural Objectives:

A goal of this harvest is to build on the success of the work started in 1992 and expanded upon in 1995 and 2003, by continuing the process of establishing new tree seedlings and providing space for existing regeneration to expand and grow. The diversity of native species present is being maintained. This combination of structural and species diversity builds resistance and resilience into the forest.

Since most of this area had been cut several times in the past the majority is well stocked with sapling to pole sized stems. These areas are having most of the remaining overstory cut to do the final release. Individuals and groups of better formed, vigorous and healthy stems of hardwoods, particularly mast producers, are retained for seed production, habitat and diversity. The areas that contained more white pine and hardwood had scattered openings between 0.4-1.0 acre created. Advance regeneration will be protected as much as possible and again some of the overstory will be retained. Most of this lot won't need to be cut again for decades.

Wherever possible wildlife habitat features were maintained and protected, such as snags (dead trees) and trees with cavities or nests. Exceptional individuals of all species present were retained in the stand for seed and to enhance diversity.

Cultural Resources:

This area has much evidence of past human use including a couple of walled lanes and remains of a railroad spur line which was never completed. Areas of cut and fill are still apparent and there are two stone culverts which are still functioning. One had been used as a stream crossing and will be again for this project. It will be overlain with a portable bridge during the harvest to protect it.

Stone walls are numerous throughout this area. There are breaks and barways in these walls and they can be used to avoid and protect the stone walls during the upcoming harvest. This is in keeping with DWSP's standard practice, which dictates that every effort is made to keep existing stone walls intact. There is a small well in one of the adjoining wetlands which could have been used for watering livestock. Otherwise, this area has been determined not to be culturally or archeologically sensitive based on a review by the DCR Archaeologist.

Wildlife/Rare or Endangered Species:

The lot is along the reservoir shoreline so is within a habitat "bubble" designated for protection by the Natural Heritage and Endangered Species Program (NHESP) for rare species. NHESP does not expect activities proposed in the plan to negatively impact listed species and did not require modifications to the plan.

The lot contains no other critical habitats or known rare or endangered species, and no vernal pools. The uplands are home to a variety of wildlife including deer, turkey, coyote and moose.

FIGURES

Figure 1. Forest Cutting Plan

Figure 2. Pre-Harvest Photographs, A-B

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)

JUN 16 2017

For DCR Use Only:

File Number 124-885717 Case No. _____
 Date Rec'd 6/11/17 Nat. Hert. Y
 Earliest Start 7/3/17 Nat. Hert. Imp. _____
 River Basin CHICOPPEE Pub. Dr. Wat. QUABBIN
 Gen. Obj. LT ACEC N

Site Information

Location

Town Hardwick DWSP Lot I051 Amendment SC2
 Road Off Greenwich Rd. access through gate 43A, 44
 Acres 35 Proposed Start Date _____
 Vol. MBF 174.4 Vol. Cds. 75 Vol. Tons 185

Plan Preparer

Name Steven J. Wood
 Address DCR, Division of Water Supply Protection
485 Ware Rd.
 Town, State, Zip Belchertown, MA 01007
 Phone (413) 323-6921 ext. 156
 Type of Preparer Mass. Licensed Forester
 *Mass. Forester License # 257
 *Required for land under Ch61, Ch61A or Forest Stewardship

Landowner

Name DCR, Division of Water Supply Protection
 Mailing Address 485 Ware Rd.
 Town, State, Zip Belchertown, MA 01007
 Phone (413) 323-6921
 Ch61 Ch61A Stew *Case # _____
 Est. Stumpage Value 16,000

Licensed Timber Harvester**

Name _____
 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	BR		
Existing Structure	N	N		
Type of Bottom	ST	ST		
Bank Height (ft)	0.5'	1'		
Stabilization	SE/CO	SE		

Wetland Crossings

Indicate location on map	WC-1	WC-2	WC-3	WC-4
Length of Crossing	10'	32'		
Mitigation	FR,DR	FR,DR		
Stabilization	SE/CO	SE/CO		

Filter Strips

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

Portable bridges required SC-1, SC-2 and WC-2; WC-1 if wet when used. SC-2 is only for transport of equipment between sections. Blue Wood
 • NO NHEP IMPACT - SEE ATTACHED REVIEW

Codes

Type of Preparer	Type of Crossing	Stabilization	Mitigation	Type of Bottom
LP Mass. Lic. For.	CU Culvert	SE Seed	PR 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 Mtd
LO Landowner	PO Poled	ST Stone		GR Gravel
OT Other	OT Other	HB Hay Bales		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*

Species	Mbf/Cds		Mbf/Cds
White Pine	64.7 M	Red Maple	6.1 M
Red Pine	94.2 M	Sugar Maple	
Pitch Pine		Red Oak	4.5 M
Hemlock		Black Oak	0.7 M
Spruce		White Oak	
Other Sitwd.		Other Hdwd.	4.1 M
White Ash		Total Mbf	174.4
Beech		Cordwood (Cds)	75
White Birch		SW Pulp (Tons)	185
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	RP4	WO4	OH4	
Acres	10.1	16.7	2.5	
Landowner Objective	LT	LT	LT	
Designation of Trees	CT	CT	CT	
Type of Cut	SW	SW	SW	
Source of Regeneration	AD/SE	AD/SE	AD/SE	

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

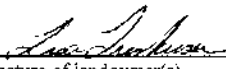
Harvest of trees with the main intention of producing short-term income with minimal consideration given to improving the future forest condition, which often results in a forest dominated by poor quality and low value species

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.



Signature of landowner(s)

6-9-17
Date

Service Forester

Determination and Status

Approved Disapproved Expires 6/16/19

Cutting Plan  6/28/17
Signature of Service Forester/Director's Agent Date

Extension 1 2 Expires 1 Ser. For. Ints. 1

Amendment App 1 Dis 1 App 2 Dis 2 1

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	Source of Regeneration
WP White Pine	CT Cut Tree	SH Shelterwood	AD Advanced
WK WP/Hern	LT Leave Tree	ST Seed Tree	SE Natural Seed
WH WP/Hdwd	SB Stand Boundary	CC Clear Cut	PL Plant
WO WP/Oak	OT Other	SE Selection	CO Coppice
RP Red Pine	Landowner Objective	SA Salvage	DS Direct Seed
SR Red Spruce	LT Long-term Mgt.	SN Sanitation	OT Other
	ST Short term Har.		
		Intermediate Harvests:	
		CT Commercial Thin	
		NT Non Com Thin	
		Non-Standard Systems:	
		HG Highgrade*	
		DL Diameter Limit*	
		OT Other*	

*If Other (OT) or a non-standard system is used an explanation must be given on attached narrative page pg 2 of 5

Forest Cutting Plan

Narrative Page (Effective Date: 1/1/04)

Use this page to provide further explanation or if Other (OT) was used in any category on pages 3 or 4.

Landowner DCR, DWSP

Town Hardwick

File Number 124-8857-17

BMPs

Use this Section to provide further explanation or if Other (OT) was used in any category in the Best Management Practices Section on Page 3.

Area has been cut multiple times previously, most of harvest is a final overstory removal on red pine plantations. There is a good understory of black birch and/or white pine throughout. Patch number 7 has densier overstory and understory white pine mostly died so is more of an opening.

There is thinning around patches were appropriate. Edge of patches are marked with an orange stripe and dot. Save trees have an orange band, cut trees are blue marked, edge of harvest is pink flagged or double orange stripe. SC-1 is an existing stone culvert which will be protected with a portable bridge, or portable bridge will be used just upstream. If done during dry or frozen conditions WC-2 could be used instead, will not be used otherwise.

Designation of Trees

Use this Section to describe the types of trees to be harvested and/or retained if Other (OT) was used for "Designation of Trees" in the Stand Treatment Section on page 4.

Stand No.	Species to be Cut	Size of Trees to be Cut	Quality of Trees to be Cut	% BA/Acre Removed

Regeneration & Future Condition

Use this Section to describe how Chapter 132 requirements will be met if a non standard system (HG, DL, or OT) was used for the "Type of Cut" in the Cutting Standards Section on page 4.

Stand No.	Source of Regeneration (ex. AD, SE)	How will Regeneration be obtained/protected? If using AD - Describe the species present and how the regeneration will be protected If using SE - Describe the source of the seed and the number of seed trees/acre

Stand No.	Desired Future Condition Describe what the stand is expected to look like five years from the harvest, including the condition of the overstory & understory

Harvest Lot 1051
 Hardwick, MA
 35 acres
 Quabbin Reservoir
 Division of Water Supply Protection
 Prepared by Steven J. Wood 5/30/2017
 Data sources: MassGIS, DCR & EOEEA

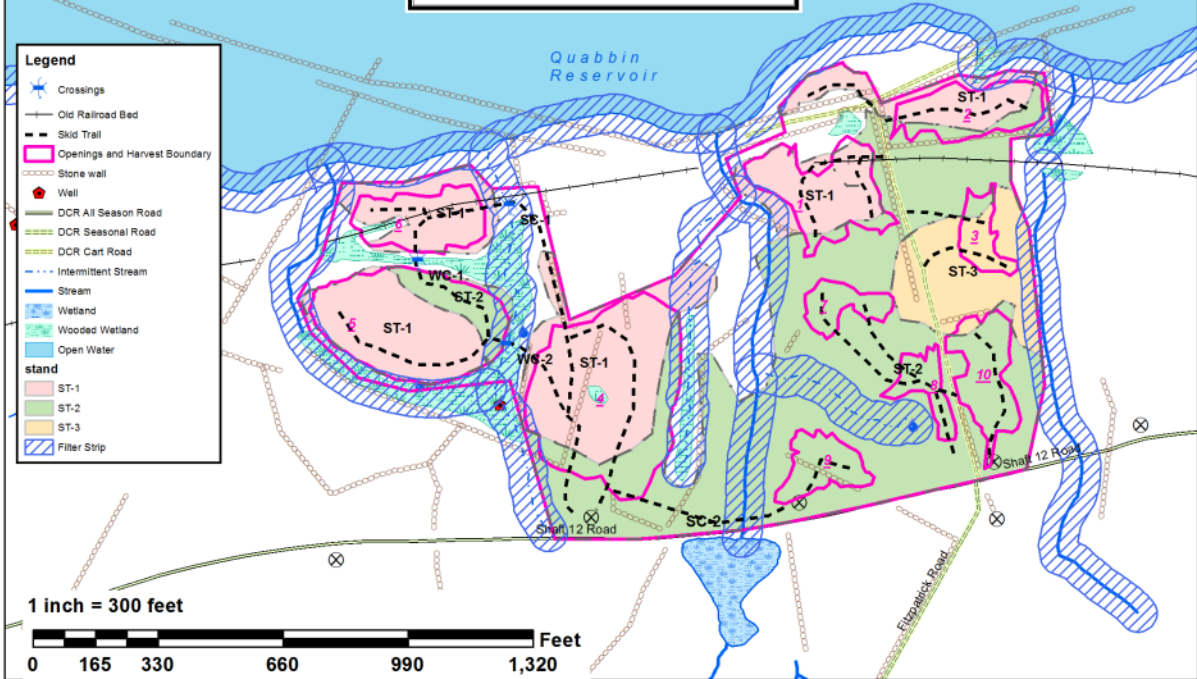
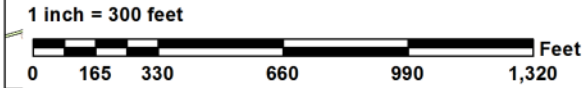


Legend

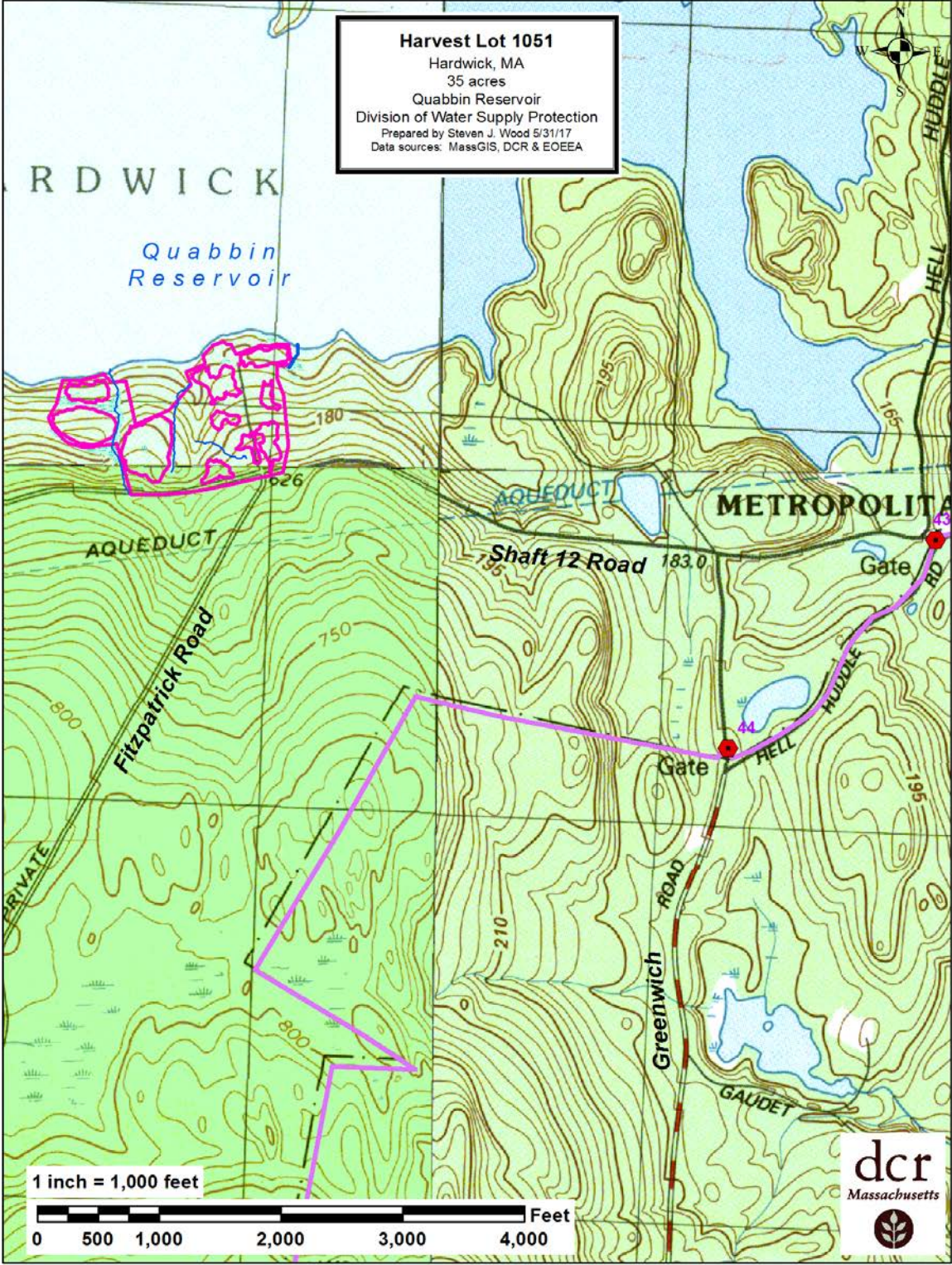
- Crossings
- Old Railroad Bed
- Skid Trail
- Openings and Harvest Boundary
- Stone wall
- Well
- DCR All Season Road
- DCR Seasonal Road
- DCR Cart Road
- Intermittent Stream
- Stream
- Wetland
- Wooded Wetland
- Open Water

stand

- ST-1
- ST-2
- ST-3
- Filter Strip



Harvest Lot 1051
Hardwick, MA
35 acres
Quabbin Reservoir
Division of Water Supply Protection
Prepared by Steven J. Wood 5/31/17
Data sources: MassGIS, DCR & EOEEA





MASSWILDLIFE

**DIVISION OF
FISHERIES & WILDLIFE**

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

Jack Borkey, Director

Kate Marcuis - Department of Conservation and Recreation
355 West Boylston St.
Clinton, MA 01510

Cutting Plan No.	<u>124-8857-17</u>
NHESP Tracking No.	<u>17-36875</u>
Town	<u>Hardwick</u>
Road	<u>Greenwich Road</u>
Landowner	<u>DCR - DWSP</u>
Preparer	<u>Steven Wood</u>
Date	<u>June 23, 2017</u>

Dear Kate,

The Natural Heritage and Endangered Species Program ("the NHESP") of the Massachusetts Division of Fisheries and Wildlife ("the Division") has reviewed the above-referenced Forest Cutting Plan ("the Plan") pursuant to the special approval procedures of the Forest Cutting Practices Regulations (304 CMR 11.04(6)). Based on details of the Plan and information in the NHESP database, the Division does not expect activities proposed in the Plan to negatively impact Estimated Habitat or result in "Take" (as defined in 321 CMR 10.02) of plant or animal species protected under the Massachusetts Endangered Species Act (MESA) (M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00). Therefore, the Division does not require that the Plan be modified at this time.

Please copy the Division on any proposed amendment, extension and on the approved Plan for the site. If you have any questions about this letter, please contact Brent Powers at (508) 389-6354 or brent.powers@state.ma.us.

Sincerely,

Thomas W. French, Ph.D.
Assistant Director

Cc: Town of Hardwick Conservation Commission

MASSWILDLIFE

5A of 5



COMMONWEALTH OF MASSACHUSETTS
 Department of Conservation and Recreation
 Division of State Parks and Recreation

FILE # 124-8857-17



FOREST CUTTING PLAN CERTIFICATE

Post this in a conspicuous place within the area in which the harvesting operation is to take place.

This certifies that DCR-DWSP 485 Ware Rd, Belchertown, MA in accordance with the
 (Name of Owner) (Address)

provision of M.G.L. Chapter 132, Section 40-46, filed in Amherst F.O. with the Dept. of Conservation
 and Recreation, Division of State Parks and Recreation, a Notice of Intent to cut forest products upon the

"DWSP 1051" lot, Hardwick, MA
 (off Greenwich Rd)

Approval Date 6/30/17

ISSUED BY:

Director's Agent Douglas Hutcherson

Priscilla E. Geigis, Director
 Division of State Parks and Recreation

DCR Phone No. (413) 545-7020 (o)
(413) 237-9713 (e)

Figure 2: Pre-Harvest Photographs, A-B (5/16/2017)

A.



Photo point 2 showing well established black birch saplings with declining white pine.

B.



Photo point 4 showing area with less regeneration. Japanese knotweed is present on right edge, outside of cut area. Also note dead/dying red pine in overstory, typical condition of red pine on this lot.