

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

Project Title: Paired Watershed Study
DWSP Harvest Permit Number: 3162
DWSP Proposal ID: PR-19-22
DCR Forest Cutting Plan File Number: 204-21474-20

Site Information

Watershed: Quabbin
Town(s): New Salem
Acres: 52
Nearest Road: Osborne Road, Vaughn Road (Gate 21)
Natural Heritage Atlas overlap?: Yes
Public Drinking Water Supply Watershed?: Yes
Forest Types: White Pine/Red Pine & Mixed Oak
Area of Critical Environmental Concern (ACEC)?: No
Soils: Montauk fine sandy loam, Chatfield-Hollis complex, Canton-Chatfield-Hollis complex
Wetland Resources: No
Vernal Pools: Yes (within 200 ft.)

Harvest Information

Harvest Start Date: December 16, 2019
Harvest End Date: October 16, 2020
Number of Wetland Crossings: 0
Number of Stream Crossings: 2

Best Management Practices Applied

Stream Crossings: Temporary skid bridges
Filter Strips: Variable width
Wetland Crossings: Not Applicable
Harvesting in Wetlands: Not Applicable

DWSP Forester supervising this harvest

Name: Derek Beard
Forester License number: 14
Phone number: 617-780-0631
Email: derek.beard@mass.gov

Narrative

General Description/Forest Composition/History

Located in the Bials Hill area of New Salem, most of the project encompasses the west slope of the hill then westerly to points just west of Vaughn Rd (aka Gate 21 Rd); then south to a weir on the east branch of Underhill Brook. Outlying areas include two small red pine plantations closer to the west branch of Underhill Brook and a section of mostly dead oak on the west side of Brown Rd (southerly most portion of harvest). The project covers 194 acres of which 52 are being treated.

Past agrarian use has significantly influenced today's forest composition. Used for tillage and pasture, most of the land was open when purchased by the Commonwealth. The readily accessible tillage was planted with red pine while remote rougher ground was left to naturally reforest into what is now dense oak forest (red, black, white, scarlet and chestnut).

Following state ownership, much of the area was thinned in the early 1970s and some portions again in the early 80s. Most recent activity was a three-acre clear cut completed in 1986. In the past few years, changes in composition continue with significant red pine mortality from a scale (pest) infestation as well as scattered oak mortality from Spongy moth caterpillar defoliation.

Three decades have elapsed, a slightly longer period than usual, since the last silvicultural treatment. The extension is due to much of the area being part of a paired watershed study beginning in 1999.

The study was designed to assess change in water yield and nutrient deposition resulting from loss or alteration of forest cover. Beginning in 2002, monthly water samples were taken from two separate watersheds; the east branch of Underhill Brook (the experiment watershed) and the middle branch of Dicky Brook (the control watershed). The sample duration has established a solid baseline of data from each watershed. In 2018, the decision was made to begin altering forest cover via timber harvesting within the Underhill Brook experimental watershed.

Silvicultural Objectives

The primary goal of the watershed forest management program is to create and maintain a forest that provides high quality drinking water to current and future users. 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. Forest in this condition is ideally suited to be resilient to and quickly recover from small to large scale disturbances such as disease, insect infestation, ice storms and hurricanes.

Specifically, this area was selected to launch the second phase of the paired watershed study cited above.

Cultural Resources

The Stone walls are the area's predominant cultural resource. It's also home to several fieldstone causeways over Underhill Brook constructed long ago by local farmers. There are two cellar holes that have been flagged for their protection during harvesting.

Rare or Endangered Species

Maintaining and/or enhancing habitat is a high priority when planning and executing watershed forest management projects. As such, retaining live and dead snags, trees that show sign of use by wildlife for nesting/denning, scenting and foraging is a priority. Falling in a natural heritage bubble, the project area was reviewed by MA Natural Heritage and Endanger Species program and deemed to have no impact on the specie(s) within the bubble.

Figures

- Figure 1. Forest Cutting Plan

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: 3/15/16)

11-12-1990241 REV

For DCR Use Only:

File Number	<u>201-21474-20</u>	Case No.	<u>-</u>
Date Rec'd	<u>10-10-19</u>	Nat. Hert.	<u>yes</u>
Earliest Start	<u>10-28-19</u>	Pub. Dr. Wat.	<u>no</u>
River Basin	<u>Chicago</u>	ACEC	<u>no</u>
Gen. Obj.	<u>LT</u>		

Site Information

Location

Town New Salem
 Road J. Vaughn (Quabbin Gate 21)
 Acres .52 Proposed Start Date _____
 Vol. MBF 480.1 Vol. Cds. 451 Vol. Tons 279

Plan Preparer

Name Derek Beard
 Address 485 Ware Rd.
 Town, State, Zip Belchertown, MA 01007
 Phone (617) 780-0631
 Type of Preparer LF
 *Mass. Forester License # 14
 *Required for land under Ch61, Ch61A or Forest Stewardship

Landowner

Name DCR - Div. of Water Supply Protection
 Mailing Address 485 Ware Rd
 Town, State, Zip Belchertown, MA 01007
 Phone 413-323-6921
 Ch61 61A 61B Stew *Case # _____
 FSC CR CR Holder

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	CU	BR		
Existing Structure	YES	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

* Heritage Restrictions - See Attached

Codes

Type of Preparer	Type of Crossing	Stabilization	Mitigation	Type of Bottom	Note
LF Mass. Lic. For.	CU Culvert	SE Seed	FR Frozen	LE Ledge	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 applications may require additional permits. Consult MA Forestry BMP Manual for further information.
TH Lic. Tim. Har.	BR Bridge	MU Mulch	DR Dry	ST Stony	
TB Timber Buyer	FO Furd	CO Corduroy	OT Other	MU Mud	
LO Landowner	PO Puled	ST Stone		GR Gravel	
OT Other	OT Other	HB Hay Bales		OT Other	
		OT Other			

Forest Products

Products to be Harvested*

Species	Mbf/Cds		Mbf/Cds
White Pine	18.3	Red Maple	5.9
Red Pine	375.5	Sugar Maple	5.5
Pitch Pine		Red Oak	51.8
Hemlock		Black Oak	9.4
Spruce		White Oak	3.4
Other Sftwd.		Other Hdw.	2.7
White Ash	5.1	Total Mbf	480.1
Beech		Cordwood (Cds)	451
White Birch		SW Pulp (Tons)	279
B & Y Birch	1.5	HW Pulp (Tons)	
Black Cherry	3.0	Chips (Tons)	

*Note: Volumes 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 *X See Next Page*

Indicate location on map	ST-1	ST-2	ST-3	ST-4
Forest Type	WP	OM	OM	RP
Acres	2	8	2	8
Landowner Objective	LT	LT	LT	LT
Designation of Trees	CT	CT	CT	CT
Type of Cut	CC	CC	SA	SA
Source of Regeneration	CO	SE	SE	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 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)

10-10-19

Date

Service Forester

Determination and Status 204-21474-20

Approved Disapproved Expires 10/10/21

Cutting Plan

 Signature of Service Forester/Director's Agent Date 12-4-19

Extension 1 2 Expires 1 Ser. Fur. Ints. 1
 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 2-7-22

Codes

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

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

Forest Cutting Plan

Narrative Page (Effective Date: 3/15/16)

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 New Salem

File Number 204-21474-20

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.

The project covers a 194 acre unit of which 52 acres are being harvested. Stands 4,5 & 7 (25 acres) are plantation red pine that have experienced 25-33% mortality. The stands remaining live red pine is being removed as a salvage operation. Residual structure is composed of randomly scattered sawtimber white pine and black birch sapling/poles. Stands 3 and 8 (15 acres) is mixed oak that has experienced 50% gypsy moth caterpillar mortality. The dead trees are being removed as a salvage operation. Approximately 60 sq. ft. per acre of basal area in healthy live oak, maple and birch will remain. Stands 1,2 & 6 (12 acres) have roughly 5 to 10 sq. ft. of basal area per acre of live tree retention. Live snag retention was of particular importance. Harvest stands are marked with blue paint. A landing to be made and all main skid roads are marked with orange paint.

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. Additional narrative description may be added on a separate page.

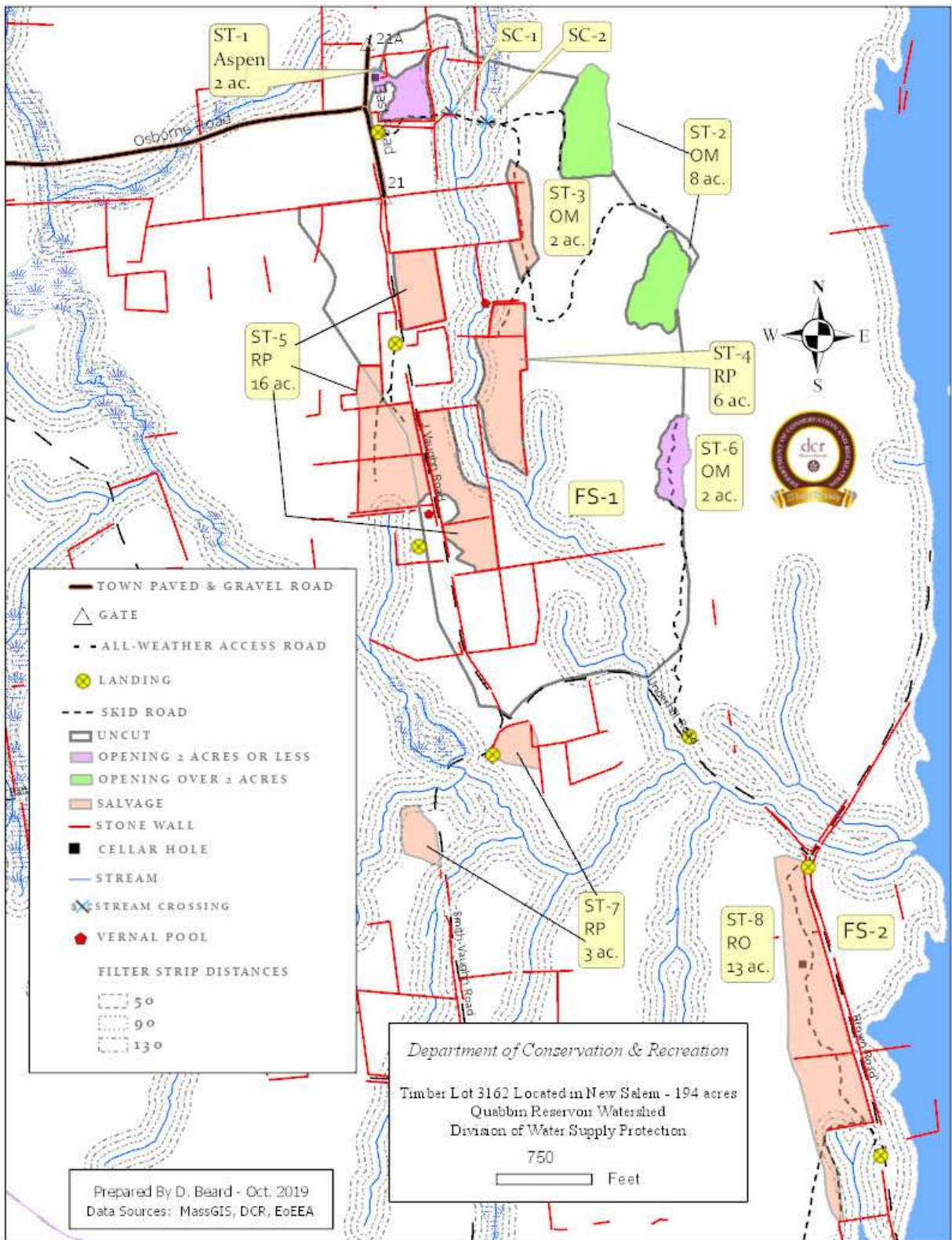
Stand No.	Describe Trees to be Cut			Describe Trees to be Left			% BA/AC	
	Species	Size	Quality	Species	Size	Quality	Cut	Left

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
5	SE	RP 16 ac. SA LT CT
6	SE	OM 2 ac. CC LT CT
7	SE	RP 3 ac. SA LT CT
8	SE	OR 13 ac. SA LT CT

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 & understorey





Department of Conservation & Recreation
Timber Lot 3162 Located in New Salem - 194 acres
Quabbin Reservoir Watershed
Division of Water Supply Protection

Quarter Mile

Prepared By D. Beard - Oct. 2019
Data Sources: MassGIS, DCR, EoEEA



MASSWILDLIFE

Andrew Rawcliffe
40 Cold Storage Drive
P.O. Box 484
Amherst, MA 01004

**DIVISION OF
FISHERIES & WILDLIFE**

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

Cutting Plan No. 204-21474-20
NHESP Tracking No. 19-38967
Town New Salem
Road J. Vaughn Road
Landowner DCR DWSP
Preparer Derek Beard
Date November 5, 2019

Dear Andrew,

The Natural Heritage and Endangered Species Program (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)).

The Division, in coordination with the State Botanist and DCR staff, conducted a site visit of the harvest area in order to assess suitable habitats for Appalachian Bristle-fern (*Trichomanes intricatum*) a state-listed Endangered species.

Based on details of the Plan, site visit, 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 Rebekah Zimmerer at (508) 389-6354 or Rebekah.zimmerer@mass.gov.

Sincerely,

A handwritten signature in cursive script that reads "Everose Schlüter".

Everose Schlüter, Ph.D.
Assistant Director

MASSWILDLIFE

dcr



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

FILE # 204-21474-20

W

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 (Address) 01007 (Name of Owner) In accordance with the

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 Quabbin Gak 21 lot.

Approval Date 12/4/19

Director's Agent Andrew Rawcliffe

DCR Phone No. 617-549-1677

ISSUED BY:

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