

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

Project Title: Lot 5249AAA

DWSP Harvest Permit Number: 5249AAA

DWSP Proposal ID: WA-13-65

DCR Forest Cutting Plan File Number: 134-7008-14

Site Information

Watershed: Wachusett

Town(s): Holden

Acres: 18.6

Nearest Road: Wachusett Street (Rt. 31)

Natural Heritage Atlas overlap?: Yes

Public Drinking Water Supply Watershed?: Yes

Forest Types: White pine/oak; White pine/hardwood

Area of Critical Environmental Concern (ACEC)?: No

Soils: Almost entirely Hinckley and Merrimac, deep outwash, excessively drained soils.

Wetland Resources: The Quinapoxet River and old meanders in the valley to the west of the lot; two drainage courses carrying road and other runoff from the east side of Rt. 31

Vernal Pools: None known.

Harvest Information

Harvest Start Date: 10/1/2015

Harvest End Date: 12/1/2018

Number of Wetland Crossings: None

Number of Stream Crossings: One

Best Management Practices Applied

Stream Crossings: The one stream crossing is over a steep-sided ditch connecting road drainage to a seep and the floodplain to the west of the lot; a bridge will be used to cross. A variable-width filter strip has been applied in 4 separate areas on the lot; no patch cuts occur in any part of any filter and some light cutting occurs in portions of 2 of the filters.

Filter Strips: One light thinning will occur in two of the four filter strips.

Wetland Crossings: There are no wetland crossings.

Harvesting in Wetlands: No harvesting in wetlands will occur.

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 Holden on the west side of Princeton Road (Rt. 31), south of Mill Street and to the east of the Quinapoxet River. The southern end of this sale area is characterized by dry soils with primarily white pine, red oak and black oak in the overstory. These stands originated in the 1890s making this part of the forest about 120 years old. Advance regeneration (i.e. seedlings and saplings) is not widespread or abundant although there are scattered pockets of white pine, oak and red maple. Huckleberry, a common shrub of these excessively drained soil types is the dominant shrub along with mountain laurel and lowbush blueberry.

The northern portion of this area is very different. It is a much richer, moister site with much more diversity in overstory tree species including white pine, red, black and white oaks, sugar maple, red maple, black cherry, white ash, yellow birch and American elm. These stands originated in the 1930s through the 1940s following the purchase of the property from the Quinapoxet Manufacturing Co. by the Metropolitan Water Board (the predecessor of the Metropolitan District Commission which is the predecessor of the DCR/DWSP) in 1930. Scots pine was planted in about 1940. Survivors of this planting hang on near Rt. 31 where a row of mill tenement buildings once stood. Advance regeneration is also far more prevalent and abundant and of a similar makeup to the overstory. Unfortunately, there is also a notable diversity and presence of terrestrial invasive species comprised of garlic mustard, Oriental bittersweet, Japanese barberry, honeysuckle and winged euonymus.

A portion of this area along Mill Street near the Quinapoxet River was planted to white pine in 1939 and was then harvested in 1995. This area as well as the flood plain at the base of the steep slope in the narrow “waist” of the sale area will not be treated during this operation.

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 selected for management because both within the forest of these 30 acres as well as in the forest of the much larger area from which water flows into the Quinapoxet River, there are too few acres of young forest. Only 4% of the forest in this area is comprised of young trees less than 20 years old. The ideal protection forest would have closer to 1/3rd of the area growing young trees. This is also an opportunity to remove the surviving non-native Scots pines.

Silvicultural Objectives

Where the advance regeneration is adequate, the overstory will be removed in patches thereby releasing these groups of young trees. To that end, 5 openings are being created totaling 2.1 acres. These openings range in size from 0.3 to 0.5 acres with an average of 0.4 acres. These are primarily located in the southern end of the sale area (see Figure 2.). Where invasive species are most prevalent in the far north end of the area, no tree cutting will take place. To prevent

the possible spread of invasive species into the southern part of the lot where they do not currently exist, the logging must first take place in the southern part of the sale area.

Partial cutting will occur on an additional 14 acres. This thinning will selectively remove the trees of poorest health and vigor while encouraging the healthy long-lived trees of a diversity of species. For example, the Scots pines that were planted in the northern portion of the area will be selectively removed.. Scots pine is not native to Massachusetts and they typically are of very poor form and generally do not compete well or regenerate naturally in the Wachusett forest. Of the 18.7 total acres in this timber sale, trees are being removed from 16.1 acres.

Cultural Resources

This site contains potentially significant historical features associated with the former village of Quinapoxet which was the location of Quinapoxet Mills. The mill dam was located immediately north of Mill Street with tenements and a school house south of Mill Street along Rt. 31. A Site Avoidance and Protection Plan (SAPP) has been provided by the DCR Archaeologist which details what precautions need to be taken and makes clear what areas need to be avoided entirely. The tree marking and equipment trail layout has been designed to avoid specific physical features (e.g. privy holes and shed footings) that still exist.

Rare or Endangered Species

NHESP has determined that certain state-listed sensitive species or habitats may exist within the lot proposal area. To protect them from unnecessary disturbance, detailed information regarding affected species and their locations is not included in this report. DWSP will coordinate with NHESP and follow recommendations to protect these species during the proposed activity.

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-C
- 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)

MAY 19 2014

For DCR Use Only:

File Number 134-0002-14 Case No. _____

Date Rec'd 5-19-14 Nat. Hert. Yes

Earliest Start 6-4-14 Nat. Hert. Imp. Yes

River Basin Quinnipiac Pub. Dr. Wat. Yes

Gen. Obj. LT ACEC ABC

Location Lot 5249

Town Holden

Road Wachusett and Mill Streets

Acres 18.7 Proposed Start Date 7/2014

Vol. MBF 23.3 Vol. Cds. 68 Vol. Tons 78

Landowner

Name DCR - Division of Water Supply Protection

Mailing Address 180 Beaman Street

Town, State, Zip West Boylston, MA 01583

Phone (508) 792-7806

Ch61 Ch61A Stew *Case # _____

Est. Stumpage Value _____

Plan Preparer

Name Brian Keevan

Address 180 Beaman Street

Town, State, Zip West Boylston, MA 01583

Phone (508) 792-7806 ext 318

Type of Preparer Mass. Licensed Forester

*Mass. Forester License # 119

*Required for land under Ch61, Ch61A or Forest Stewardship

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	gr			
Bank Height (ft)	4'			
Stabilization	MU			

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%)				

Wetland Crossings (N/A)

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	VA

Service Forester Comments

*NHESP seasonal restrictions

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 application 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 Ford	CO Corduroy	OT Other	MU Mud	
LO Landowner	PO Poled	ST Stone		GR Gravel	
OT Other	OT Other	HB Hay Bales		OT Other	

Site Information

Best Management Practices

Codes

Forest Products

Products to be Harvested*

Species	Mbf/Cds		Mbf/Cds
White Pine	18.9 Mbf	Red Maple	
Red Pine		Sugar Maple	
Pitch Pine		Red Oak	2.2 Mbf
Hemlock		Black Oak	
Spruce		White Oak	1.6 Mbf
Other Sitwd.	.2 Mbf	Other Hdwd.	
White Ash		Total Mbf	23.3
Beech		Cordwood (Cds)	68
White Birch		SW Pulp (Tons)	78
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	WH	WO		
Acres	3.9	12.2		
Landowner Objective	LT	LT	LT	
Designation of Trees	CT	CT		
Type of Cut	CT	SE/CT	none	
Source of Regeneration	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.

5/14/14
Date

Signature of landowner(s)

Service Forester

Determination and Status

Approved Disapproved Expires 5-17-16

Signature of Service Forester/Director's Agent 6-10-2014 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	Intermediate Harvester:	Source of Regeneration
WP White Pine	CT Cut Tree	SH Shelterwood	AD Advanced	SE Natural Seed
WK WP/Hem	LT Leave Tree	ST Seed Tree	CT Commercial Thin	PL Plant
WH WP/Hdwd	SB Stand Boundary	CC Clear Cut	NT Non Com Thin	CO Coppice
WO WP/Oak	OT Other	SE Selection	Non-Standard Systems: *	DS Direct Seed
RP Red Pine	Landowner Objective	SA Salvage	HG Highgrade*	DL Diameter Limit*
SR Red Spruce	LT Long-term Mgt.	SN Sanitation	DL Diameter Limit*	OT Other
HK Hemlock	OM Mixed Oak			
HH Hem/Hdwd	RM Red Maple			
BC Blk Cherry	BE Beech			
BB Bee/Bit/Map	SF Spruce/Fir			
OH Oak/Hdwd	SM Sugar Maple			
OR N Red Oak	PP Pitch Pine			

Forest Cutting Plan

Narrative Page (Lot 5249 – Quinapoxet Mills Lot)

Landowner: DCR DWSF

Town: Holden

File Number: 134-7008-14

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>Two landings will be required due to both access issues and the need to minimize the spread of invasive plant species. The landowner will work with the Town to ensure the protection of buried electric and water lines under planned forwarder roads. All filter strips shown on the map are variable width; they generally are drawn all the way up to a natural significant break in topography. SC-1 will be bridged mainly due to the high unstable banks; the watercourse itself is a road runoff ditch. The logger will have a choice to move the Section B wood to either landing, depending on their ability to forward on one short steep stretch south of the northern landing.</u></p>
Silviculture	<p><u>In order to release advance regeneration, 5 openings in the overstory are being created, covering 2.1 acres. These openings range from 0.28 to 0.5 acres 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 and oaks. A thinning will occur on an additional 10.1 acres in Stand 2 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 as well as the establishment of a desired understory layer. In Stand 1, 3.9 acres of partial cutting will occur, essentially weeding out all the poor quality white and scotch pine to encourage the best white pine and hardwood pole residuals. Stand 3 is an area of no cutting.</u></p>
Objectives	<p><u>The objective of this operation is two-fold. In the northern stand, we will remove pines to allow the better quality young hardwoods to develop. In the remaining white pine/oak stand, we will be thinning to establish more regeneration and release a small amount of existing advance regeneration.</u></p>
Other	<p><u>The northern half of this property was once a residential area for the Quinapoxet Mills. The DCR Archaeologist has surveyed the site and provided a Site Avoidance and Protection Plan. Forwarder roads in that area have been painted. There are NHESP habitats that overlap a portion of the cutting area, shown on the attached base map.</u></p>

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

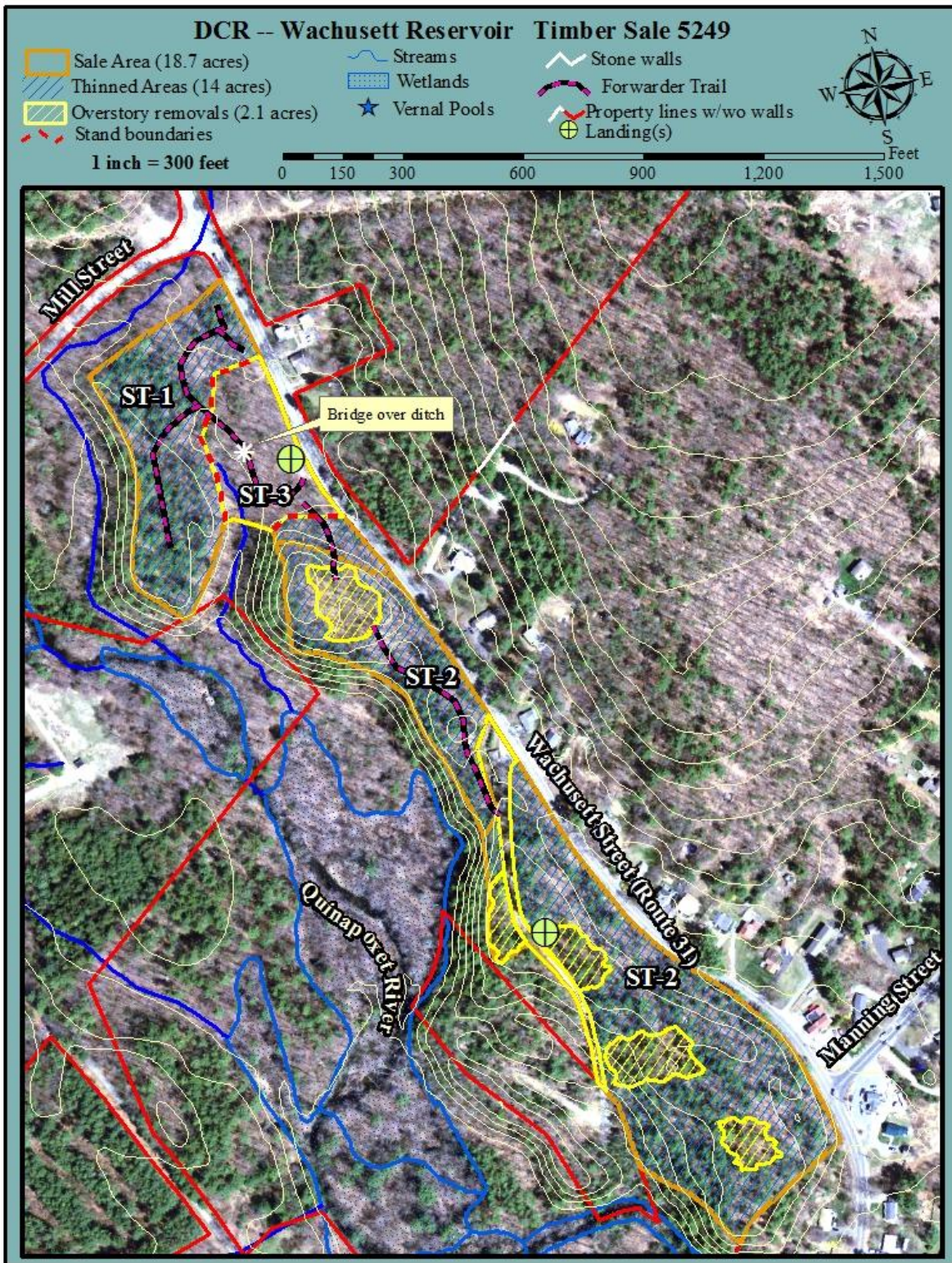


Figure 3. General locus map showing the location of the proposed timber harvest

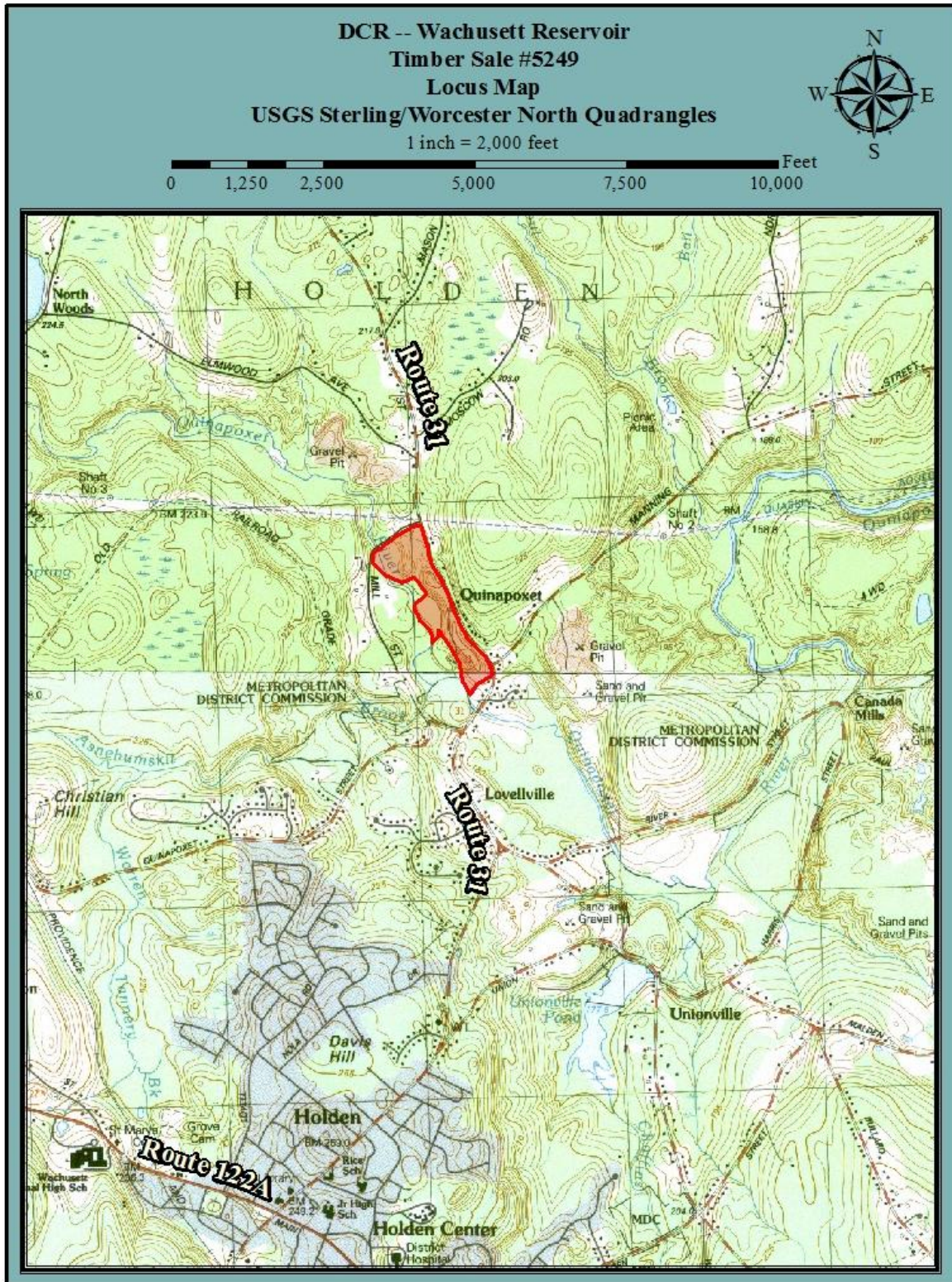


Figure 4. Pre-Harvest Photographs, A-C



A. The large-crowned white oak in the background grew between tenement buildings that were part of the village of Quinapoxet. Non-native Scots pine trees are marked to be removed, leaving native hardwood species to grow.



B. This stand has been marked to be thinned, favoring the trees of best vigor and form.



C. The remnant of a structure associated with the old schoolhouse in the former village of Quinapoxet. This and other cultural resources associated with the village will be protected through the implementation of the Site Avoidance and Protection Plan provided by the DCR Archeologist.

Figure 5. Post-Harvest Photographs, A-C



A. The landing at the former schoolhouse site on Rt. 31 (Worcester Road).



B. A narrow area of overstory removal next to the road to the Town of Holden well.



C. Good hardwood and white pine regeneration.