

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

Project Title: 202+ Red Pine Scale
DWSP Harvest Permit Number: 2049
DWSP Proposal ID: PE-16-red pine sal
DCR Forest Cutting Plan File Number: 230-8505-17

Site Information

Watershed: Quabbin
Town(s): Pelham
Acres: 5
Nearest Road: Route 202
Natural Heritage Atlas overlap?: No
Public Drinking Water Supply Watershed?: Yes
Forest Types: red pine plantations
Area of Critical Environmental Concern (ACEC)?: No
Soils: The dominant soil types are Charlton-Hollis-Rock outcrop complex; Canton fine sandy loam; Scituate fine sandy loam, extremely stony; and Canton fine sandy loam, extremely stony
Wetland Resources: none
Vernal Pools: none known

Harvest Information

Harvest Start Date: 10/05/2016
Harvest End Date: 12/20/2016
Number of Wetland Crossings: none
Number of Stream Crossings: none

Best Management Practices Applied

Stream Crossings: no crossings
Filter Strips: none
Wetland Crossings: no wetlands
Harvesting in Wetlands: no wetlands

DWSP Forester supervising this harvest

Name: Helen Johnson
Forester License number: 383
Phone number: 978-544-6343
Email: helen.johnson@state.ma.us

Narrative

General Description/Forest Composition/History

This harvest is a conversion of two red pine plantations inside DCR-DWSP Gate 11 in the town of Pelham. These are essentially fields of red pine trees that were planted after the Quabbin Reservoir was built. Like all monocultures, red pine plantations are more vulnerable than diverse stands because a single species-specific infestation can potentially kill most of the trees in any given location.

That threat has become a reality in the Quabbin region, where entire stands of red pine have already died due to red pine scale. This invasive insect first came to the United States in 1939 on exotic pines planted at the New York World's Fair. The earliest sign of infestation is needle browning, usually on the lower branches, often accompanied by beetle infestation and followed rapidly by mortality. There are no effective treatments of any type (chemical, biological or silvicultural) that would save these plantations.

The goals of this harvest are to remove the red pines before they die, at which point they would become safety hazards that would be expensive and dangerous to remove, and to facilitate the transition from these monocultures to diverse stands of native species.

The largest stand is 4 acres just north of Gate 11 and adjacent to Route 202. All of the red pines along the highway are being cut in order to prevent the development of a safety hazard as these trees die. In this area there are numerous white pine and hardwood saplings that are expected to grow rapidly after the red pine is removed. The few larger white pines and hardwoods are also being retained, except for a few that have defects that will become more dangerous when they are exposed to wind. Farther from the highway there are more numerous mature white pines and hardwoods and denser sapling-sized regeneration from a previous harvest, all of which are expected to grow vigorously after the harvest.

This stand contains several invasive plant species, including celestial bittersweet (*Celastrus orbiculatus*), Japanese barberry (*Berberis thunbergii*), and winged burning bush (*Euonymus alatus*). The infestation is concentrated in the portion of the stand nearest Gate 11. In order to minimize the spread of these plants, the harvest will start in the least infested area and end with the worst area, and the equipment used will be power washed both before and after the harvest.

Another red pine plantation is being removed farther inside Gate 11 as part of the same operation. This plantation is only one acre in size and has no invasives. It will be harvested first in order to prevent invasives near Gate 11 from being transported here.

There are no streams or wetlands in either plantation. The dominant soil types are Charlton-Hollis-Rock outcrop complex; Canton fine sandy loam; Canton fine sandy loam, extremely stony; and Scituate fine sandy loam, extremely stony. These are moderately to somewhat excessively drained glacial till soils derived from granite, gneiss, and schist.

Site Selection

The primary goal of harvesting on the watershed is to create and maintain a forest that is resilient to and can quickly recover from small and large scale disturbances such as diseases, insect infestations, ice storms and hurricanes, all of which are becoming increasingly common. The ideal way to achieve this is to have a diversity of species in various stages of development (seedlings through large legacy trees) that are actively growing and regenerating. This combination of structural and species diversity builds resistance and resilience into the forest.

This harvest will remove red pine plantations that were planted in the first half of the 20th century and are now threatened by red pine scale. The native stands of diverse species

that replace these monocultures will be better able to resist and recover from natural disturbances, including invasive insects and diseases.

Silvicultural Objectives

All red pine will be removed in this harvest, as well as a few white pines that have defects that would make them likely to break or uproot if they were left in place. Advance regeneration and mature trees of native species are being retained and protected wherever possible.

Cultural Resources

There are interior walls in both stands, and stone walls line the boundaries of the stand by Route 202. There are cellar holes and old foundations near but not within the harvest area. All cultural features are being protected and avoided as much as possible. Existing barways (breaks in walls) are being utilized in order to minimize damage.

Rare or Endangered Species

This lot contains no known rare or endangered species.

Figures

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)

FINAL (1/18)

For DCR Use Only:

| | | | |
|----------------|-------------|----------------|---------|
| File Number | 230-8505-17 | Case No. | |
| Date Rec'd | 11-2-16 | Nat. Hert. | N |
| Earliest Start | 1/18/16 | Nat. Hert. Imp | N |
| River Basin | CT | Pub. Dr. Wat. | CVAB61N |
| Gen. Obj. | LT | ACEC | N |

Site Information

Location

| | | |
|----------|--------------------------------|-------------------------------|
| Town | Pelham | LOT 2049 |
| Road | Daniel Shays Highway (Rte 202) | |
| Acres | 5 | Proposed Start Date Fall 2016 |
| Vol. MBF | 43 | Vol. Cds. 1 Vol. Tons 7 |

Plan Preparer

| | |
|---------------------------|---|
| Name | Helen Johnson & Richard MacLean |
| Address | DCR-DWSP Quabbin Section 485 Ware Road |
| Town, State, Zip | Belchertown, MA 01007 |
| Phone | 413 323-6921 x 553 |
| Type of Preparer | Mass. Licensed Forester |
| *Mass. Forester License # | 383 |

*Required for land under Ch61, Ch61A or Forest Stewardship

Best Management Practices

Stream Crossings No Crossings

| | | | | |
|--------------------------|------|------|------|------|
| Indicate location on map | SC-1 | SC-2 | SC-3 | SC-4 |
| Type of Crossing | | | | |
| Existing Structure | | | | |
| Type of Bottom | | | | |
| Bank Height (ft) | | | | |
| Stabilization | | | | |

Wetland Crossings No Crossings

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

Filter Strips No Filter Strips

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

| 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 |
| TH Lic Tim Har | BR Bridge | MU Mulch | DR Dry | ST Stony | before plan may be approved and cutting may begin |
| TB Timber Buyer | FO Ford | CO Corduroy | OT Other | MU Mud | Some forestry activities, such as prescribed burning and |
| LO Landowner | PO Poled | ST Stone | | GR Gravel | pesticide or fertilizer application may require additional permits |
| OT Other | OT Other | HB Hay Bales | | OT Other | Consult MA Forestry BMP Manual for further information |
| | | OT Other | | | |

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

pg 1 of 5

Figure 1a: Forest Cutting Plan page one.

| Products to be Harvested* | | Cutting Standards | | | | | | |
|---------------------------|---------|-------------------|--|--------------------------|-------|-------|------|------|
| Species | Mbf/Cds | Stand Treatment | | Indicate location on map | ST-1 | ST-2 | ST-3 | ST-4 |
| White Pine | 4.4 | Red Maple | | Forest Type | RP | RP | | |
| Red Pine | 38.2 | Sugar Maple | | Acre | 4 | 1 | | |
| Pitch Pine | | Red Oak | | Landowner Objective | LT | LT | | |
| Hemlock | | Black Oak | | Designation of Trees | CT | CT | | |
| Spruce | | White Oak | | Type of Cut | SE* | SE* | | |
| Other Sftwd. | | Other Hdwd. | | Source of Regeneration | AD/SE | AD/SE | | |
| White Ash | | Total Mbf | | 42.7 | | | | |
| Beech | | Cordwood (Cds) | | 1 | | | | |
| White Birch | | SW Pulp (Tons) | | 7 | | | | |
| B & Y Birch | | HW Pulp (Tons) | | | | | | |
| Black Cherry | | Chips (Tons) | | | | | | |

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.

Determination and Status 230-8505-17

| | | | | |
|--|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Approved | Disapproved | Expires | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1/12/18 | | |
| Cutting Plan | | 1/12/16 | | |
| Signature of Service Forester/Director's Agent | | 10/28/16 | | |
| SITE VISIT W/HJ,RM,HE | | Date | | |
| Extension | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 1 <input type="checkbox"/> | |
| Amendment | App 1 <input type="checkbox"/> | Dis 1 <input type="checkbox"/> | App 2 <input type="checkbox"/> | Dis 2 <input type="checkbox"/> |

Final Report and Comments

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

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 |
| WK: WP/Hem | HH: Hem/Hdwd | RM: Red Maple | LT: Leave Tree | ST: Seed Tree | NT: Non Com Thin | SE: Natural Seed |
| WH: WP/Hdwd | BC: Blck Cherry | BF: Beech | SB: Stand Boundary | CC: Clear Cut | PL: Plant | PI: Plant |
| WO: WP/Oak | BB: Bee/Bir/Map | SF: Spruce/Fir | OT: Other | SE: Selection | NS: Non-Standard Systems* | CO: Coppice |
| RP: Red Pine | OH: Oak/Hdwd | 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

Figure 1b: Forest Cutting Plan, page two with final approval signature from Service Forestry.

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 Quabbin
 Town Pelham
 File Number 230-8505-17

BMPs

Designation of Trees

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.

FLAGGING: Pink "Do Not Cut" = trees to be protected Blue = skid road

ORANGE PAINT: Dot = cordwood or pulp, or red pine sawlog or pulp. Three vertical dots = edge of stand.

Horizontal line = sawlog

Vertical line = TSI

"X" = cull

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 |
|-----------|-------------------|-------------------------|----------------------------|-------------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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 |
|-----------|--|--|
| ST-1 | | |
| ST-2 | | |
| ST-3 | | |
| ST-4 | | |

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

| | |
|------|--|
| ST-1 | |
| ST-2 | |
| ST-3 | |
| ST-4 | |

Figure 1c: Forest Cutting Plan, page three.

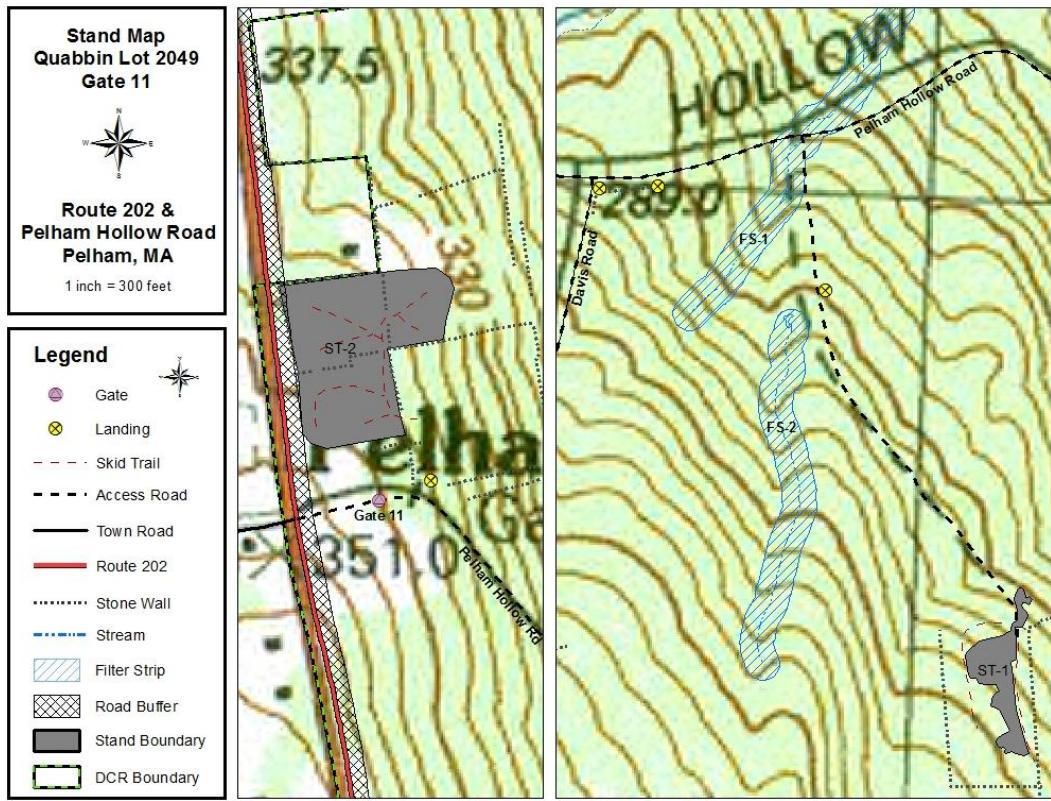


Figure 1d: Forest Cutting Plan, stand map.

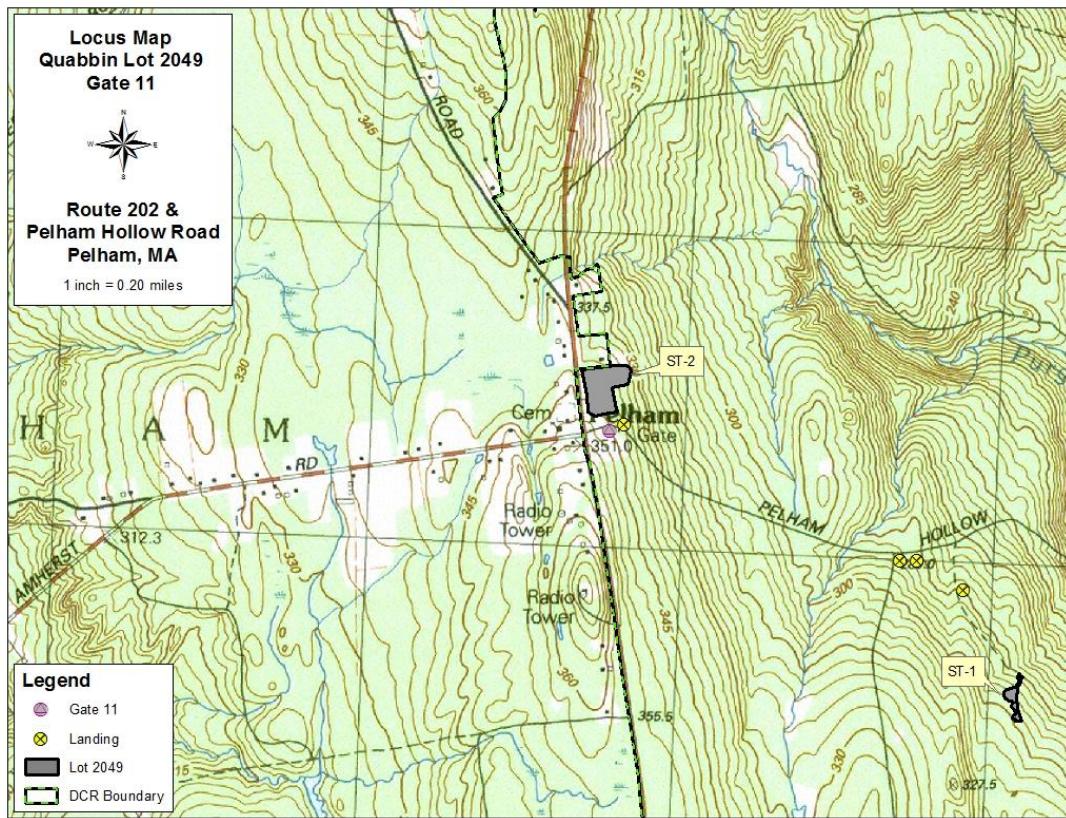


Figure 1e: Forest Cutting Plan, locus map.



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

FILE # 230-8505-17

FOREST CUTTING PLAN CERTIFICATE

WW

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

This certifies that MC-NSP Quabbin

485 Ware Rd, 8'th fl

(Address)

(Name of Owner)

provision of M.G.L. Chapter 132, Section 40-46, filed in Amherst FO with the Dept. of Conservation

and Recreation, Division of State Parks and Recreation, a Notice of Intent to cut forest products upon the

Donald Hayes Hwy lot (2049), Pelham

Approval Date 11/28/16

Director's Agent Douglas Hutchison

DCR Phone No. (413) 545-7020

ISSUED BY:

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

Figure 1e: Forest Cutting Plan Certificate.

Figure 2. Photo Point



Figure 2a. Pre-Harvest Photo, November 2016. The trees with reddish color bark are red pines, which face imminent mortality due to red pine scale, an invasive insect for which there is no viable control.



Figure 2b: Post-Harvest Photo, January 2017. The red pine trees pictured in Figure 2 have been harvested and advanced white pine regeneration protected.



Figure 2c: Follow up photo, July 2017. During the first growing season after the harvest, ground cover is regrowing and maple and birch regeneration is already present and growing.



Figure 2d: Follow up July, 2018.



Figure 2e: Follow up July, 2019



Figure 2f: Follow up September, 2021.