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

Site Information

Proposal Summary Item	Item Information/Description
Lot Proposal ID	**WA-19-250**
Fiscal Year	2019
Watershed	**Wachusett**
Town(s)	**Princeton**
Acres	88.4
Nearest Road	Beaman Road
Natural Heritage Atlas overlap?	No
Public Drinking Water Supply Watershed?:	Yes
Forest Types	Mixed hardwoods, Oak/hardwoods, White pine/hardwoods
Soils	Primarily Woodbridge and Paxton tills which are moderately well-drained soils. This is the "extremely stony" variant.
Wetland Resources	A tributary to East Wachusett Brook flows through the middle of this area emanating from a wetland in the north end.
Vernal Pools	There are no known vernal pools.

NARRATIVES

General Description/Forest Composition/History:

Most of this area is a mixed hardwood stand comprised of a wide range of species including red oak, red maple, white oak, black birch, paper birch, yellow birch, black cherry, white ash and hickory (both shagbark and pignut) and sugar maple. There's even a bit of black gum in and near the wetland in the north end of the sale area. The oak/hardwood stands are similarly diverse but overall have a greater component of red oak. The understory is highly variable with areas of good advance regeneration, areas dominated by mountain laurel and areas with a variety of understory shrubs such as maple-leaved viburnum and hobblebush along with a variety of ferns.

A regeneration survey shows that there is adequate advance regeneration in 35% of the plots and marginal regeneration in 27% of the plots. There was interfering levels of mountain laurel and/or witch-hazel in 13% of the plots.

Most of this area was logged in the late 1980s prior to state acquisition when it appears a lot of white pine was removed.

There are numerous stone walls throughout this area clearly indicating that this was all once pasture. Based on the age of the forest, one pasture, in the far south end of this sale area was abandoned in about 1920. The forests in the other wall-off pastures originated from 1935 to 1940 following abandonment. The age structure of this management area is as follows: 0%, 0-20 years old; 4% 21-40 years; 0% 41-60 years; 31% 61-80 years; 58% 81-100 years and 7% >100 years old. The oldest stand is the red maple stand in the wetland at the north end of the area…it originated in about 1912.

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 in 2013 along with another site in Holden as part of a long-term paired watershed study. The goal of this study is to test the hypothesis, supported by previous research findings at other North American sites, that DWSP Best Management Practices and harvesting policies are effective in preventing measurable impacts on stream water quality from timber harvesting operations. This site was more recently chosen as the one that would receive treatment in the form of a harvesting operation. The Holden site will serve as the control and so will not be harvested for the duration of this study.

Silvicultural Objectives:

As such, no more than 25% of the total stocking in this subwatershed can be removed in this operation. Openings in the overstory will be made where the advance regeneration is adequate while following the rules for the green retention. A regeneration survey found that adequate advance regeneration was present in 35% of plots with marginally adequate regeneration present in 27% of the plots. Most of these plots are concentrated in the southern and western portion of the sale area which is where the openings will be concentrated as well.

One of the management practices that is being tested in this experiment is that no more than 25% of the total stocking in any subwatershed will be removed in any given 10-year period. The typical subwatershed that this rule is applied to is hundreds to thousands of acres in size and numerous individual management operations take place within any given 10-year period. In this case, this 169 acre subwatershed will represent the typical much larger subwatershed and this single forest management operation will represent several operations spread across time. Normally the goal of our operations is to create a new young age class on about 1/3rd of any given management area assuming there is adequate regeneration present well-distributed throughout the area. Partial cutting may also occur as well on some proportion of the area. In this case, however, the total area regenerated plus the acreage of the partially cut areas multiplied by the fraction of the stocking removed, cannot exceed 25.5 acres which is 25% of the 102 acres that DCR owns in this subwatershed.

With perhaps 20 acres of openings, which is reasonable given the amount and distribution of good regeneration present, partial cutting can occur on up to 16.5 acres if 1/3rd of the stocking is removed in these areas or on up to 11 acres if half of the stocking is removed as in an establishment cut. What will happen is a combination of openings, improvement/thinning cuts and establishment cuts that when all added together, do not exceed the 25.5 prorated acres.

Cultural Resources:

This area will be assessed by the DCR Archeologist for both known sites of cultural or archeological importance as well as for potential use by pre-Contact Native Americans.

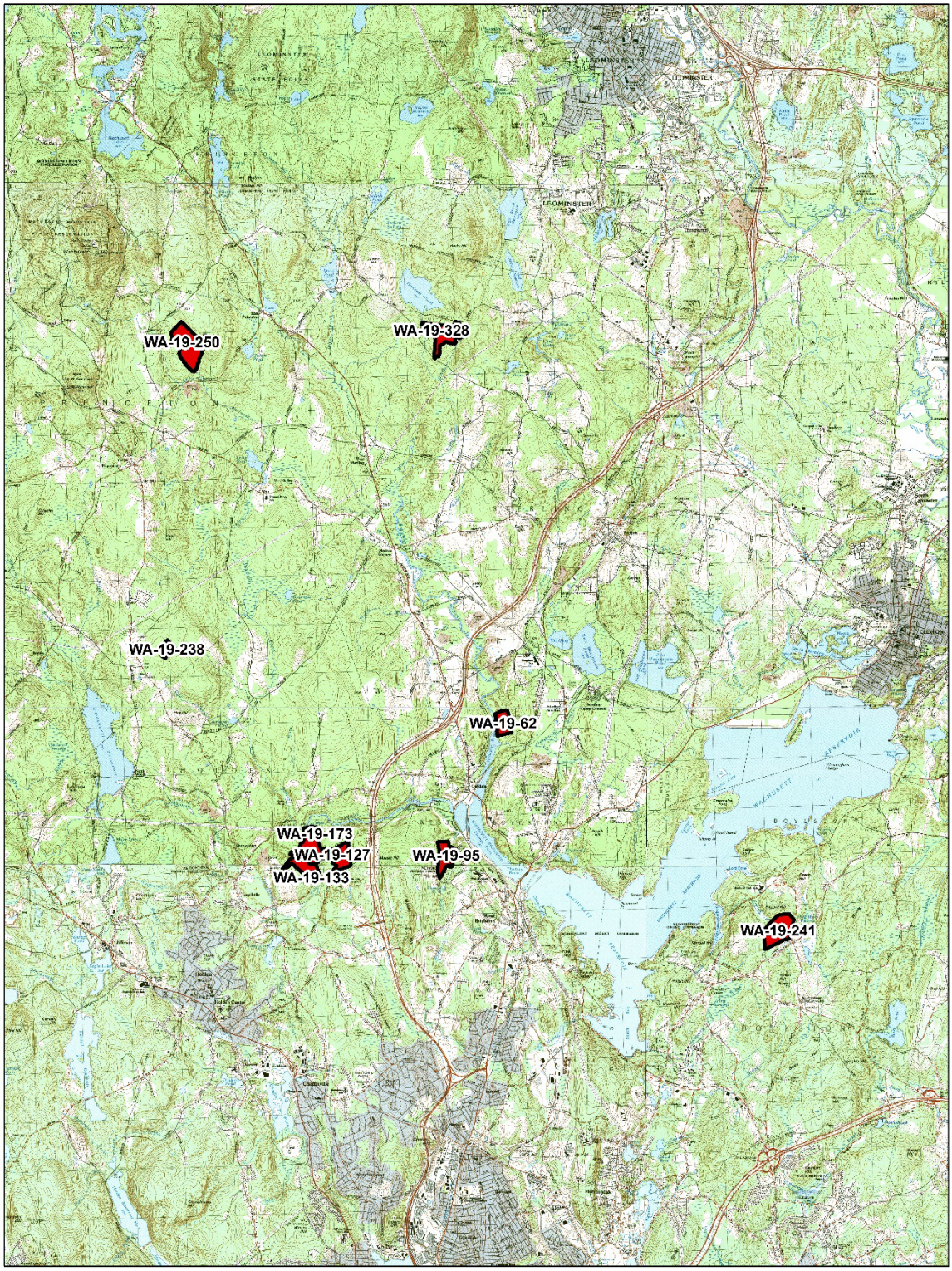
Wildlife/Rare or Endangered Species:

All DWSP Best Management Practices for wildlife management such as the protection and enhancement of wildlife habitat features will be an integral part of the silviculture and job layout. Diverse hard and soft mast species will be retained and the healthiest trees will be released to improve seed production, which will promote tree seedlings and food for wildlife. Large snags, den trees, logs and nest trees will be retained whenever possible as valuable habitat. No stick nests were observed, but if they are identified in the further steps of this process they will be protected. Where they occur; streams, wetlands, seeps and vernal pools will be protected for water quality and wildlife habitat.

DCR - Wachusett Reservoir

Proposed Timber Sales FY 2019

Locus Map (Scale 1:72,000 - 1 inch =6,000 feet)



DCR - Wachusett Reservoir
Timber Lot Proposal WA-19-250

1 inch = 300 feet

Outline of Proposed Area (Working Unit)

DCR Property Lines w/wo walls

Stone walls

Streams

Wetlands

Vernal Pools-Verified

Vernal Pools-Potential

Landing/s

NHESP Priority Habitats (semi-transparent)

DCR Gate/s

0 180 360 720 Feet