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Silviculture Prescription
Potter Mountain Road

Massachusetts Department of Conservation and Recreation
Bureau of Forestry

Northern Berkshire District
Pittsfield State Forest
Hancock & Lanesborough, MA

Prepared by:

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Date

Approved by:

Management Forestry
Program Supervisor _____ Date:_____
William N. Hill, CF

Site Data

Geology

This project is located on the lower slopes of the Taconic Mountian Range. In the southern sections the slope is generally moderate with a maximum of 15%. On the northern sections slopes are generally steeper ranging from 20% - 40%. Elevation ranges from 1450' – 1800'. The parent materials of the soils within this harvest area consist of folded phyllite, schist, quartzite, slate, or shale bedrock and glacial till. Within the context of this harvest, the slopes and elevations are not expected to have adverse effects. However, skid trails, roads, and other types of like disturbances will require the liberal use of water bars, and/or seeding to prevent erosion; especially along the northern slopes.

Soils

Soils are predominantly in the Taconic – Macomber and Lanesboro – Dummerston associations. These are characterized by a loamy texture, well drained, deep (20+"), and generally course to rocky with the Taconic – Macomber being the rougher . These soils are considered very productive, with site indicies of 55' – 70', and support a variety of harwoods and conifers. Loss of site quality and productivity is not anticipated, due to harvesting operations, as the soils are rich, runoff is low to moderate, and the potential for windthrow is low. Also since the soils are rich, and more sunlight will be hitting the forest floor after harvesting operations; the density, diversity, and occurance of groundcover is expected to increase.

Climate

The mean annual temperature for the sale area is 44^{o}F with an average of 38" of preciptation. Tropical storm systems do not typically affect this area, however, noreasters and strong cold fronts from Canada have the potential for major impacts. Other erratic weather events such as ice storms, early season blizzards, microbursts, and even tornados are not entirely uncommon. These weather events are the primary forces influencing the disturbance ecology of the area, and are expressed in the landscape as gaps in the forest canopy. The silvicultural systems used in this sale are variable density thinning and gap-expansion irregular shelterwood, and are designed to mimic these disturbances

Hydrology

Tributaries to Daniels Brook are found throughour the sale area, as well as smaller intermittent streams and wetlands. Vernal pools, seeps, and other forested wetlands are also present. Some forested wetlands have been identified during stand exams, and others will be identified during layout and marking. Vernal pools and streams will be buffered with filter strips in accordance with standards identified in the most recent edition (currently the 2013 2^{nd} edition) of the Massachusetts Forestry Best Managagement Practices Manual.

Potential Vegetation

This site currently supports a majority of vegetation that would be considered potential vegetation. The most common tree species present are northern red oak *(Quercus rubra)*, red maple *(Acer rubrum)*, white birch *(Betula papyrifera),* white ash *(Fraxinus americana),* and American beech *(Fagus grandifolia)*; however there are over 10 different tree species present within the stand. The primary ground cover species encountered during stand exams were ground pines and running-cedars *(Lycopodium sp.)*, periwinkle*(Vica minor),* strpied maple *(Acer pensylvanicum)* and ferns.

It should be noted that Japanese barberry *(Berberis thunbergii)* was located within the stand. As this stand is marked for harvest, the japanese barberry will be handpulled, and left on site where practical. In areas with large concentrations, operations will be avoided if possible.

Both periwinkle and Japanese barberry are not native to the United States, and both were introduced as ornamental vegetation. Japanese barberry is more easily moved across the landscape and more noxious than the periwinkle. The occurance of periwinkle often conicieds with previous human inhabitation of the area, and is confimed by the record of cellar holes. This stand, as is the case with most forest lands in the Berkshires, was cleared for agriculture prior to it's reversion back to forested lands.

Site Productivity

An analysis was conducted across all properties managed by the Bureau of Forestry to assess site productivity and complexity using Geographic Information System (GIS) data layers of Prime Forest Soils, Potential Vegetation Complexity, Late Successional potential, Forest Diversity, Early Successional potential, CFI Site Index, and CFI Stand Structure (Goodwin, Hill, 2012). The analysis found that 97% of the area ranked in the top 1/3 of the productivity scale. Due to the high productivity of the area and the existing uneven aged condition, a gap-expanding irregular shelterwood method will be employed to mimic natural disturbance and perpetuate the current stand conditions.

Archeological and Cultural Resources

The DEM cultural resource inventory lists 2 sites in the southwestern corner of the proposed area:

- Newton Cellar Hole – This cellar hole is no longer apparent. It seems likely that this structure was adjacent to Potter Mountain Road and was filled in with debris from erosion and/or road construction activities.

- Churchill/Baker Burial Ground (Cemetery) – A small family cemetery is located across the road from the Newton Cellar Hole. The stones are broken, and no longer legible. No harvesting will occur within 75' of the cemetery.

Stand Data

Forest Stand Attributes

The Potter Mountain project area is composed of approximately 400 +/- acres of mainly upland habitat comprised primarily of hardwoods. The project area will be divided into 2 sales, the Hancock Unit and the Lanesborough Unit. The entire project area is estimated between 87% and 88% relative density indicating that a silvicultural entry is desirable for the purposes of reallocating growing resources to desirable growing stock, and introducing new age classes into appropriate stands. High relative densities also typically indicate low light levels at the forest floor, thereby limiting the diversity, abundance, and distribution of groundcover. In order to maintain complexity and diversity within a forest stand, variations in canopy cover, vertical continuity, and horizontal continuity are required. The following are descriptions of the timber stands located within the entire sale area (Map 1).

BLACK BIRCH: These stands are made up of an even mixture of both yellow birch and black birch with lesser components of other northern hardwoods and occasionally red oak. These stands are generally young mature, however, the entire span of age classes are present. The yellow birch appears to be very health and vigorous within the stands, while most of the black birch has target cankers.

BIRCH/RED MAPLE: The birch components in these stands are made up of mixtures of black, yellow, and white birch. Generally the birch is young mature and will require thinning, while the red maple is mature and should be regenerated in some areas. Both the red maple and birch components appear to be healthy and residual trees remaining after harvest are expected to respond with increased growth, while the stumps from harvested trees are expected to produce viable sprouts. These stands also appear to have higher densities of white ash.

WHITE BIRCH: These stands are young, high density, exhibit an even age condition, and will require thinning before uneven aged management can occur. Old white birch can be found throughout both sale areas as a minor component of other stand types. These trees are typically very low in vigor, typically have rot, and are in declining health. There are very few examples of mature healthy white birch, as it occurs as healthy young stands or individual old remnants.

RED OAK: The red oak stands occurring across the sale area are mature trees, with scattered legacy trees (35+" DBH). Generally the stands are very healthy and vigorous, with little sign of insects or disease. These stands will be the primary areas will be targeted for gap-expansion silviculture because the conditions of the trees lend themselves to good acorn drops, and the some of the stumps should produce viable sprouts. In these stands legacy trees will be not be designated for cutting.

WHITE PINE: White pine occurs as both scattered individual trees within other types and as a small stand in the southwest corner of the sale. Many of the trees within the stand are small, but mature. The white pine in the sale area (both as a stand and as

individuals constituting other stand components) is generally of moderate health and vigor; and many of the trees exhibit varying degrees of past storm damage, past weevil damage, or both. Hemlock also makes up a significant component of the white pine stand, and no signs of hemlock wooly adelgid were present.

Land Use History

The entire area of the sale had been cleared entirely and used for agriculture; most likely grazing and subsistence gardens. Additionally, fire has a long history in the area. Activities such as pasture maintenance where the fires were intentionally set, to those fires that were escapes during mining or charcoal activities. These conditions contribute to red oak being a well represented component in an otherwise northern hardwood area. As agriculture was abandoned, these fields were left to natural successional processes and they eventually reforested. When agricultural fields reforest through natural succession the resulting stands are even aged in nature, and dominated by early successional species such as black cherry, white birch, yellow birch, and black birch. As the stands continue to mature, gaps in the canopy are formed as the early successional species begin to decline and species such as red oak, sugar maple, and white ash move in. In this particular stand once timber became merchantable harvests were conducted, and this area has had numerous silvicultural treatments. It is because of these treatments, and origins, that the resultant uneven-aged conditions exists with legacy oaks, young mature birch, mature red maple and sugar maple, and mixes of both very young and overmature white birch.

A stand exam of this project was completed in December 2015, with the following results:

The overstory is primarily composed of northern red oak (28%), red maple (16%), white ash (13%), sugar maple (11%), American beech (10%), and yellow birch (7%). Black birch, white birch, hickory, eastern white pine, eastern hemlock, black cherry, and hophornbeam are also present, but in densities that represent 5% or less of the project area.

Table 1 – Stocking Diagnostics of Hancock Sale Unit

Stocking Diagnostics

Spp	Total Trees/Acre	Total Trees/Acre Conf.	Total BA/Acre	Total BA/Acre Conf.	% BA/ac by Spp	QMD	Rel Density	
HEMLOCK	1.8		1.5	130.0	1%	12.2	0.7	
SUGAR MAPLE	22.0	33.4	23.0	25.4	22%	13.8	18.2	
RED MAPLE	9.2	50.0	8.1	48.9	8%	12.8	6.6	
WHITE ASH	14.7	42.1	17.8	32.5	17%	14.9	14.0	
BLACK CHERRY	1.7	78.2	3.0	77.0	3%	18.0	2.3	
WHITE BIRCH	3.3		5.9	39.3	6%	18.3	5.8	
YELLOW BIRCH	4.1	56.4	8.1	39.1	8%	19.1	6.3	
BLACK BIRCH	5.0	82.0	3.7	74.5	3%	11.7	3.0	
BEECH	22.1	34.5	15.6	31.7	15%	11.4	12.7	
RED OAK	10.6	46.7	17.0	34.9	16%	17.1	14.7	
HOPHORNBEAM	0.7		0.7	128.9	1%	14.4	0.0	
HICKORY	1.9	107.7	2.2	95.5	2%	14.8	1.8	
Total	96.9	12.3	106.7	7.3	100%	14.2	86	
					Median Stand Diameter ->>	16.2	87	*<<- Estimated Relative Density*

Table 2 – Stocking Diagnostics of Lanesborough Sale Unit

Stocking Diagnostics

Spp	Total Trees/Acre	Total Trees/Acre Conf.	Total BA/Acre	Total BA/Acre Conf.	% BA/ac by Spp	QMD	Rel Density	
WHITE PINE	1.0	72.8	2.6	70.3	2%	21.8	0.9	
HEMLOCK	3.5		3.0	93.9	3%	12.7	0.0	
SUGAR MAPLE	6.0	57.9	5.7	39.9	5%	13.1	4.5	
RED MAPLE	29.1	31.6	22.3	19.8	21%	11.8	17.9	
WHITE ASH	12.0	49.7	12.1	38.2	11%	13.6	9.6	
BLACK CHERRY	2.9		2.3	59.2	2%	12.0	1.8	
WHITE BIRCH	6.2	85.2	2.6	59.5	2%	8.8	2.5	
YELLOW BIRCH	12.6	66.7	6.8	54.7	6%	9.9	5.6	
BLACK BIRCH	6.4	63.8	4.5	63.0	4%	11.4	3.7	
BEECH	16.9	34.9	9.1	28.8	8%	9.9	7.5	
RED OAK	26.8	22.9	36.2	19.7	34%	15.7	31.5	
Total	123.4	11.5	107.2	5.6	100%	12.6	86	
					Median Stand Diameter ->>	15.8	88	*<<- Estimated Relative Density*

Figure 1 – Species Composition: Hancock

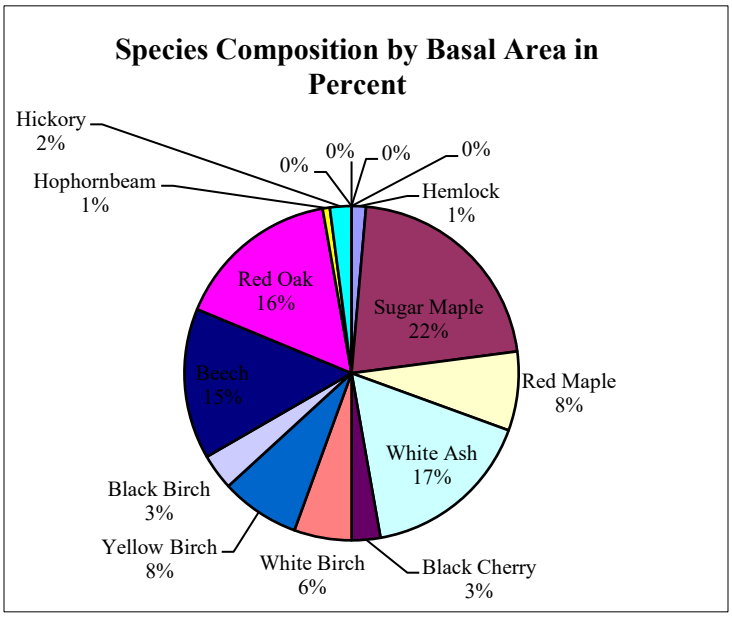

Figure 2 – Species Composition: Lanesborough

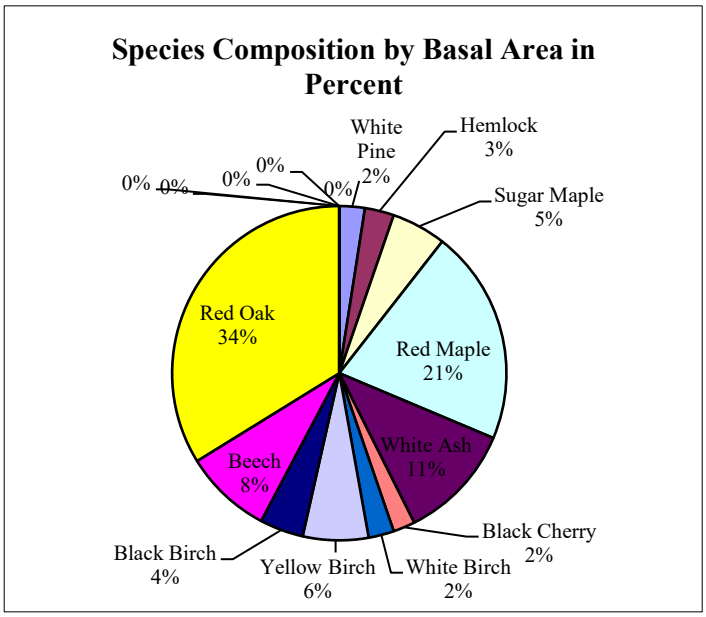

Table 3 – Advanced Regeneration: Hancock

Species	Avg Stems/Ac
Beech	1068
Red Maple	9
Sugar Maple	35
White Birch	79
Yellow Birch	79

Table 4 – Advanced Regeneration: Lanesborough

Species	Avg Stems/Ac	Species	Avg Stems/AC
Beech	1166	White Ash	11
Hemlock	6	White Birch	113
Red Maple	226	White Pine	11
Red Oak	28	Black Birch	40
Sugar Maple	142	Yellow Birch	119

Table 5 – Ground Cover: Hancock

Species	Avg % Cover
Ferns	10
Grasses	<1
Ground Pine	<1
Hobblebush	1
Misc Herbaceous	<1
Periwinkle	<1
Rubus Spp.	1
Striped Maple	4
Misc Woody Shrub	1
Witch Hazel	2

Table 6 – Ground Cover: Lanesborough

Species	Percent Cover
Ferns	8
Grasses	1
Ground Pines and Cedar	2
Japanese Barberry	<1
Periwinkle	1
Pin Cherry	< 1
Striped Maple	3
Miscellaneous Woody Shrubs	1
Witch Hazel	1

Within the Hancock sale area it is estimated that there are 412 cubic feet/acre of course woody debris (CWD), and 220 cubic feet/acre in the Lanesborough sale area. Both areas are already above the 200 cubic foot minimum required after sale completion.

Data was gathered during the stand exam in regards to advanced regeneration of commercial timber species, as well as, herbaceous and woody ground cover. American beech was the dominant regeneration, and contributing to a beech brush condition in many areas limiting ground cover diversity and more desirable crop tree recruitment. Future timber stand improvement activities will include the identification of areas for herbicide applications to control beech and reduce crop tree competition.

Aesthetic Resources

The harvest is not anticipated to have a negative aesthetic impact along the road's edge. The road is currently not open to vehicular traffic from the general public, with the exception of ORV's. However, this road has a long history of use by unauthorized vehicles, and illegal dumping. Remnants of these activities are still visible from the road.

Recreation Resources

- Hunting – This area has a long history of hunting and is a popular spot. In previous years Potter Mountain Road was open to vehicular traffic during hunting season.

- Trails – The Burgoyne Trail runs along the southern edge of the proposed project area. It is currently designated for hiking, biking, and snowmobile use, and is in poor condition. The trail is currently being considered for restoration with proceeds from the sale of timber from this project. Skidding activities will be conducted on portions of the trail, and a previously used landing will be utilized that is also located adjacent to the trail. The Taconic Crest hiking trail crosses the northern portion of the project area and runs down Potter Mountain Road. The Balance Rock trial will be used for a short distance for trucking logs from a landing to Potter Mountain Road. This section has been traditionally used for this purpose. Balance Rock Trail, along with Potter Mountain Road is used for hiking, biking, snowmobile, and ORV use. While no specific designated mountain-bike trails exist, there are unauthorized trails present.

- Geocaching - The use of this property as a geocache site is not coordinated with the DCR, and there do not appear to be lists readily available. It is therefore not possible know confirm the presence of such sites. However; based on proximity to a population center, available parking, and cars with geocaching stickers in the parking lot would indicate the probability of a site or sites in or around the project area.

Threatened and Endangered Species (TNE)

There are no TNE, critical habitats, or estimated habitats of TNE species listed in the 13th edition of the Mass Natural heritage Atlas.

Wildlife

Wildlife found here are typical of the area. Recommended harvest guidelines will ensure adequate retention of cavity trees and snags within the project area. Retention of hard mast trees (oak, beech, etc.) adjacent to seep areas will maintain winter access to mast. Logging operations will not have an adverse affect on wildlife, and will increase browse, soft mast, and seed production.

Evaluation of the Data and Projected Results

The Massachusetts Department of Conservation and Recreation has developed a list of ecological services and benefits derived from active forest management of Woodland Zones (Exhibit 1). The following are lists of goals and objectives for the Potter Mountain road Project and what ecological services and benefits are satisfied.

Goals and Objectives of the Potter Mountain Road Project

Primary

1. The continuation of a varied and complex forested natural system capable of buffering future disturbance. Maintaining the current size, species, age and genetic diversity as well as the demonstration of a system that can obtain these goals. This correlates with the following MA DCR goals for Woodlands: ***Diverse Habitats and Carbon Stock Management*** through the perpetuation of uneven-aged stands.

2. The maintenance and enhancement of ecological niches, and therefore, wildlife habitat resulting from the retention of cavity trees, snags, and CWD; as well as a variable mix of size, species, density, and vertical structure. This correlates with the ***Diverse Habitats*** and ***Recreational Opportunities*** MA DCR goals for Woodlands through the perpetuation of uneven-aged stands.

3. The dramatic reduction of ash basal area to potentially slow the spread of emerald ash borer and minimize the potential for hazard trees along roads and trails.

Secondary

1. Support local industries that utilize forest products which fulfills the MA DCR goal of ***Wood Products Production.***
2. Provide revenue for the local town and the general fund
3. Salvage the value of dead and diseased white ash trees
4. Establish white ash regeneration that may survive the emerald ash borer infestation
5. Provide a source of seed for regeneration

Objectives to Meet Goals

The objectives of this project are designed around the premise of being S.M.A.R.T objectives, that is, Specific, Measurable, Achievable, Relevant, Time-Oriented. These objectives support the goals of both the project and the ecosystem services and benefits of conducting management in Woodland Zones, as identified by Mass DCR.

Residual basal area ranges provided within the objectives and the Silvicultural Prescription section were determined using the Fox DS Cruiser version 2007.2 Workhorse (New Hampshire Forests & Lands Staff, 2009) which analyzes inventory data gathered in the field, and comparing those results with stocking tables located in the Silvicultural Guide for Northern Hardwoods in the Northeast (Leak *et al.,* 2014)

1. Successful Implementation of Silvicultural Prescription
    a. Actions to Measure Objective Success
        i. Residual basal areas across the project area, outside of selected groups between 49 ft^2 and 74 ft^2 per acre.
        ii. Residual basal area within selected groups 0 ft^2 per acre
        iii. No cutting or harvesting within filter strips
        iv. No cutting or harvesting within 75' of identified cultural resources
        v. No loss of undesignated wood
        vi. Residual CWD of no less than 200 ft^3 per acre

2. Adequate Stocking in Single Tree and Group Selection Areas
    a. Actions to Measure Objective Success
        i. Have 500+ stems per acre of desirable regeneration within 5 years of the harvest
        ii. Reduced beech regeneration competition with crop trees

Silvicultural Prescription

All white ash will be removed from the Potter Mountain Road corridor, as well as any other dead or dying tree within 1 tree length of the road. In the remainder of the stand an expanding-gap irregular shelterwood system (Raymond *et al.,* 2009) will be used. This type of system works by creating gaps in the forest canopy through harvesting, and expanding those gaps through each successive entry. In order to facilitate future entries, and perpetuate the system, gaps will be installed systematically throughout the sale area (Map 2). Installed gaps will be no less than 1/10 of an acre and will not exceed 1/3 of an acre; however, the final size of each gap will be determined according to the conditions present on the ground. The stand will also be thinned in between the installed gaps using variable density thinning within the range identified.

The purpose of this system will be to maintain diversity; i.e.: biological, density, age, size, and successional; manage for superior crop trees; presalvage white ash; create horizontal and vertical structural complexity; and control understory beech. This will be accomplished by:

- The introduction of a new cohort of crop trees by expanding initial gaps with each successive entry
- Retaining legacy trees in the overstory;
- Varying thinning densities which will create a range of tree densities and light conditions in the understory
- Removing trees that are not expected survive until the next silvicultural, freeing up resources and growing space
- Promoting crop trees that are financially and ecologically desirable and/or occurring at lower densities such as sugar maple, hickory, and white pine.

The target residual basal areas for those areas that are selected as groups will be 0 ft^2 per acre, with everything being removed. Those areas that have thinning and single tree selection cutting regimens will have a target basal area of between 49 ft^2 and 74 ft^2.

Marking Guide

In both the Hancock and Lanesborough Units of the sale White ash will be favored for cutting to reach target basal areas, those trees 12”-16” DBH and of superior quality will be retained as a future seed source. All beech with no visible signs of beech bark complex, and greater than 14” in diameter, will be retained as hard mast producers and potential stock that is resistant to beech bark complex. Sugar maple will be retained unless diseased or not expected survive until the next silvicultural entry due to the regional issue of sugar maple decline and because it is under-represented in such a high productivity stand. Healthy eastern hemlock will be retained because it is not showing signs of the hemlock wooly adelgid that is decimating hemlock in other areas of the Berkshires. Due to its low occurrence and high ecological value, any healthy hickory will be retained. Red oak legacy trees (35”+ DBH) will not be cut due to their ecological values, potential for seed, and aesthetics. The following cut guides will be followed:

Percent Cut by Species

Table 7 - Hancock Unit

		Harvested			Residual			
Spp	% to cut	Sawtimber		RelDen	Sawtimber		RelDen	Basal Area
Hemlock	1	182		0	17,971		0.7	1.5
Sugar Maple	1	4,084		0	404,359		18.0	22.7
Red Maple	50	56,459		3	56,459		3.3	4.1
White Ash	80	322,731		11	80,683		2.8	3.6
Black Cherry	5	3,881		0	73,737		2.2	2.8
White Birch	40	53,217		2	79,826		3.5	3.6
Yellow Birch	30	39,237		2	91,552		4.4	5.7
Black Birch	30	18,965		1	44,251		2.1	2.6
Beech	95	181,075		12	9,530		0.6	0.8
Red oak	30	137,883		4	321,728		10.3	11.9
Hophornbeam	5	707		0	13,435		0.0	0.7
Hickory	1	387		0	38,274		1.8	2.2
Total		818,809		36	1,231,805			62.1

Table 8 – Lanesborough Unit

		Harvested			Residual			
Spp	% to cut	Sawtimber		RelDen	Sawtimber		RelDen	Basal Area
White Pine	30	29,578		0	69,015		0.6	1.8
Hemlock	1	937		0	92,790		0.0	3.0
Sugar Maple	1	1,662		0	164,523		4.4	5.6
Red Maple	50	302,224		9	302,224		9.0	11.1
White Ash	80	385,817		8	96,454		1.9	2.4
Black Cherry	5	2,213		0	42,054		1.7	2.2
White Birch	40	25,184		1	37,776		1.5	1.6
Yellow Birch	30	51,897		2	121,094		3.9	4.8
Black Birch	30	26,561		1	61,975		2.6	3.2
Beech	95	261,763		7	13,777		0.4	0.5
Red Oak	30	392,433		9	915,678		22.1	25.4
Total		1,480,269		37	1,917,359			61.5

Paint colors, paint patterns (X's, stripes, etc.), flagging, etc. will follow current Mass DCR Standard Operating Procedures, Mass DCR Policy and Procedure, and past practices.

Short Term and Long Term Conditions

Short Term

Ground cover density, diversity, and distribution are expected to increase. Installed gaps will begin to regenerate with desirable growing stock, most likely: birches, maples, some oak, beech, and white ash. Sun exposure and herbicide treatments should limit the growth of beech and provide the opportunity for those more desirable species to escape beech brush shading prior to crown closure. Use of the area by wildlife adapted or obligated to early successional habitat should increase.

Long Term

Ground cover densities, distribution, and diversity will be maintained through subsequent silvicultural entries. Gap-expansion will be used in those areas that had gaps established in the previous entries. Sugar maple should become more plentiful as completion is reduced through beech brush control and cutting that biases against sugar maple removal. If cutting of oaks can be accomplished during the fall, or the opportunity for prescribed fire is presented red oak should continue to reliably regenerate in the understory. Very large snags will develop as the oak legacy trees (35"+) in diameter will remain in the stand and allowed to reach natural mortality. An uneven-aged condition, with both early successional and old growth, will be found throughout the area.

Logging System Requirements

Conventional and mechanical harvesting will be permitted, provided that equipment does not exceed 6 psi ground pressure. The Hancock and Lanesborough Units of the Potter Mountain Road Project will be bid out independently and a single contractor will not necessarily have both sales. The utility corridor will provide a clear physical barrier between the two sales. That timber designated in the Hancock Unit will use the Hancock Gate for hauling off of state owned lands, and the Lanesborough Unit will use the Lanesborough Gate. Generally, all trees will be felled into the stand and slash will remain in that location unless required for the skid trail. Deviations from this will be reviewed on a case-by-case basis by the forester-in-charge or their designee.

Haul Roads

The haul road for the sale is Potter Mountain Road. This road will require improvements such as resurfacing and grading, new culverts, ditch repair, and turnout repairs prior to the commencement of harvesting activities. The current road profile is anticipated to be sufficient for the activities being conducted and the need for large-scale widening is not anticipated.

Skid Trails

Primary skid trail have been identified in Map 1. These areas are in close proximity to existing trails, and some crossings may be necessary. Secondary skid trails can be located from previous harvests, and will be utilized as necessary. All skid trails will be marked prior to the start of harvesting activities, and it is understood that minor changes to the routes may be required during the course of logging operations. All proposed changes will be reviewed on a case-by-case basis by the forester-in-charge and/or Program Supervisor as required. Prior to the leaving the harvest areas all skid trails will have water bars installed,

and excess disturbance will be mitigated. If pole fords were used to cross unregulated streams, the poles will be removed and placed outside of the filter strip.

Landings

Preliminary landings have been located, and are shown on Map 1. Additional landings may be required, but are not anticipated. Any additional landings that may be required will use existing openings or gaps, and will not be intended for loading log trucks. Prior to leaving the sale, all landings will be smoothed, logging residue will be moved into the woods, and the landings will be seeded.

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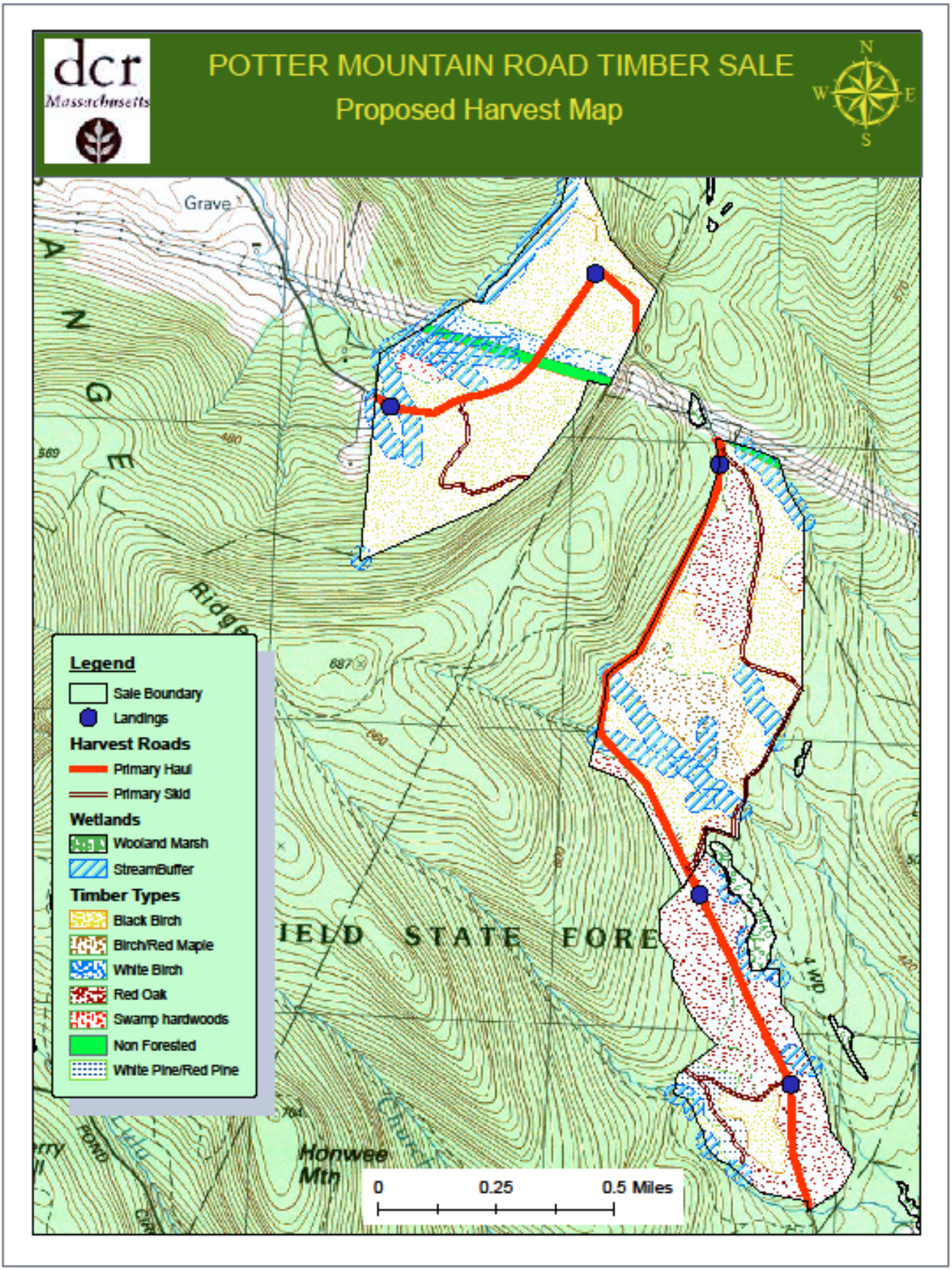
MAP 1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Massachusetts
POTTER MOUNTAIN ROAD TIMBER SALE
Proposed Harvest Map
N
W
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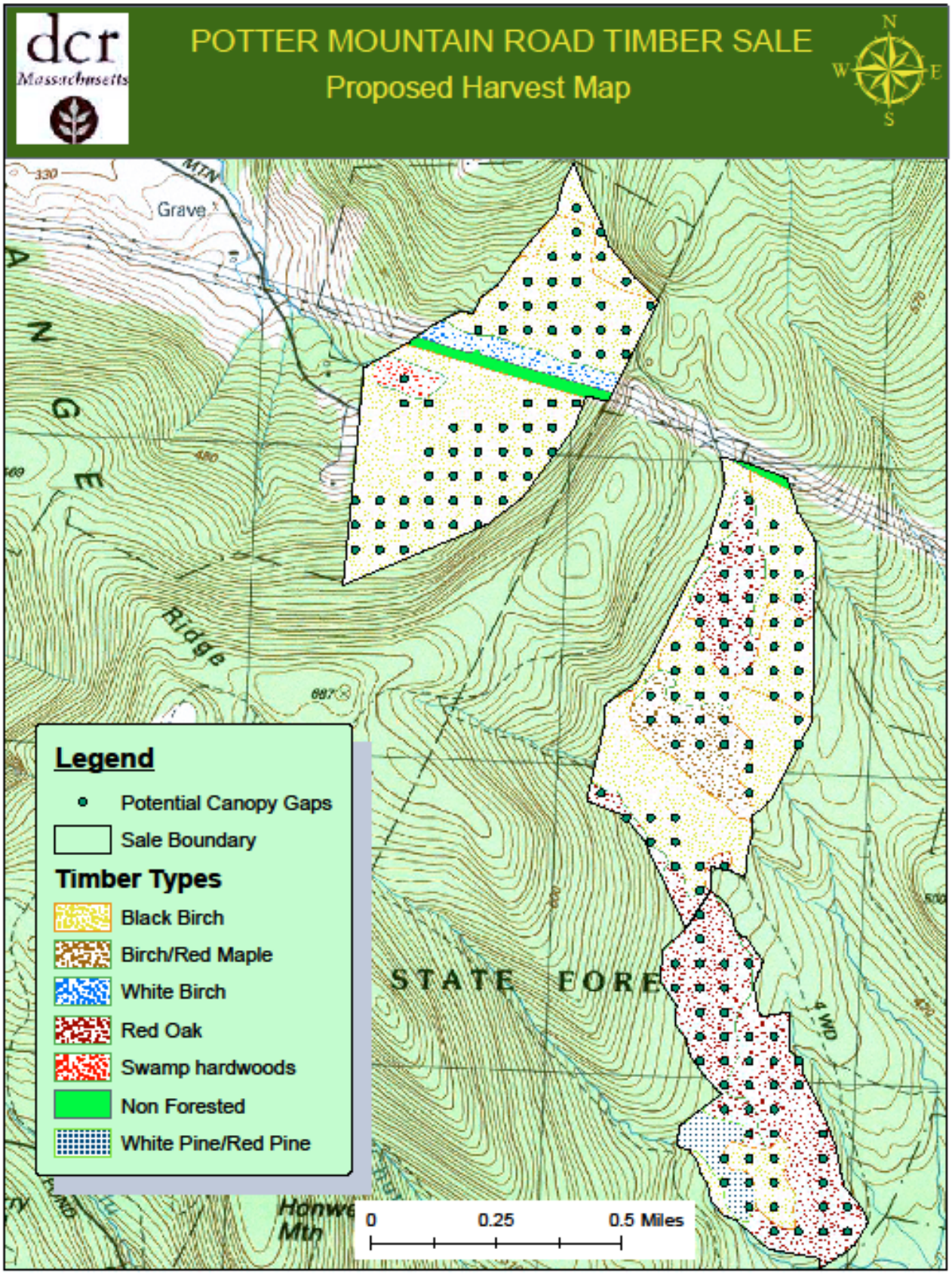
Grave
Ridge
Legend
Sale Boundary
Landings
Harvest Roads
Primary Haul
Primary Skid
Wetlands
Wooland Marsh
StreamBuffer
Timber Types
Black Birch
Birch/Red Maple
White Birch
Red Oak
Swamp hardwoods
Non Forested
White Pine/Red Pine
Honwee Mtn
0
0.25
0.5 Miles

MAP 2


dcr
Massachusetts
POTTER MOUNTAIN ROAD TIMBER SALE
Proposed Harvest Map
N
W
E
S
Grave
MTN
Ridge
STATE FORE
4 WD
Legend
Potential Canopy Gaps
Sale Boundary
Timber Types
Black Birch
Birch/Red Maple
White Birch
Red Oak
Swamp hardwoods
Non Forested
White Pine/Red Pine
0
0.25
0.5 Miles

MAP 3

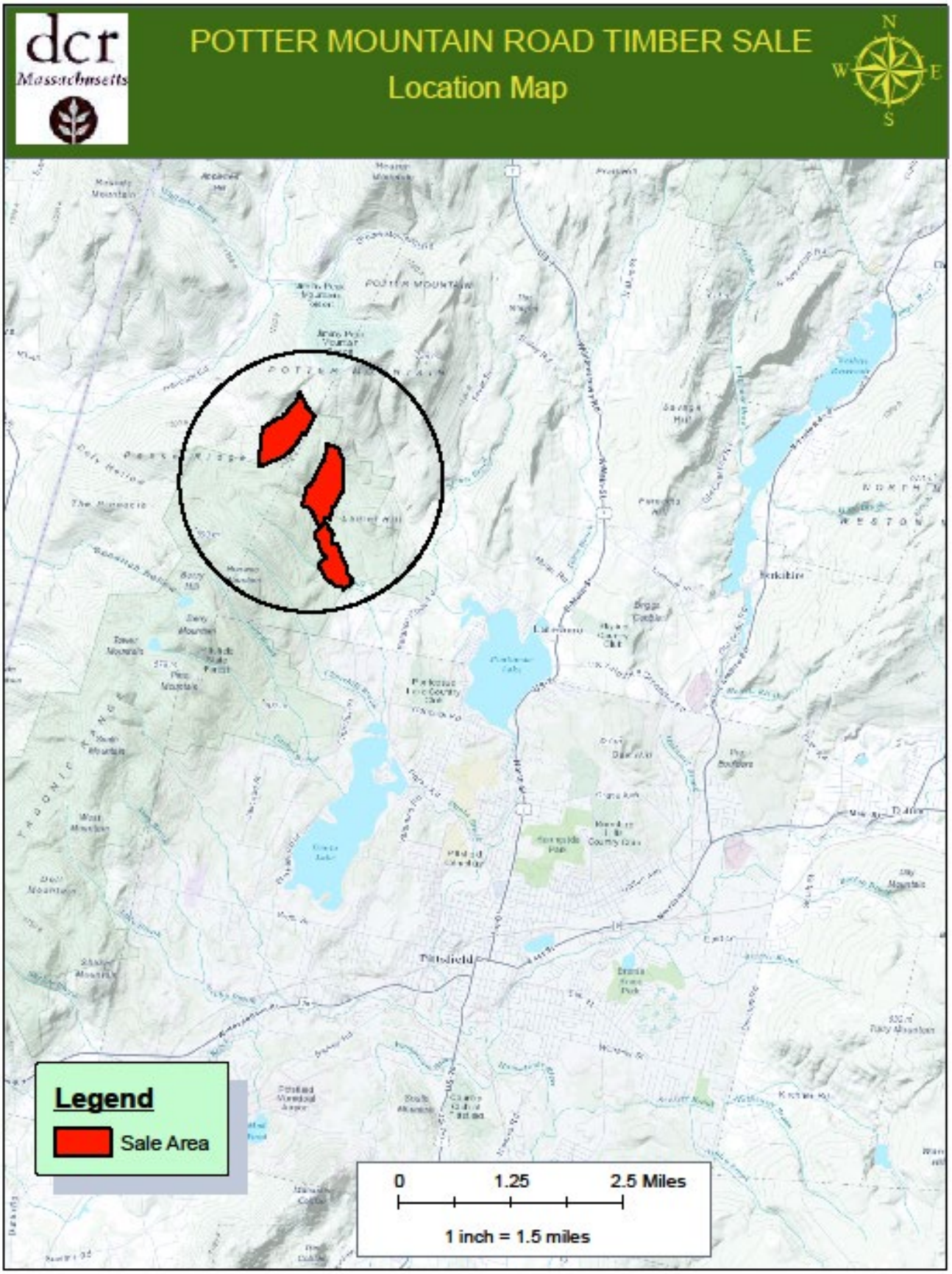

dcr
Massachusetts
POTTER MOUNTAIN ROAD TIMBER SALE
Location Map
N
W
E
S
POTTER MOUNTAIN
Pittsfield
Legend
Sale Area
0
1.25
2.5 Miles
1 inch = 1.5 miles

Exhibit 1

MA Department of Conservation and Recreation
Division of State Parks and Recreation
Woodland Zone

The Mission of the Bureau of Forestry Management Forestry Program in lands designated as Woodland on State Forests, Parks and Reservations is to provide ecosystem services and benefits associated with active forest management.

Ecosystem services that are provided through active forest management on the Woodland landscape are:

- ***Production of wood products*** *that is ecologically and economically sustainable benefiting local economies.*

- ***Water*** *quality protection and enhancement of water supply.*

- ***Diverse habitats*** *that range from early seral vegetation to late successional forest encompassing many structural components and provide protection from extreme disturbance events.*

- ***Recreational opportunities*** *that are safe and fitting for their location determined in conjunction with the Operations staff of the Division of Parks and Recreation*

- ***Carbon stock management*** *using innovative and scientific forest management methods for increasing sequestration.*

❖ Forest management on DCR forests, parks, and reservations endeavors to demonstrate excellent forestry practices to private landowners and the public.

❖ The ecosystem services that state lands provide will be balanced across the landscape and the scale of time where they are deemed appropriate.