dcr | **Massachusetts Department of Conservation and Recreation**

Silviculture Prescription
Old House Lot

Massachusetts Department of Conservation and Recreation
Bureau of Forestry

Central Berkshire District
Chester-Blandford State Forest
Huntington, MA

Prepared by:

Kristopher Massini – Management Forester – Central Berkshire District
Massachusetts Department of Conservation and Recreation
P.O. Box 1433, 740 South Street, Pittsfield - MA 01004
kris.massini@state.ma.us – 413 442 8928 x121

09/29/2021

Approved by:
Management Forestry
Program Supervisor

Thomas Brulé Date: 10/29/21

Overview:

The Old House Lot Forest Management Project is located within the Chester-Blandford State Forest adjacent to Beulah Land Road. It consists of plantations at various stages of conversion to natural stands, and natural stands. Tree species within the entire project area include Norway spruce, red pine, hemlock, red oak, aspen, and northern hardwood species. Various harvesting methods will be used to fulfill management goals within this project area including overstory removal, clearcut, irregular shelterwood, and commercial thinning.

The conditions that led to selecting this project for forest management are:

- Continue transforming Norway spruce plantations into native forest types.
- Areas regenerated by previous forestry projects within the state forest and by abutters to enhance wildlife populations are beginning to increase in size and age beyond the desired age class (<10 years).
- Portions of project area have a high percentage of hemlock which is or may be infested with hemlock woolly adelgid (HWA) and hemlock looper (proper management will enhance residual dominant hemlock's ability to survive).
- Throughout the oak-hemlock and oak-hardwood stands there is a significant amount of white ash which is, or may be infested, with emerald ash borer (EAB).
- Will provide an opportunity to demonstrate regeneration techniques and perpetuation of hemlock-hardwood stands by transitioning portions of the current single-aged stands to multiage / mosaic conditions.

The Old House Lot Forest Management Project proposes to:

- In old plantations, remove remnant Norway spruce retained during an earlier harvest, to release established regeneration of native tree species with small amounts of Norway spruce.
- Begin the conversion of two small Norway spruce plantations to native, naturally regenerated stands through a two-stage and one-stage shelterwood regeneration with reserves method.
- Demonstrate patch cutting, using patches of up to 5 acres, for continued early successional wildlife habitat within the red pine-red maple-aspen stand.
- Demonstrate techniques aimed to reduce stress from HWA and hemlock looper, and retain healthy, dominant hemlock trees within the hemlock and oak-hemlock stands.
- Salvage and pre-salvage dead and dying white ash trees while converting oak-hemlock and oak-hardwood stands from even-aged to uneven-aged structure through irregular shelterwood harvesting.
- Demonstrate harvesting techniques and best management practices that protect forest productivity, soil, and water resources.
- Fulfill management approaches for the Woodlands landscape designation as directed by the Forest Futures Visioning Process (2010) and subsequent Management Guidelines (2012), including the restoration of a native forest ecosystem.

Site Data:

Project Description:

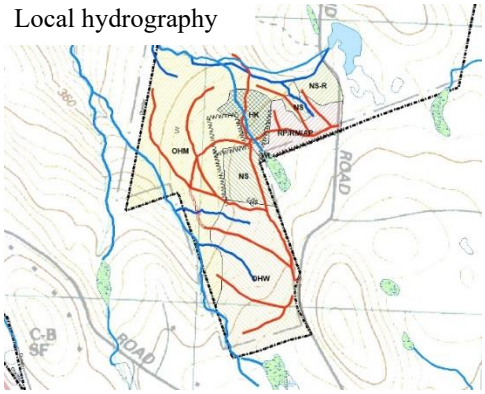
This approximately 106-acre project area is a mosaic of planted and natural forest stands that populate previously agricultural lands (abandoned fields and cleared areas). Throughout the project area the age classes of these different forest types are close to each other, approximately 90 – 100 years old. Stem size varies by the forest type from small to large sawtimber-sized. The dominant tree species found in the project area are Norway spruce, red pine, hemlock, white pine, red oak, red maple, sugar maple, white ash, birches, and aspen.

Soil: There are several soil types associated with this project area, mostly associated with deep, well drained, and stony upland soils. As with topography the forest composition changes slightly with the soil types. The soil types are listed below.

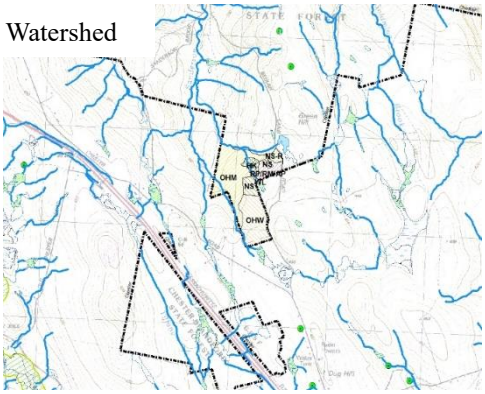
- 911C – (32.4 ac) Ashfield-Shelburne Association
- 921C / 921E – (73.6 ac) Westminster-Millsite Association

Topography and Hydraulic Features: The project area is located along the southern entrance to the forest and is bounded by Beulah Land Road, State Forest boundaries, and two tributaries of Sanderson Brook. Sanderson Brook and the tributaries within the project area are within the Westfield River watershed basin. Elevations range from 1200 – 1450 ft. above sea level creating level to moderately sloped conditions. Existing woods roads and landings are available to use for access to the project area.

Local hydrography



Watershed



There are several intermittent streams and one forested wetland associated with the project area. Drainage from the project area generally flows northwest through intermittent streams feeding into main feeder streams of Sanderson Brook. There is one known forested wetland associated with one of these intermittent streams, much of which is located off the state forest. Although there are no certified vernal pools these wetlands may be functioning as vernal pools. There are two known existing skid trail stream crossings within the project area.

Disease and Insects: There are past, current, and potential threats to this project area including armillaria (root rot), HWA, hemlock looper, beech bark disease, red pine scale, and EAB. Each of these will play a role in the management of the stands they affect. Below is a link for more information about each disease and insect.

- armillaria (root rot): https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev2_043192.pdf
- hemlock woolly adelgid (HWA): http://na.fs.fed.us/spfo/pubs/pest_al/hemlock/hwa05.htm
- hemlock looper: https://www.maine.gov/dacf/mfs/forest_health/insects/hemlock_looper.htm
- beech bark disease (BBD): https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev2_043310.pdf
- red pine scale: http://www.nhstateparks.org/uploads/pdf/RP_pestalert.pdf
- emerald ash borer (EAB): https://www.mass.gov/guides/emerald-ash-borer-in-massachusetts

Roads, Trails and Recreation: Beulah Land Road (off Chester Road) is owned and maintained by the Town of Blandford up to the point where it enters the State Forest. This forest road extends north through the state forest and exits as Sanderson Brook Road in the Town of Chester. There are several private homes along Beulah Land Road prior to entering the State Forest.

Once onto state lands, Beulah Land Road is in moderate to poor condition and only accessible by high clearance vehicles or by foot due to erosion issues. Many water control features of the road have failed due to increased storm intensity and frequency, and lack of maintenance; as a result, the road has suffered significant erosion. Coordination with DCR Operations will be sought in stabilizing the road both prior to,

Beulah Land Road

and upon completion of, the project to reduce effects of erosion. There are two other unnamed woods roads which traverse the project area.

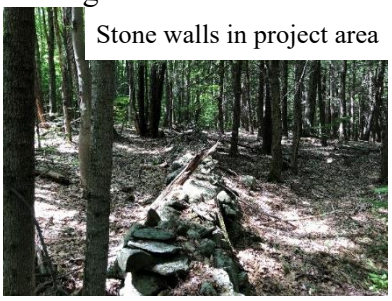
Chester-Blandford State Forest has been popular in the past for hunting, hiking, and snowmobile riding. Sanderson Brook Falls and the Newman Marsh Trail are the main attractions of the forest. There is also a history of illegal ATV use on the forest road systems and illegal mountain bike and hiking trail building and use. These activities have been increasing over the past several years.

There is no formal recreational use within the project area, however it is open for DCR-approved forms of passive recreation including hunting, fishing, and bird watching. During pre-proposal scouting visits no unauthorized trails were found in the project area.

All logging debris from proposed harvests along Beulah Land Road will be treated to meet slash requirements as directed in the Massachusetts Forestry Best Management Practices Manual" and "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines".

Stone foundation in project area

Stone walls in project area



Cultural and Archaeological Features: There are cellar holes, outbuilding sites, and stone walls within the project area. These features will be identified in the field and protected during harvest; and vegetation removal for preservation of these features may be conducted. Work in and adjacent to these features will be subject to the standards outlined in the "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines".

Wildlife / Rare and Endangered Species: No rare animals or critical habitat were noted upon the initial site visit. Over the past 20 years there have been several forestry operations located on both DCR and adjacent private property including clearcuts, seed tree, shelterwood, and selection harvests. Within the state forest several small plantations were removed around 2005 followed in 2015 by a heavy regeneration harvest on private land adjacent to the project, both projects created early successional habitat. As these previously harvested areas progress through natural succession their early successional habitat value is being lost. The clearcutting of five acres of the red pine-red maple-aspen stand will replace some of this habitat loss.

The location of this project area is not near any designated forest reserve, certified/potential vernal pool, or Natural Heritage and Endangered Species Program (NHESP) mapped estimated or priority habitat. There are however, as mentioned above, intermittent streams and a small, forested wetland within the project area. These water features as well as any additional features found of the above types will be buffered and protected according to the "Massachusetts Forestry Best Management Practices Manual" and "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines"

<u>Stand Data, Silviculture and Projected Results:</u>

Forest Stand Attributes: This prescription will describe the conditions and treatments within the 106-acre project area. This project area is broken up into multiple stands for silvicultural treatment based on forest type and condition; the project area may be operated under multiple Forest Product Sales for administration purposes.

The goals of this project are to continue the process of converting the non-native and off-site plantations to native tree species, extend the early successional habitat located within and adjacent to the project area, create conditions for the retention of healthy hemlock, promote the growth and regeneration

of red oak, and capture the value of white ash in jeopardy from EAB. Silviculture for each forest type is described below.

Evaluation of harvest goals should be conducted in roughly five years. This should include surveying for desirable regeneration within the plantations, clearcut, and irregular shelterwood portions; as well as checking the health of residual hemlock trees. This evaluation should also monitor for invasive species within the harvested acres; currently there are virtually no invasive plants present in the project area.

Norway spruce (4 ac.): This stand was treated in 2003 with a shelterwood harvest, since then much of the remaining overstory has fallen due to windthrow. The original intent of the silviculture has been met, as currently there is full stocking of native hardwood, white pine, hemlock, and scattered Norway spruce in the sapling/pole size class. This project will remove the remaining Norway spruce from the edges of the plantation, leaving the regeneration in the center undisturbed. In general, mature trees of native species, and all regeneration, will be left within this stand except for white ash and trees that pose a safety hazard to Beulah Land Road.

The current understory within this stand will continue to progress through the stem exclusion stage and quickly mature into a pole sized forest. There are no anticipated future treatments in this stand until it reaches the small sawlog size class (approximately 40 years) when a commercial thinning can occur to remove undesirable stems and increase resources for desirable stems. A second option, depending on resulting species composition, may be to clearcut the stand to replace other cut areas that are no longer providing early successional habitat values.

Table 1: Overstory (all measured live trees greater than or equal to 5 in. dbh)

	All species	Norway spruce	Black cherry
Basal area (square feet)	75	65	10
Percentage of stand (BA)	100	87	13
Acceptable growing stock (percent)	NA	NA	NA
Stems per acre	60	52.4	7.5
Quadratic mean diameter	15.1	15.1	15.6
Relative density (%)	39	36	4
Sawlog net total (bd-ft/ac)	10527	9803	724
Cords gross total (cds/ac)	26.3	22.8	3.5

Table 2: Understory (measured trees less than 5 in. dbh)

SPECIES	<1 ft	1-4.5 ft	4.5ft – 1" dbh	1"-5" dbh	Average/plot	Stems/acre
Norway spruce	0	7	0	0	1.75	**525.00**
Red maple	1	1	3	1	1.50	**450.00**
Poplar	0	1	0	0	0.25	**75.00**
Chestnut	0	0	0	1	0.25	**75.00**
Yellow birch	0	0	3	2	1.25	**375.00**
White ash	2	0	1	2	1.25	**93.75**
Red oak	1	0	0	0	0.25	**18.75**
Black birch	0	0	3	8	2.75	**206.25**
Sugar maple	0	0	1	0	0.25	**18.75**
Beech	1	0	0	0	0.25	**18.75**
TOTAL						**1856.25**

Table 3: Ground Cover (shrub and herbaceous species)

SPECIES	Avg. % cover	# Plots observed	% Of plots observed
Grass	5.00	2	50.00
Fern	10.00	2	50.00

Table 4: Snags/CWD

	All species	Norway spruce	Black cherry
Basal area	15	5	10
Trees/acre	84.6	6.4	18.3
CWD (cu. ft/acre)	1552		

Norway spruce (8 ac.): Stocking within these un-thinned plantations is extremely high and there is a high rate of mortality in the lower canopy classes due to overcrowding, armillaria root rot, and age. Due to the high rate of mortality, recently discovered root rot, potential for windthrow of residual stems, and adequate existing regeneration, a single stage shelterwood harvest with reserves will be conducted. The overstory will be reduced to approximately 40 square feet per acre, retained as both evenly dispersed and grouped trees. In general, native trees will be left within this stand except for white ash. Norway spruce that are retained will be mid-canopy trees in groups to provide wind firmness.

It is anticipated that the existing regeneration within this stand will respond to the increase in sunlight and thrive. It is also expected that *Rubus* spp. will populate portions of the stand where existing regeneration is not as dense, which will eventually be overtaken by tree species. Many of the overstory trees retained are expected to blow down. There are no anticipated future treatments in these stands for 40-50 years.

Table 5: Overstory (all measured live trees greater than or equal to 5 in. dbh)

	All species	Norway Spruce	Sugar Maple	Black Cherry	White Pine
Basal area (square feet)	222.9	200	11.4	5.7	5.7
Percentage of stand (BA)	100	90	5	3	3
Acceptable growing stock (percent)	87	91	100	0	0
Stems per acre	173	159.2	9.4	1.5	2.6
Quadratic Mean Diameter	15.4	15.2	14.9	26.0	20.0
Relative Density (%)	124	109	11	2	3
Sawlog Net Total (bd-ft/ac)	37982.7	35328.9	898.8	841.7	913.3
Cords Gross Total (cds/ac)	89.1	81.2	3.6	2.3	2.0

Table 6: Understory (measured trees less than 5 in. dbh)

SPECIES	<1 ft	1-4.5 ft	4.5ft – 1" dbh	1"-5" dbh	Average/Plot	Stems/Acre
Red Maple	10	4	0	0	2.00	**600.00**
Sugar Maple	1	0	0	0	0.14	**42.86**
Black Cherry	5	1	0	0	0.86	**257.14**
Beech	0	4	1	0	0.71	**214.29**
Red Oak	13	3	0	0	2.29	**171.43**
White Ash	25	5	0	0	4.29	**321.43**
Yellow Birch	2	1	1	0	0.57	**42.86**
Strip Maple	0	2	0	0	0.29	**21.43**
White Pine	2	3	0	0	0.71	**53.57**
Norway Spruce	1	0	0	0	0.14	**10.71**
TOTAL						**1735.72**

Table 7: Ground Cover (shrub and herbaceous species)

SPECIES	AVG. % COVER	# Plots observed	% Of plots observed
Ferns	5.71	3	**42.86**
***Rubus* spp.**	1.43	1	**14.29**
Maple-leaved viburnum	5.71	2	**28.57**
***Lycopodium* spp.**	1.43	1	**14.29**

Table 8: Snags / CWD

	All species	Norway Spruce	Sugar Maple	Black Cherry	White Pine
Basal Area	85.7	85.7	0	0	0
Tress/acre	119.6	119.6	0	0	0
CWD (cu. ft/acre)	1220				

Red pine-red maple-aspen (8.7 ac.): The species composition and location of this stand offer an opportunity to expand and continue the early successional habitat recently created adjacent to the state forest. The existing aspen in this stand has begun to decline leading to increased levels of mortality. The red pine is infested with red pine scale, an insect which will eventually kill the red pines. Up to five acres will be clearcut with the remaining acreage being thinned to variable residual densities depending on site specific conditions. Thinning will prioritize removal of aspen, red pine, and white ash.

Ten years after treatment it is anticipated that the clearcut portions will be fully stocked stands that are sapling size with almost closed canopy structure. At this point much of the desired young forest characteristics will be fading and the stem exclusion stage will begin as the forest begins to mature. Other areas within this portion of the forest should be looked at as possible habitat replacement. It may be possible to clear this stand again in 40-50 years for habitat purposes.

Table 9: Overstory (all measured live trees greater than or equal to 5 in. dbh)

	All species	Red Maple	White Ash	Aspen	Bl Cherry	Beech	Sugar Maple	Hemlock	Red Oak	Red Pine	Black Birch
Basal area (square feet)	142	45.7	34.3	31.4	8.6	5.7	5.7	2.9	2.9	2.9	2.9
Percentage of stand (BA)	100	32	24	22	6	4	4	2	2	2	2
Acceptable growing stock (percent)	66	50	75	55	100	100	50	100	100	100	100
Stems per acre	248	106.5	60.4	36.5	15.7	1.6	19.8	2.7	0.8	1.6	2.0
Quadratic Mean Diameter	10.3	8.9	10.2	12.6	10.0	25.4	7.3	14	26	18	16
Relative Density (%)	88	32	16	19	4	5	6	2	1	1	2
Sawlog Net Total (bd-ft/ac)	6683.3	944.6	2530.8	1181.0	0.0	601.6	0.0	166.0	492.6	618.1	148.7
Cords Gross Total (cds/ac)	41.6	12.3	10.0	9.9	2.5	1.7	1.2	0.7	1.1	1.2	0.9

Table 10: Understory (measured trees less than 5 in. dbh)

SPECIES	<1 ft	1-4.5 ft	4.5ft – 1" dbh	1"-5" dbh	Average/Plot	Stems/Acre
Sugar Maple	1	0	0	2	0.43	**128.57**
Red Oak	7	0	0	0	1.00	**300.00**
White Ash	9	0	0	2	1.57	**471.43**
Beech	0	5	4	5	2.00	**600.00**
Norway Spruce	0	1	0	0	0.14	**42.86**
Yellow Birch	1	0	0	0	0.14	**10.71**
Red Maple	0	0	0	1	0.14	**10.71**
Aspen	3	1	0	0	0.57	**42.86**
TOTAL						**1607.14**

Table 11: Ground Cover (shrub and herbaceous species)

SPECIES	AVG. % COVER	# Plots observed	% Of plots observed
Fern	14.29	4	57.14
Grass	4.29	3	42.86
Sarsaparilla	1.43	1	14.29
Maple Vib	1.43	1	14.29

Table 12: Snags

	All species	Red Maple	White Ash	Aspen	Black Cherry	Beech	Sugar Maple	Hemlock	Red Oak	Red Pine	Black Birch	Red Maple
Basal Area	11.4	0.0	0.0	11.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tress/acre	13	0.0	0.0	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CWD	1534											

Hemlock (5.5 ac.): This small stand of dense hemlock will be treated with a crown thinning to provide existing full crowned hemlock additional growing space and air flow. Approximately 1/3 of the stands basal area will be harvested, removing the less desirable hardwoods (red maple, aspen, and black birch) first. This will leave a mostly full canopy to shade the intermittent stream which bisects the stand. As conditions allow each hemlock will be released on three side by removing competing trees, where possible hemlock crowns will not touch. This effort is intended to help the residual trees fend off the effects of HWA and hemlock looper while retaining the dense hemlock cover.

Ten years after treatment it is hoped that hemlock will remain as the dominant species within this small stand. Unless there is stand failure due to HWA or another forest pest/pathogen, no further treatment is anticipated.

Table 13: Overstory (all measured live trees greater than or equal to 5 in. dbh

	All species	Hemlock	Black Birch	Sugar Maple	Red Oak	Red Maple	Yellow Birch	White Ash	Black Cherry	Beech	Paper Birch
Basal area (square feet)	206.7	83.3	30.0	20.0	16.7	16.7	16.7	10.0	6.7	3.3	3.3
Percentage of stand (BA)	100	40	15	10	8	8	8	5	3	2	2
Acceptable growing stock (percent)	81	88	10	100	100	80	40	33	50	0	0
Stems per acre	273	96.2	31.1	50.7	7.3	32.8	28.4	14.6	6.6	1.9	3.1
Quadratic Mean Diameter	11.8	12.6	13.3	8.5	20.5	9.6	10.4	11.2	13.6	18.0	14.0
Relative Density (%)	126	47	18	20	8	11	11	4	3	3	2
Sawlog Net Total (bd-ft/ac)	18380.8	12239.9	1108.5	289.0	2227.2	708.9	192.0	836.1	426.3	195.1	157.9
Cords Gross Total (cds/ac)	64.7	28.5	8.8	4.9	5.9	4.7	4.4	3.1	2.2	1.0	1.1

Table 14: Understory (measured trees less than 5 in. dbh)

SPECIES	<1 ft	1-4.5 ft	4.5ft – 1" dbh	1"-5" dbh	Average/Plot	Stems/Acre
Hemlock	4	5	1	1	1.83	**550.00**
Beech	4	2	1	1	1.33	**400.00**
Striped Maple	1	12	0	0	2.17	**650.00**
Red Oak	3	0	0	0	0.50	**150.00**
Sugar Maple	0	0	0	1	0.17	**50.00**
White Ash	1	0	0	0	0.17	**12.50**
TOTAL						**1812.5**

Table 15: Ground Cover (shrub and herbaceous species)

SPECIES	AVG. % COVER	# Plots observed	% Of plots observed
Fern	3.33	2	33.3
Lycopodium spp.	3.33	2	3.33

Table 16: Snags

	All species	Hemlock	Black Birch	Sugar Maple	Red Oak	Red Maple	Yellow Birch	White Ash	Black Cherry	Beech	Paper Birch
Basal Area	20	10	3.3	0.0	3.3	0.0	3.3	0.0	0.0	0.0	0.0
Tress/acre	19.6	11.1	4.2	0.0	2.4	0.0	1.9	0.0	0.0	0.0	0.0
CWD (cu. ft/acre)	445										

Oak-hemlock (80.1 ac.): Much of this stand had been harvested in 1989 and they have partially regenerated. This portion of the project area is a mosaic of species composition and stocking levels (density) creating an opportunity to retain and enhance desirable portions while regenerating others. Using irregular shelterwood techniques enables adjusting removals based on conditions, as they change throughout the stand. This area will be managed for a high level of tree and understory plant species diversity. Forest management efforts will also be aimed at creating and maintaining vertical (tree heights and layers of vegetation) and horizontal (closely juxtaposed patches of larger trees next to patches of medium and patches of smaller trees, and coarse woody debris) stand complexity. Treatment will prioritize a mix of oak

regeneration and hemlock retention as conditions allow throughout the stand. Heavier cutting in areas of existing beech regeneration will occur to provide adequate sunlight to promote oak regeneration. Uncommon species such as basswood and hop-hornbeam will be retained where possible.

The expected outcome within this stand is a diverse forested condition with a greater capability to withstand climate, weather, and insect disturbances. Future treatments may include overstory removal in lightly cut areas, or commercial thinning to promote more desirable species/stems. Group selection or clearcuts may be an option in portions where desirable regeneration failed or where beech proliferates.

Table 17: Overstory (all measured live trees greater than or equal to 5 in. dbh)

	All species	Hemlock	Red Oak	Red Maple	White Ash	Yellow Birch	Sugar Maple	White Pine	Beech	Black Birch	Aspen	Other
Basal area (square feet)	165.9	42.7	40.0	29.2	11.4	10.8	10.3	4.3	3.8	3.8	3.2	6.4
Percentage of stand (BA)	100	26	24	18	7	7	6	3	2	2	2	4
Acceptable growing stock (percent)	60	59	89	37	43	70	42	75	14	71	67	45
Stems per acre	221	68.4	19.0	43.9	13.9	17.7	24.5	6.1	11.5	3.9	1.5	10.1
Quadratic Mean Diameter	11.7	10.7	19.6	11.1	12.3	10.6	8.8	11.4	7.8	13.3	20.0	12.2
Relative Density (%)	98	26	19	18	5	7	10	3	4	2	2	3
Sawlog Net Total (bd-ft/ac)	11362.4	2801.8	4772.5	1094.2	775.6	298.6	284.5	545.1	53.6	131.4	280.8	324.5
Cords Gross Total (cds/ac)	48.4	10.0	14.2	8.9	3.6	2.9	2.6	1.4	0.8	1.1	1.1	1.7

Table 18: Understory (measured trees less than 5 in. dbh)

SPECIES	<1 ft	1-4.5 ft	4.5ft – 1" dbh	1"-5" dbh	Average/Plot	Stems/Acre
Hemlock	1	0	0	2	0.08	**24.32**
Yellow Birch	0	4	0	2	0.16	**48.65**
Beech	11	17	10	13	1.38	**413.51**
Red Oak	24	1	2	0	0.73	**218.92**
Stiped Maple	22	12	0	0	0.92	**275.68**
Red Maple	0	0	0	3	0.08	**6.08**
Norway Spruce	1	0	0	0	0.03	**2.03**
White Ash	4	0	0	0	0.11	**8.11**
Chestnut	0	3	0	0	0.08	**6.08**
Sugar Maple	0	0	0	2	0.05	**4.05**
Hop Horn Beam	0	1	0	0	0.03	**2.03**
TOTAL						**1009.46**

Table 19: Ground Cover (shrub and herbaceous species)

SPECIES	AVG. % COVER	# Plots observed	% Of plots observed
Fern	4.86	15	40.54
Maple Vib	1.62	6	16.22
Lyco	1.08	4	10.81
Witch Hazel	0.27	1	2.70
Partridge Berry	0.54	2	5.41
Sarsaparilla	0.54	2	5.41

Table 20: Snags

	All species	Hemlock	Red Oak	Red Maple	White Ash	Yellow Birch	Sugar Maple	White Pine	Beech	Black Birch	Aspen	Other
Basal Area	13.0	3.2	0.5	1.6	2.7	2.2	0.0	1.1	0.5	0	0	1.0
Tress/acre	26.5	8.9	1.5	1.9	5.0	0.0	3.9	1.5	1.7	0.0	0	2.0
CWD (cu. ft/acre)	479.5											

Sale Layout and Harvesting Limitations:

The Old House Lot may be divided into multiple timber sales. Harvesting in hemlock dominated portions of the project area should be conducted between August and March to reduce the spread of HWA and hemlock looper.

Project Access: Access to the proposed project area will be from Beulah Land Road in the town of Blandford. This project is anticipated to utilize two existing roadside landings; however, a landing further off the road may be established based on operational needs.

Skid Road and Trails: All main forwarder trails will be designated during the timber marking of the project area by the forester. Existing trails will be utilized if possible and new trails will be laid out as directed in the "Massachusetts Forestry Best Management Practices Manual" and "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines".

Wetland & Stream Crossings: There are two anticipated stream/wetland crossings within this project area and every effort will be made to avoid additional stream and wetland crossings if more water features are found that cannot be worked around. Protection of / work around all regulated water features found in the area will, at minimum, follow the guidelines of the "Massachusetts Forestry Best Management Practices Manual".

Road and Trail Buffers: All hazard trees within one tree length of Beulah Land Road will be cut and felled. All large 'legacy' trees (≥30 inches) found along the roadside will be left, regardless of quality, if they pose no threat to safety. Due to the shallow rooting habit of the non-native Norway spruce, only native softwood and hardwood species will be left within the roadside buffer.

Equipment Limitations: This project may require a cut-to-length harvester and forwarder within the Norway spruce plantations. There are no anticipated equipment limitations in the remainder of the project area. To prevent possible root damage to the residual Norway spruce, winter logging may be required in these stands. Unwanted movement of soil will be controlled by following recommendations in the "Massachusetts Forestry Best Management Practices Manual". All work will be limited to dry or frozen soil conditions.

Excluded Areas: Within the project area all wetland areas will be excluded from harvesting equipment. To meet the silvicultural goal aspen and white ash will be cut, and if possible under current regulations, removed within wetlands and filter strips. Regulated streams within the project area will have marked filter strips restricting equipment access per the "Massachusetts Forestry Best Management Practices Manual". There may be additional portions of the project area excluded from treatment/harvesting/cutting due to excessive slope, or wet or rocky ground. These exclusions will be documented and mapped within the Forest Cutting Plan.

Site Restoration: Upon completion of activity in the project area Beulah Land Road and all forwarder/skidder roads and trails will be left in a stable state by grading and installing water bars following the guidelines of the "Massachusetts Forestry Best Management Practices Manual". All landings will be cleared of debris, graded, and seeded with "Berkshire Conservation Mix", then mulched with straw to both minimize soil erosion and retain conservation mix seed on site for germination.

Potential In-kind Services:

- Equipment time and materials to maintain/restore roads and trails within Chester-Blandford State Forest.
- Installation of a gate on Sanderson Brook Road, which would allow for full closure of roads within the state forest to prevent damage during rainy/mud seasons. These gates are not intended to be closed year-round.
- Vegetation Maintenance for the Sanderson Brook Falls vista.

Prescription Documentation:

Project marking guidelines: Follow the directions below for marking instructions of sale and stand level features.

Sale level:

1. Locate, flag (pink), and paint with two red diagonal stripes the buffers and filter strips along all wetland and associated streams.
2. Locate and paint with two red diagonal stripes the project boundary.
3. Flag temporary layout of primary and secondary skid trail network with orange/yellow flagging. Using orange paint mark small noncommercial stems or stems already marked for removal located along adjusted skid trails upon completion of marking (orange).
4. Flag temporary layout of all wetland and stream crossing with labeled orange flagging. Using red paint mark and label each crossing upon completion of marking and any final adjustment to location.
5. Locate and mark perimeter of landings and clearcuts with one red diagonal stripe.
6. General tree marking guide:

Table 21: General Tree Marking Guide

Type of Tree	Tally Method	Mark Type
Cut Saw Log	Individual tally DBH & height	Blue Horizontal Line
Cut Pulp/Cord Wood	Individual tally DBH - 1/10 height	Blue Dot
Cut Live Cull Tree	Count	Blue X
Dead Tree / Warning	No tally	Blue X
Leave Tree	No Tally	Red Horizontal Line

Stand level:

Within each of the stands described below, follow the marking guidelines. When a list of criteria is presented to prioritize trees for removal, they are ordered from highest (1) to lowest (8) priority for removal.

Red pine – red maple – aspen: On no more than 5 acres of this stand lay out a patch clearcut. Patches should be laid out to enhance previous harvest openings, remove portions of declining aspen, and avoid wetland features. The patch boundary will be delineated by one red stripe painted on perimeter trees (to be retained after harvest) and a GPS used to verify acreage. Within these patches live trees 5 in. dbh and above will be marked for harvest. Within the patch 5 trees per acre with good wildlife features or those phenotypically selected for desirable traits will be left. Aggregation of retention trees is preferred with at least one cull tree cut and placed within the aggregate group for additional CWD.

Norway spruce shelterwood removal: Mark all Norway spruce and white ash within this stand while retaining other native species which do not pose safety or maintenance issues along Beulah Land Road. Retention of 50% of basal area within the bordering filter strip will be prioritized by retaining native species first followed by Norway spruce as needed to reach the appropriate level.

Norway spruce shelterwood regeneration: Reduce stand to 40 sq. ft. of basal area by following the prioritized guide below. Retained trees can be left as individuals or in groups. Trees will be prioritized for removal as follows:

1. Suppressed, intermediate or dominant canopy Norway spruce (retain codominant stems)
2. White ash above 8” dbh
3. Unacceptable (health, form, or species) native hardwood species (retain all native conifers)

Hemlock stand: commercial thinning: Thin stand to give hemlock growing space and additional resource opportunity; reduce basal area to 100 sq. ft./ac. by following the prioritized guide below:

1. Suppressed/diseased hemlock
2. White ash above 8" dbh
3. Unacceptable native hardwoods
4. Acceptable native hardwoods (not red oak)

Oak Hemlock Stands: Irregular Shelterwood: Residual dominant hemlock should be well spaced. Residual density should remain higher in areas with acceptable growing stock. Remove 30% to 80% of basal area within remaining project area based on existing ground conditions, including species composition, tree health, form, and vigor using the following prioritized guide below:

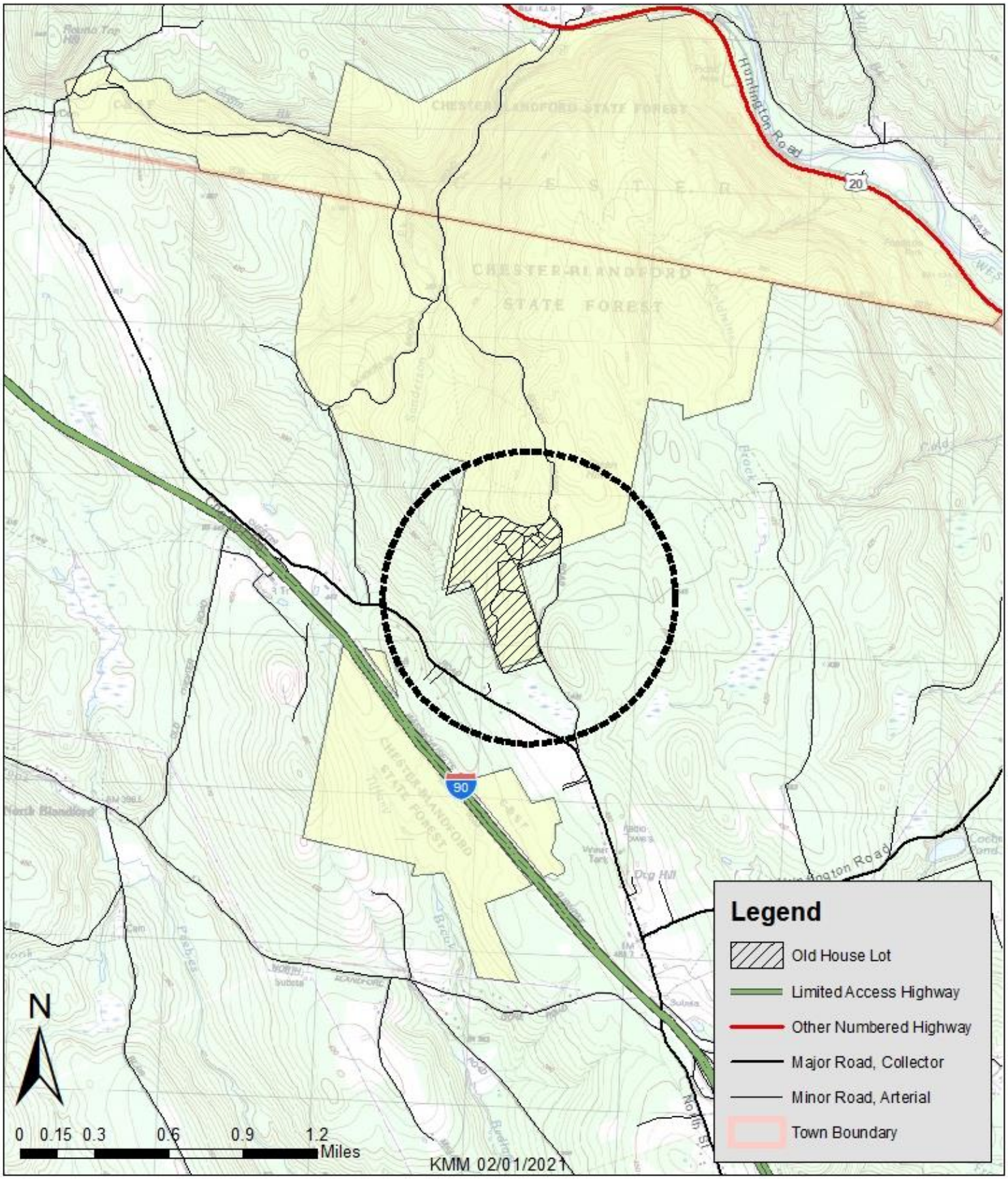
Table 22: Residual Basal Area Ranges:

		Residual basal area range	
	Current average	Low	High
Hardwood	165	40	120
Softwood	165	70	130

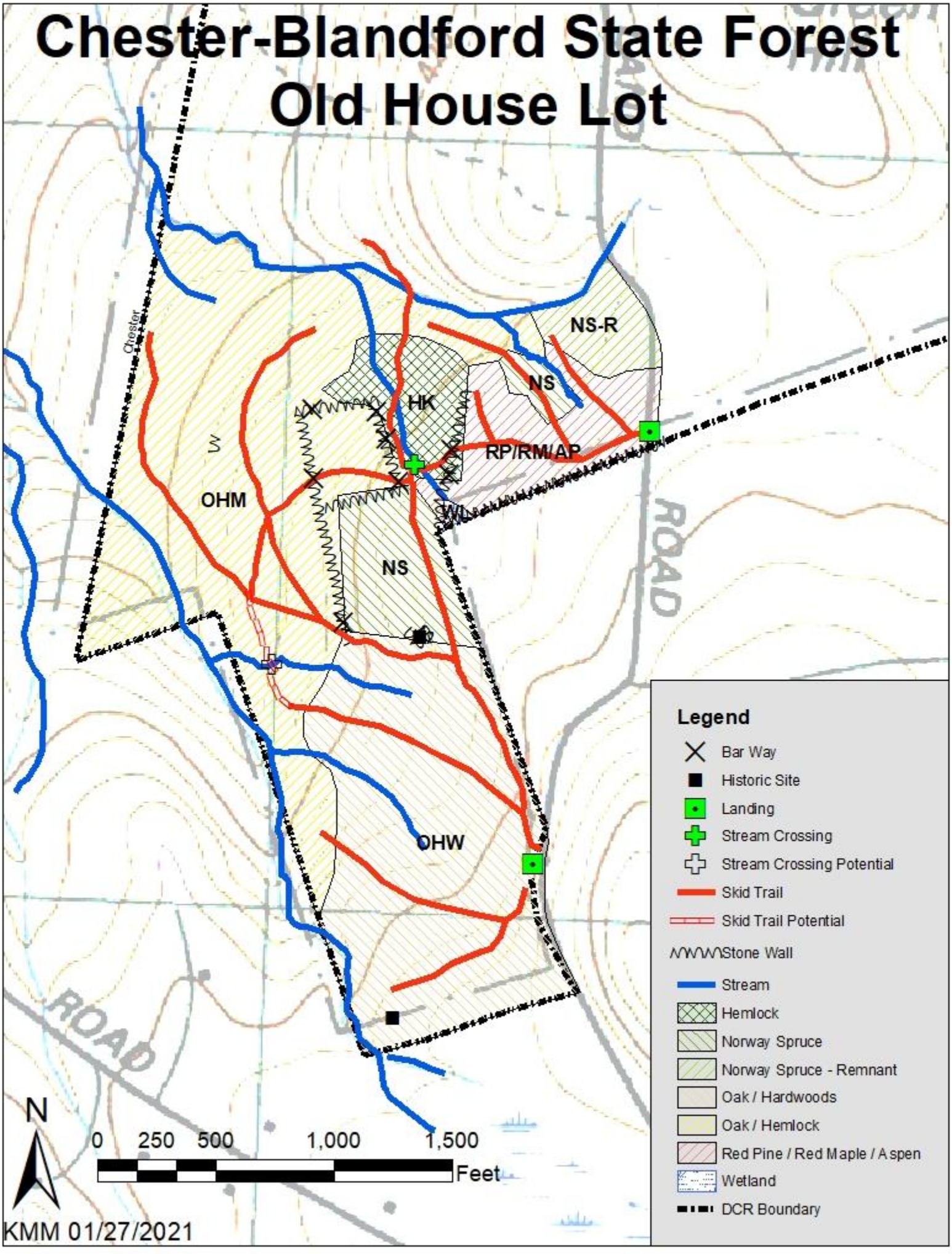
1. White ash greater than 8" DBH
2. Any BBD-infected American beech greater than 5" DBH
3. Trees of any species with less than 25 percent live crown ratio
4. Intermediate, suppressed or classified as unacceptable growing stock (UGS)
5. Red maple, sugar maple, black cherry, black birch, yellow birch classified as UGS
6. Co-dominant hemlock for spacing
7. Softwood species and other hardwood species classified as UGS
8. Hardwood species classified as acceptable growing stock for control of density, spacing, and growing space reallocation

Attached: Locus Map and Stand Map showing location of Forest Products Sale Area

Chester - Blandford State Forest
Old House Lot - Locus Map



Chester-Blandford State Forest
Old House Lot



KMM 01/27/2021