

# Quabbin/Ware River Region FY19 Forest Harvest Proposals

**The Division of Water Supply Protection** [<https://www.mass.gov/orgs/dcr-division-of-water-supply-protection>] (DWSP) is mandated to protect our water resources for future generations. Forest cover provides unparalleled water quality. DWSP has determined that the most stable land cover comes from a vigorous, species-diverse, many-aged forest. The Division's long-term objective is to diversify today's mostly even-aged forest into a multi-aged forest. We are determined to do this while conserving biodiversity using sustainable forestry practices. This process will not be fully implemented for many decades because we are proceeding at a measured pace.

**DWSP Foresters** [<https://www.mass.gov/service-details/dcr-watershed-forestry-program>] design timber harvests that will regenerate about 1% of the managed forest every year so that gradually, over time, the managed forest will include a much broader range of age classes than is currently present. Each year DWSP Foresters propose areas to be harvested which are then reviewed by professionals in Natural Resources, Environmental Quality, and Watershed Management. Finally, these proposals are made available for public comment as presented here. **Details on how to make public comments can be found below.**

The overall purpose of this management is to restore the forest to more balanced proportions of young, mid-aged, and older trees comprised of the greatest possible variety of native species. DWSP's working hypothesis is that the new makeup of the forest will help ease the damage caused by inevitable future severe weather events, outbreaks of disease, and insect infestations.

**For full details on DWSP land management please see the 2017 Land Management Plan.**

[<https://www.mass.gov/files/documents/2018/02/05/dcrdwp2017landmanagementplan.pdf>]

**Public comment** on these proposals is welcome and can be **submitted online at this link.** [<https://www.mass.gov/forms/dcr-public-comments>] Comments may also be submitted by U.S. mail to

Department of Conservation and Recreation

Office of Public Outreach

251 Causeway St.

Boston, MA 02114

**These proposals were presented at the following public meetings:**

- **Ware River:** Ware River Watershed Advisory Committee, May 10th, 2018
- **Quabbin Reservoir:** Quabbin Watershed Advisory Committee, June 4th, 2018

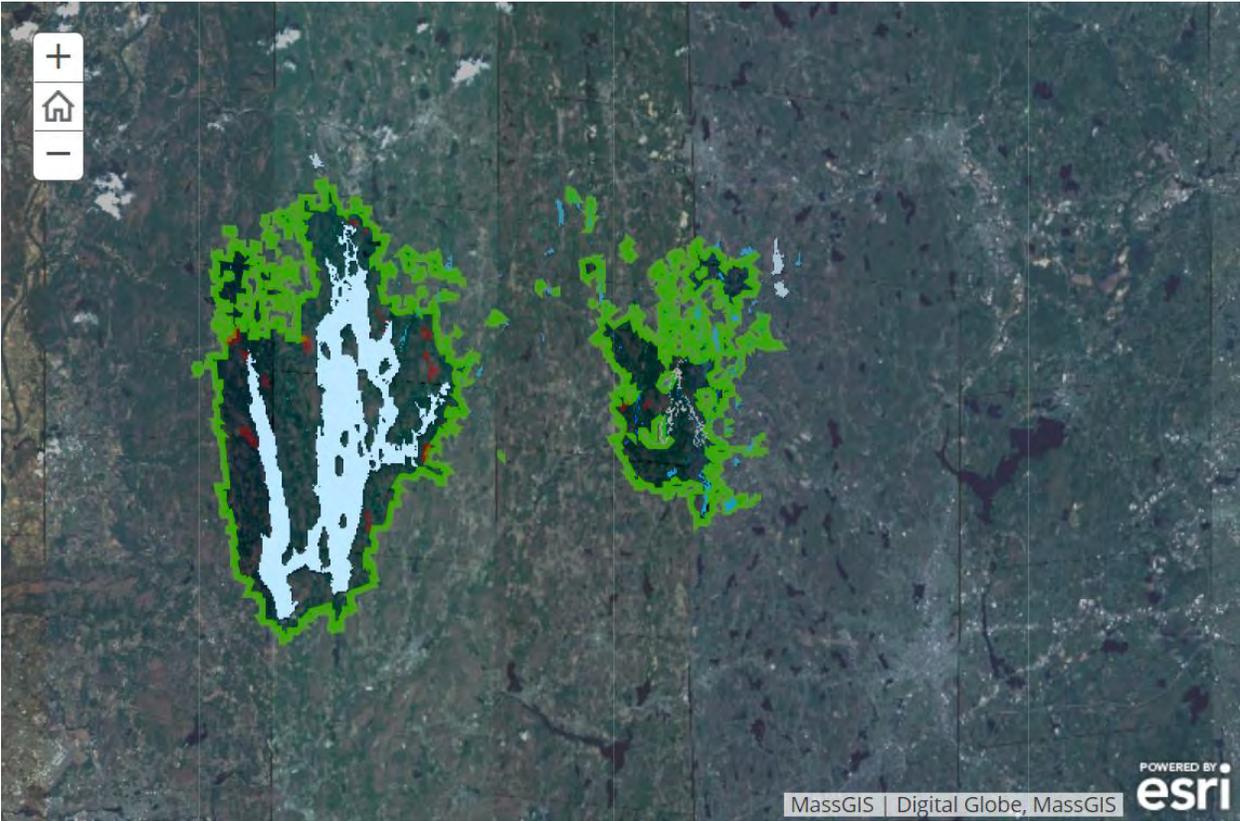
**Comments must be received by the close of business on Monday, July 23rd, 2018.**

If you have any questions, please contact Natural Resource Analyst Brian Keevan at [brian.keevan@state.ma.us](mailto:brian.keevan@state.ma.us) or at (413) 323-6921 x 551.

[[https://youtu.be/Wi23c6Fla\\_Q](https://youtu.be/Wi23c6Fla_Q)]



Figure 1: 2019 Quabbin/Ware River Forestry Proposal Locations



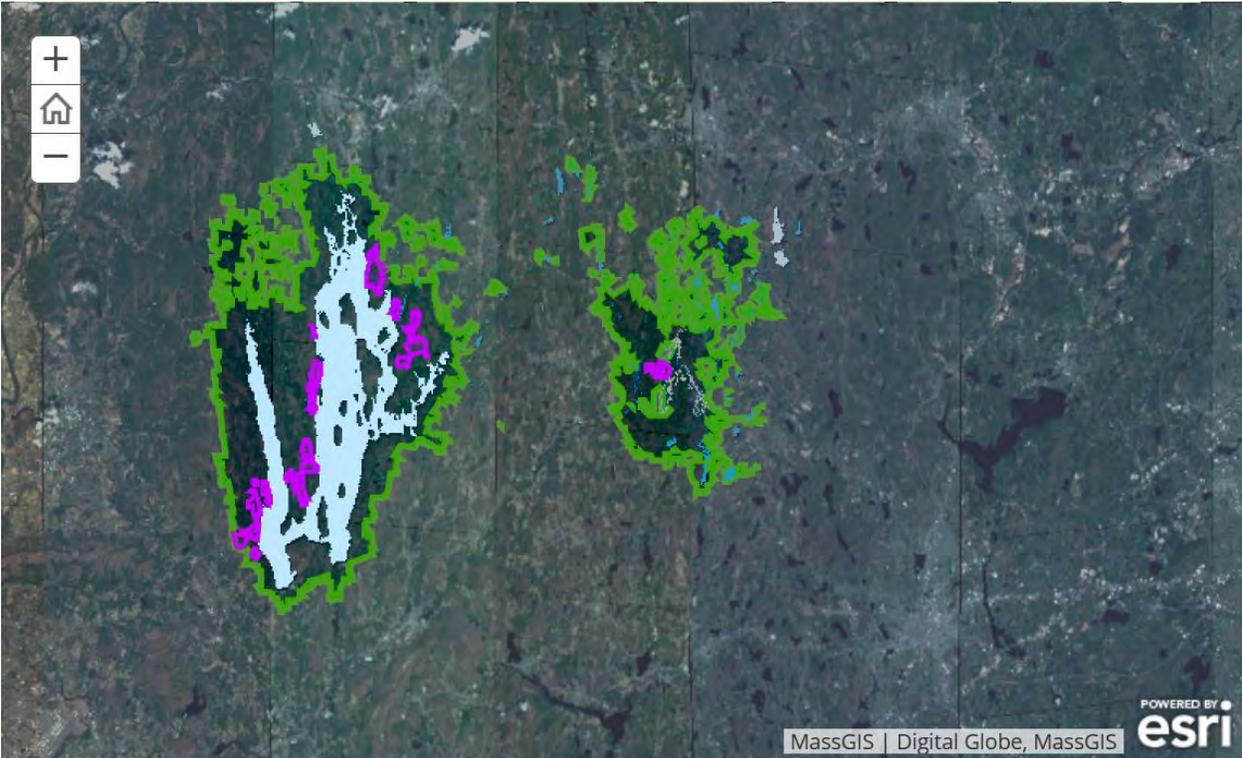
## FY19 Gypsy Moth Related Oak Salvage

A combination of stress from a multi-year drought along with repeated extreme gypsy moth defoliation events has resulted in widespread oak mortality throughout the Quabbin forest. The degree of damage varies from place to place, but there are unfortunately some significant areas with near complete mortality, often of very high-quality timber. While a large amount of the dead oak will remain in place to add to wildlife habitat and forest structural diversity, DWSP intends to recoup some portion of the valuable wood volume that otherwise would have been harvested through normal practices many years from now.

This map identifies approximate areas of special concern for oak salvage. These areas have been identified through a combination of satellite imagery analysis ([performed by Pasquarella, Bradley, & Woodcock, 2017](#)) and field survey by DWSP foresters. The locations mapped here do not represent all areas with concentrated oak mortality, but those areas with the best access and operability for the amount of oak present for salvage. With these criteria, DWSP can salvage the most value from the dying oak for the least cost and impact. Ultimately, the full extent of these mapped areas will not be salvaged due to restrictions on operations (terrain, extreme slope, streams, etc.) and limited time before tree decay. It should also be understood that within each of these mapped areas salvage work will reflect the level of mortality; there will likely be scattered removals, similar to a thinning operation, mixed with pockets of near complete removals similar to our typical regeneration patch cutting operations. Some pockets of high mortality and low species diversity may have widely scattered residual trees.

All of [DWSP's standard management policies](#) apply to these salvage operations. The DCR Commissioner will need to approve any salvage work that will create openings >5 acres, as is the case for other DWSP silvicultural operations. There will be an accelerated proposal and sale schedule of these areas. Each of the locations mapped here has been reviewed by DWSP Natural Resources and Environmental Quality staff and, is here, undergoing public review prior to sale

Figure 2 FY2019 Quabbin/Ware River Oak Mortality Locations for Potential Salvage



# Quabbin Harvest Proposal

## WR-19-19-1

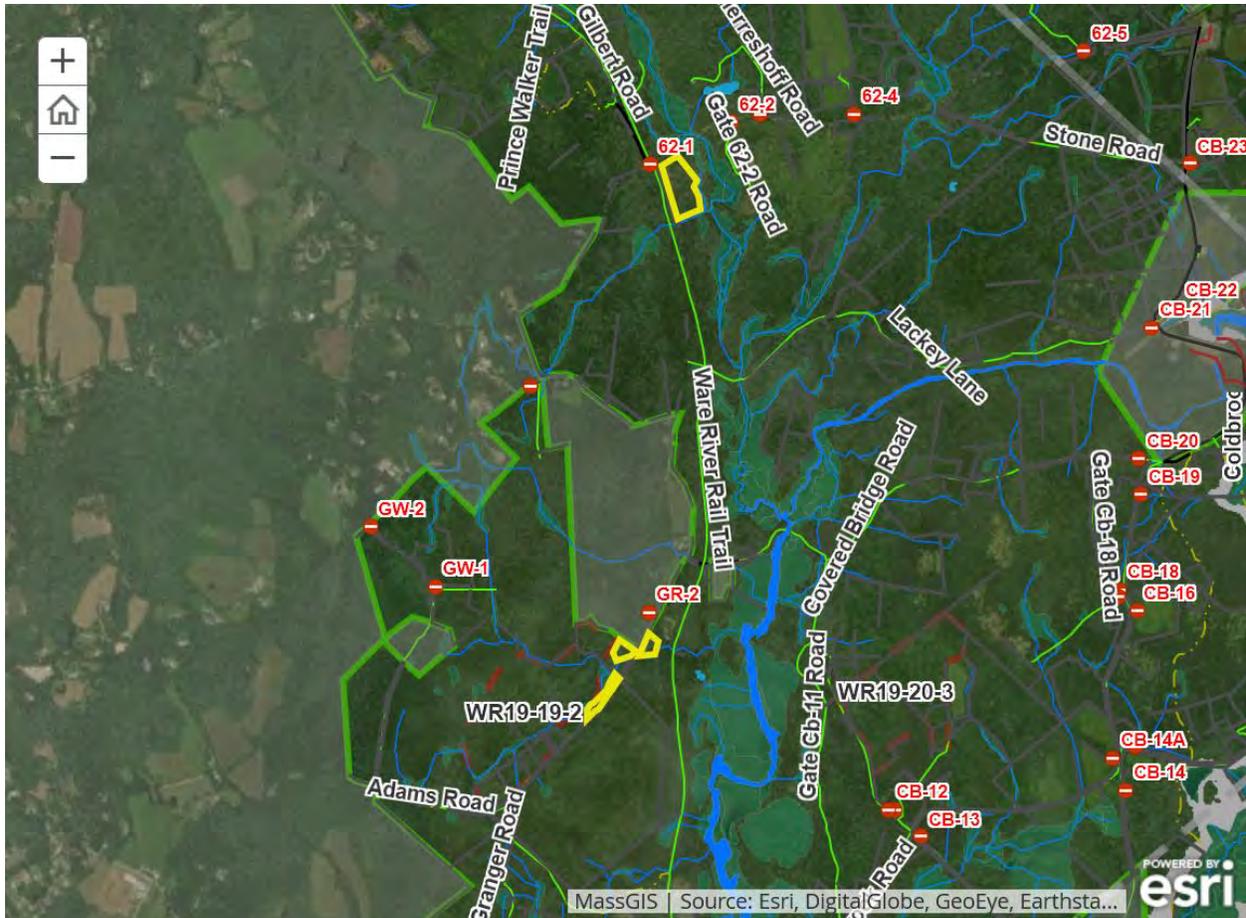
### Proposal Goals

This proposal targets several patches of red pine plantation that are succumbing to an invasive insect. Removal and salvage of red pine in order to increase native species diversity has been a goal of DWSP for many years. Most of the large patches in the Ware River Watershed have already been harvested.

### Proposal Location

The largest patch is east of Granger Rd at Rt. 62. The rest of the patches are scattered south down Granger Road and Old Worcester Road.

**Total Acres: 10.3**



### General Description

	Overstory Type(s)	Acres
Dominant	Red Pine	10.3

	Understory Type(s)
Dominant	Tree seedlings/saplings dominate site

**Description of forest composition/condition:**

[The 6.7 acre patch](#) was thinned for the first and last time in 1996 as part of lot 232. The stand is well stocked with approximately 150 square feet of basal area per acre of predominantly good to poor quality sawlog size red pine. Poor quality sawlog size white pine is also present throughout the stand and on the edges of the stand. Poor quality red maple and fair quality red oak sawlog size trees are also sporadically present in the overstory. The understory is dominated by sapling and pole sized trees of many species. Red and white oak, white pine, hemlock, black birch, red maple, and black cherry were all observed.

[The other patches](#) are all similar to the large patch in terms of species composition and quality.

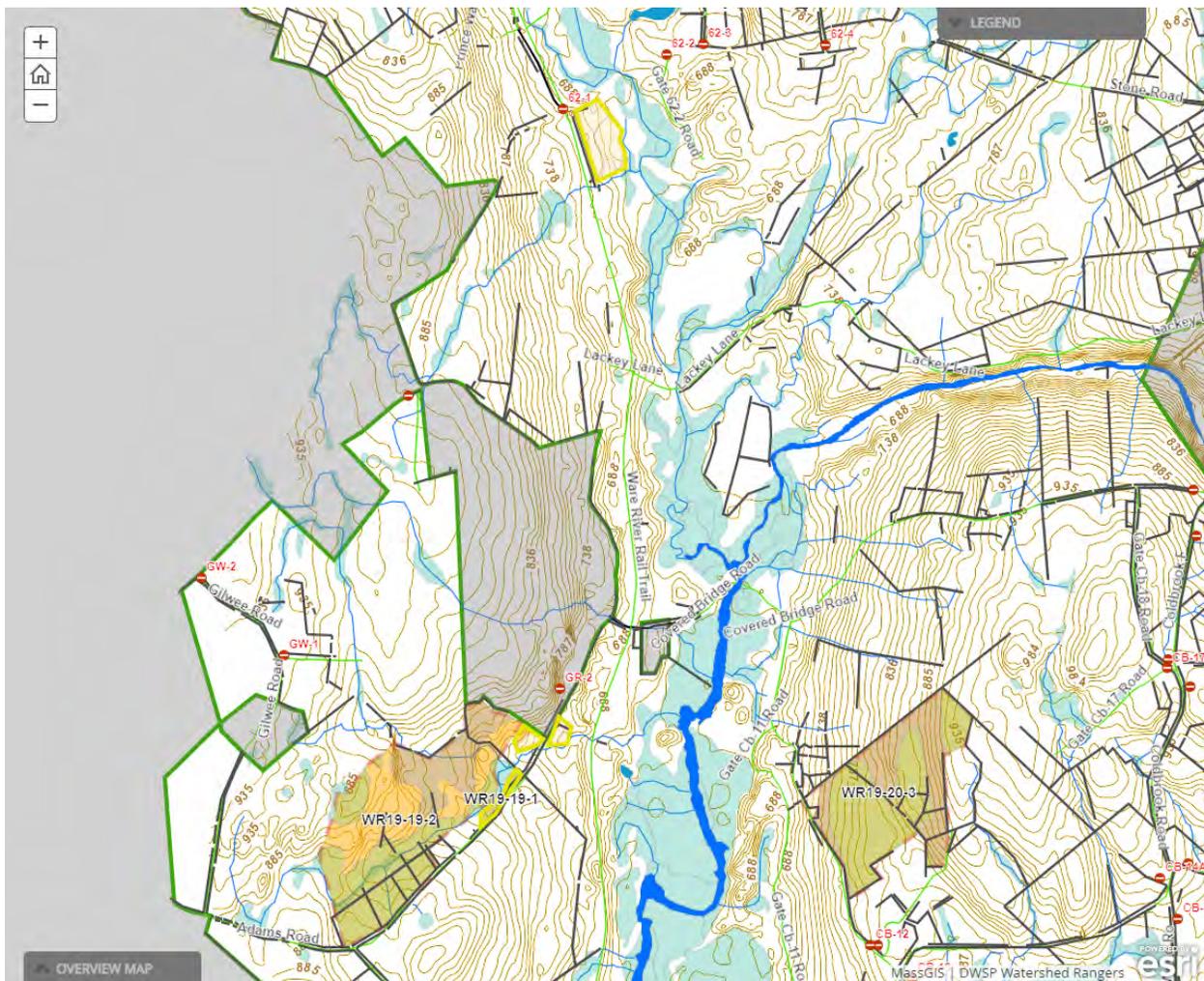


## Soils

Drainage Class	%
Excessively Drained	83
Well Drained Thin	0

Well Drained Thick	5
Moderately Well Drained	12
Poorly to Very Poorly Drained	0

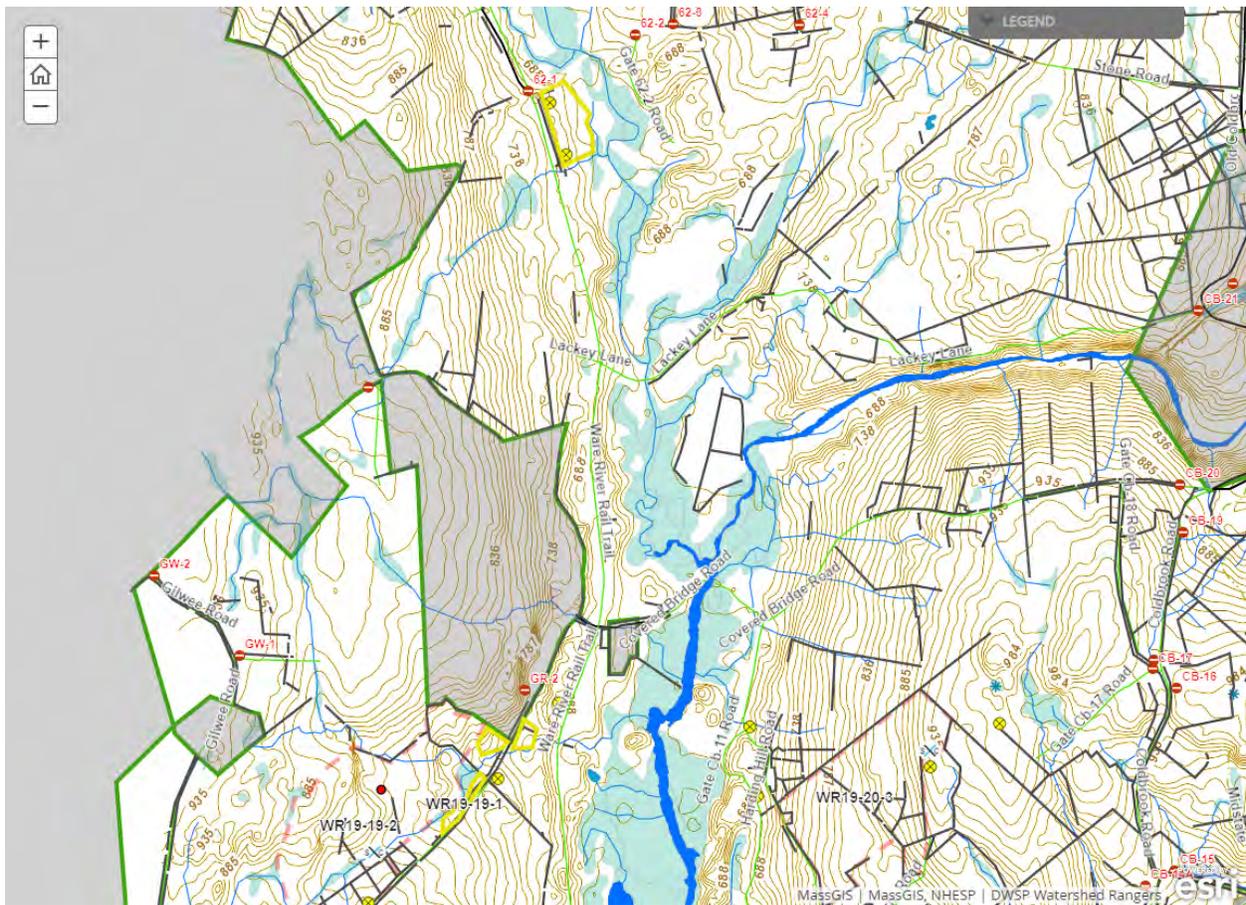
Soils present include: 253B and E [Hinckley loamy sand](#) (6.4 acres) and 254 A and C Merrimac fine sandy loam (2.1 acres) which are excessively or somewhat excessively well drained, 925E [Charlton-Chatfield-Hollis](#) (0.5 acres) which is well drained, and 910 C [Woodbridge-Paxton](#) (1.2 acres) which is moderately well drained.



## Wetlands

- Wetlands present? - **Yes**
- Streams present? - **Yes**
- Vernal pools present? - **None known**
- Seeps present? - **None known**
- Are stream crossings required? - **No**
- Are wetland crossings required? - **No**
- Is logging in filter strips planned? - **Yes**
- Is logging in wetlands planned? - **No**

Most of these units are adjacent to streams or wetlands.



## Silviculture

Acres in Intermediate cuts: **0**

Acres in prep/establishment cuts: **0**

Acres in Regeneration cuts: **10.3**

Average regen opening size: **1.7**

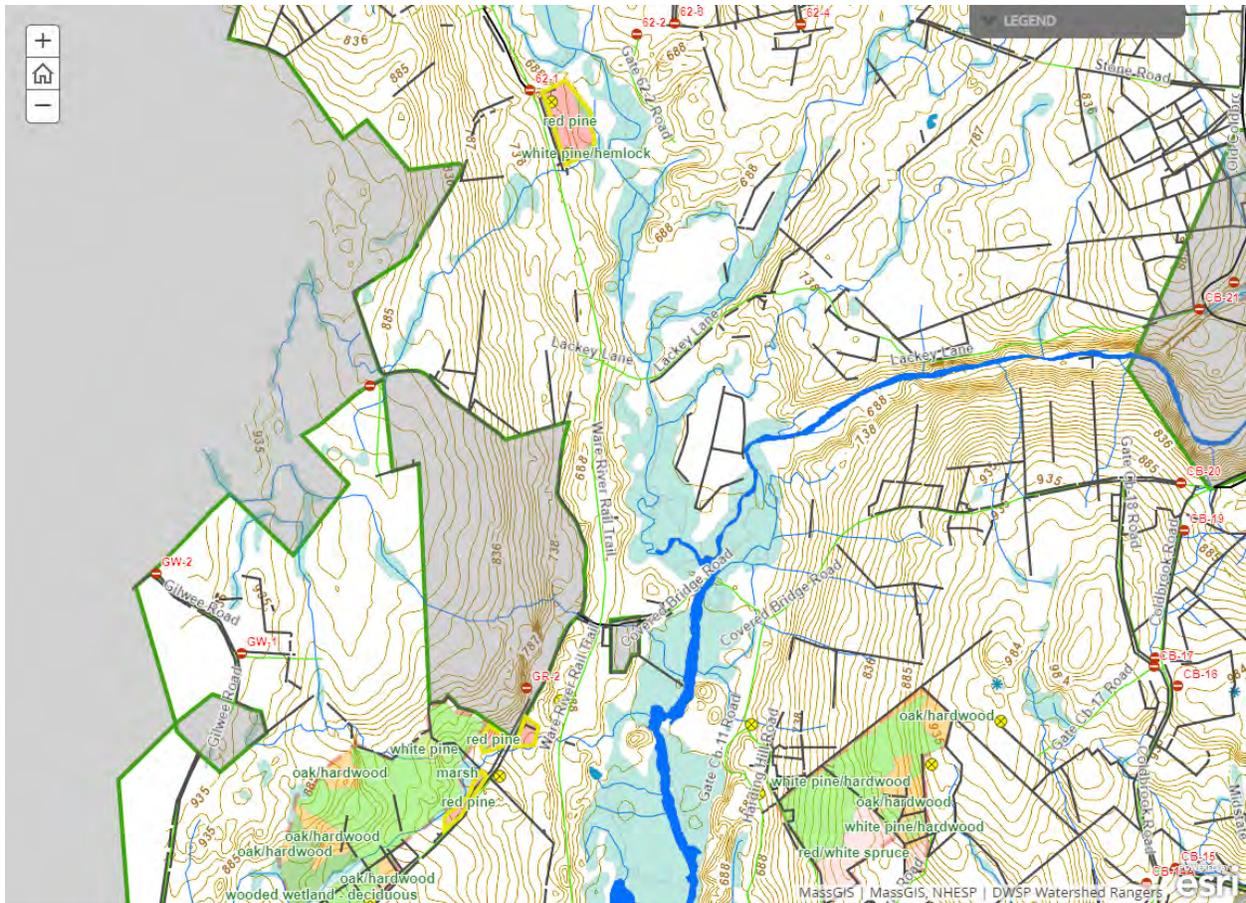
Maximum regen opening size: **6.7**

**Description of advance regeneration in proposal area:**

The understory is dominated by sapling and pole sized trees of many species. Red and white oak, white pine, hemlock, black birch, red maple, and black cherry were all observed. The regeneration is distributed throughout the stands. Browse was present but light, as these stands are all adjacent to frequently travelled roads.

**General comments on silviculture proposed:**

These will be red pine removal regeneration cuts. The larger patch will be a clearcut, and may require commissioner approval if the cut is to be over 5 acres. The other stands will be patch cuts of less than 2 acres. This 10.3 acres will be added to the 7 acres of red pine stands that were approved under proposal WR 18-18-2 to make a red pine sale. In stands where hardwood exists in the overstory, hardwood will be retained for aesthetic purposes up to 5 to 10 square feet of basal area per acre.

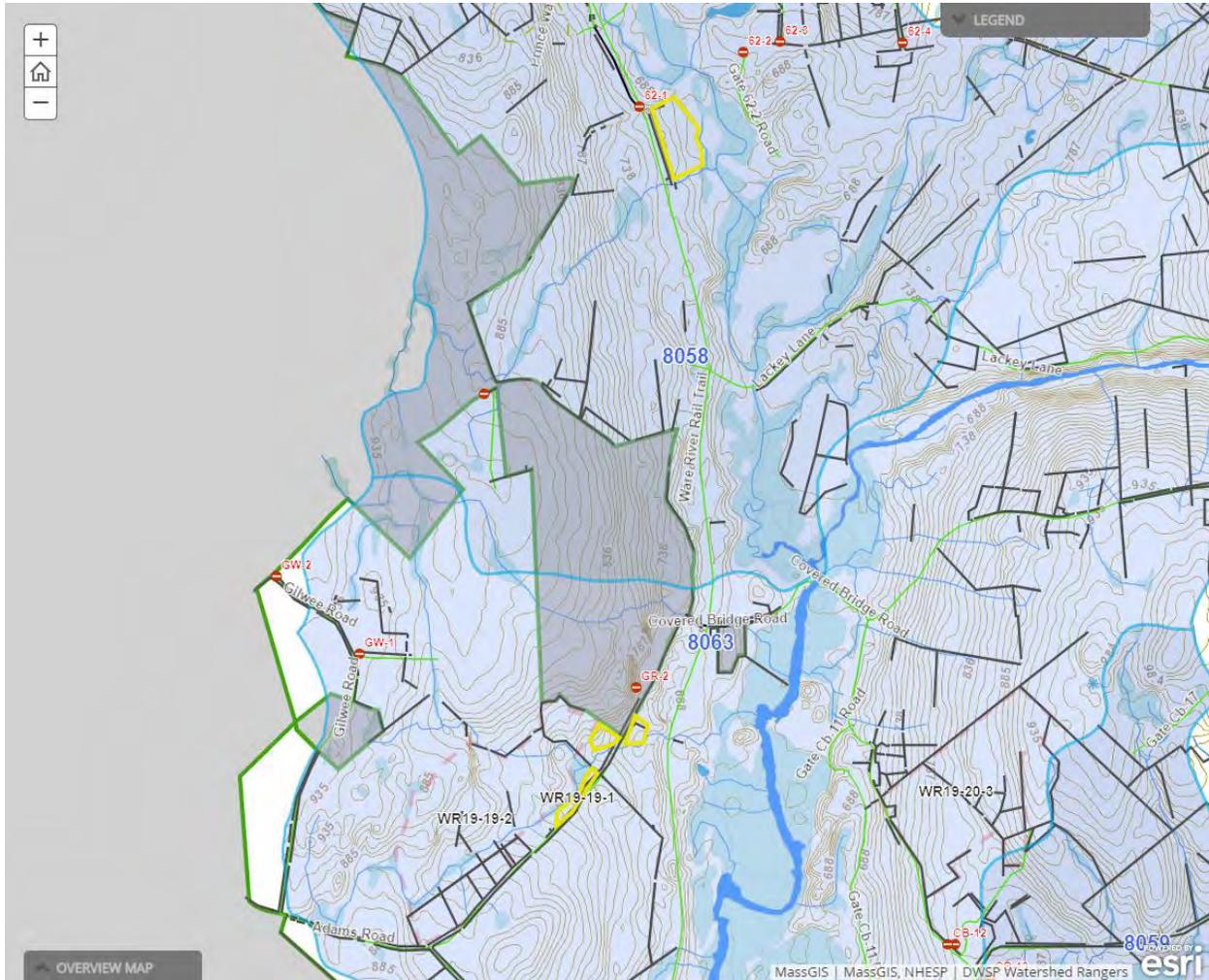


## Subwatershed Analysis

Sub-watershed number	Total DCR-owned Acres	Acres Regenerated on DCR Land in the last 10 years	Acres Remaining for Regenerating Up to the 25% / 10 Year	Acres part of this proposal
8058	2158	102	438	6.7
8063	2816	80	624	3.6

[8058](#) - Lower Burnshirt - Proposal WR18-28-4 approved with 20 acres of regeneration cuts proposed. Proposal WR18-28-05 approved with 10 acres of regeneration cuts proposed.

[8063](#) - Ware - Proposal WR18-18-2 out to bid as lot 4396 in 3/18, 13.1 acres. Proposal WR18-28-03 approved with 20 acres of regeneration cuts proposed. Proposal WR16-3-1 approved with 17 acres of regeneration cuts proposed. Proposals WR 19-19-2 and WR 19-20-3 submitted this year.



## Harvesting Limitations

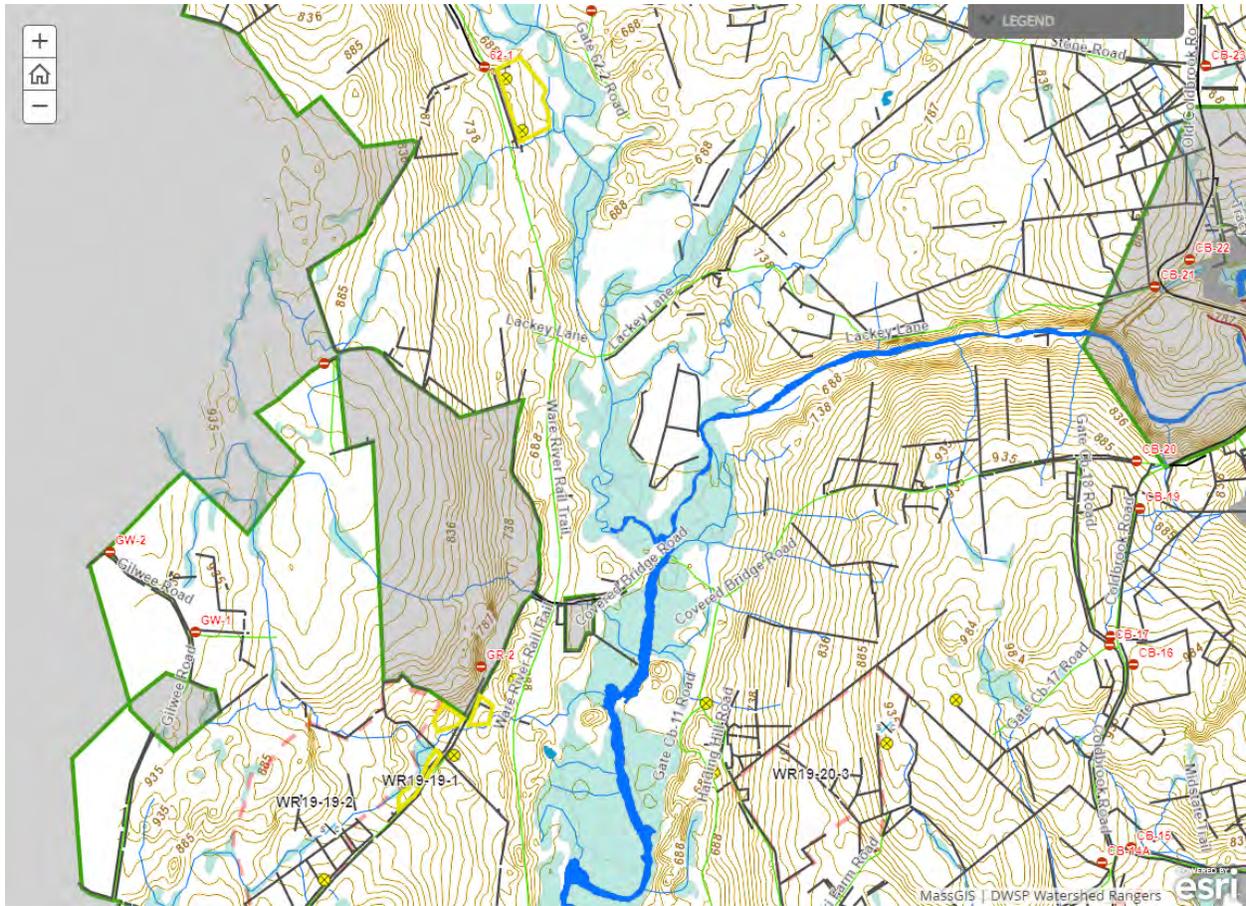
**Forwarder required:** No

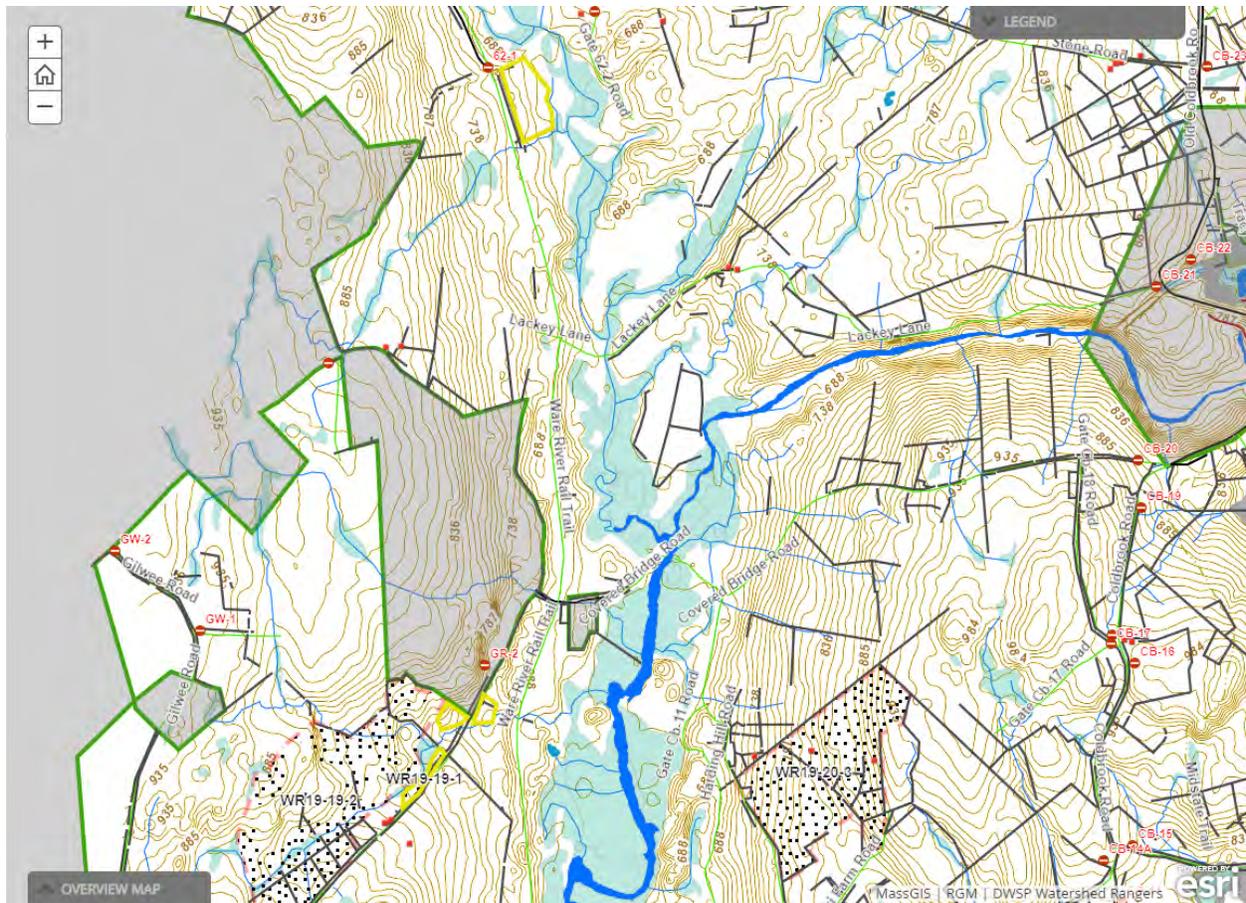
**Feller/processor required:** No

**Steep slopes present:** No

**Comments on harvesting limitations:**

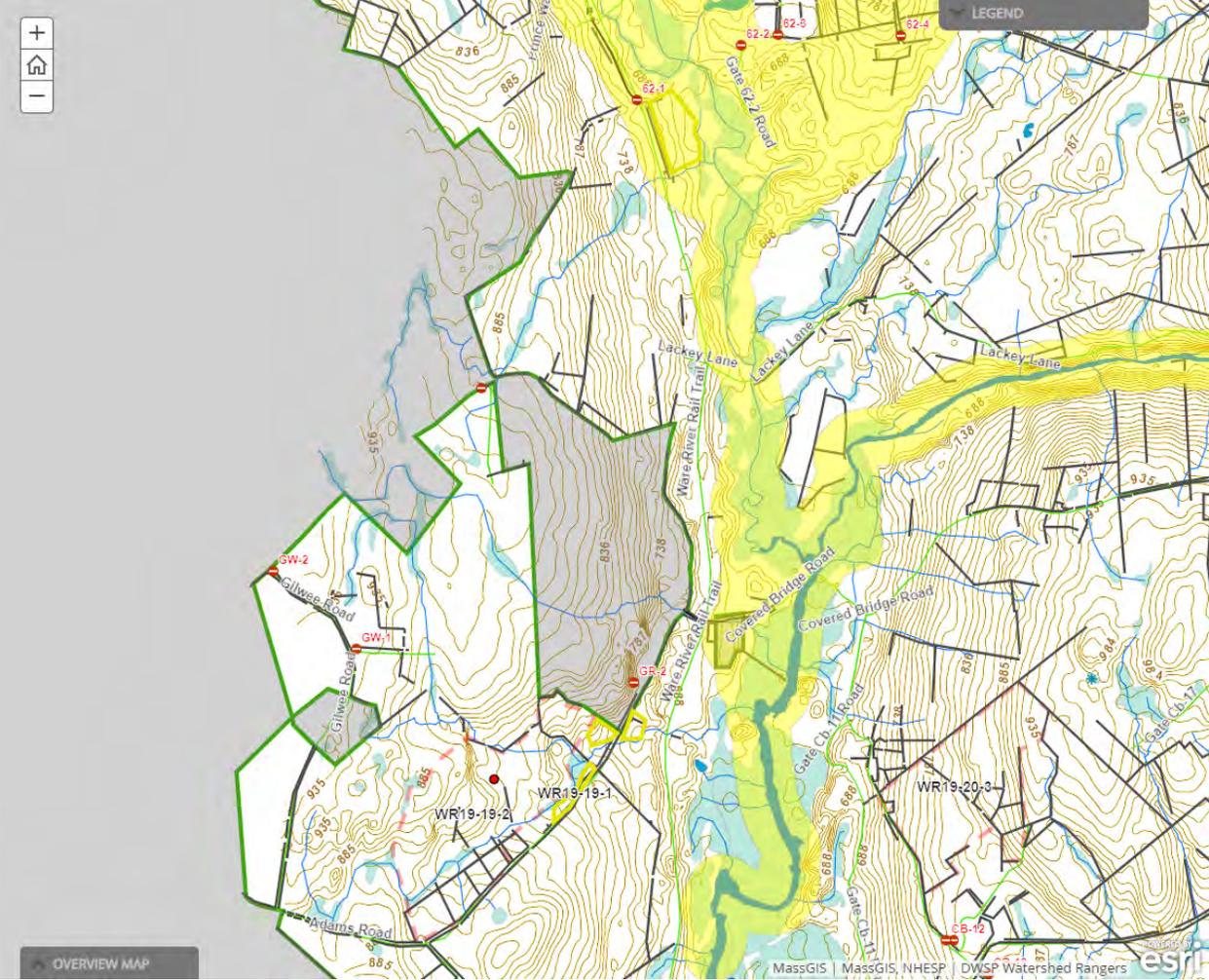
A cut to length harvest system will be needed to facilitate roadside landings at the smaller patches. A skidder and feller buncher will be allowed where feasible if the harvester wants to produce poles.





## Wildlife Resources & Rare and Endangered Species

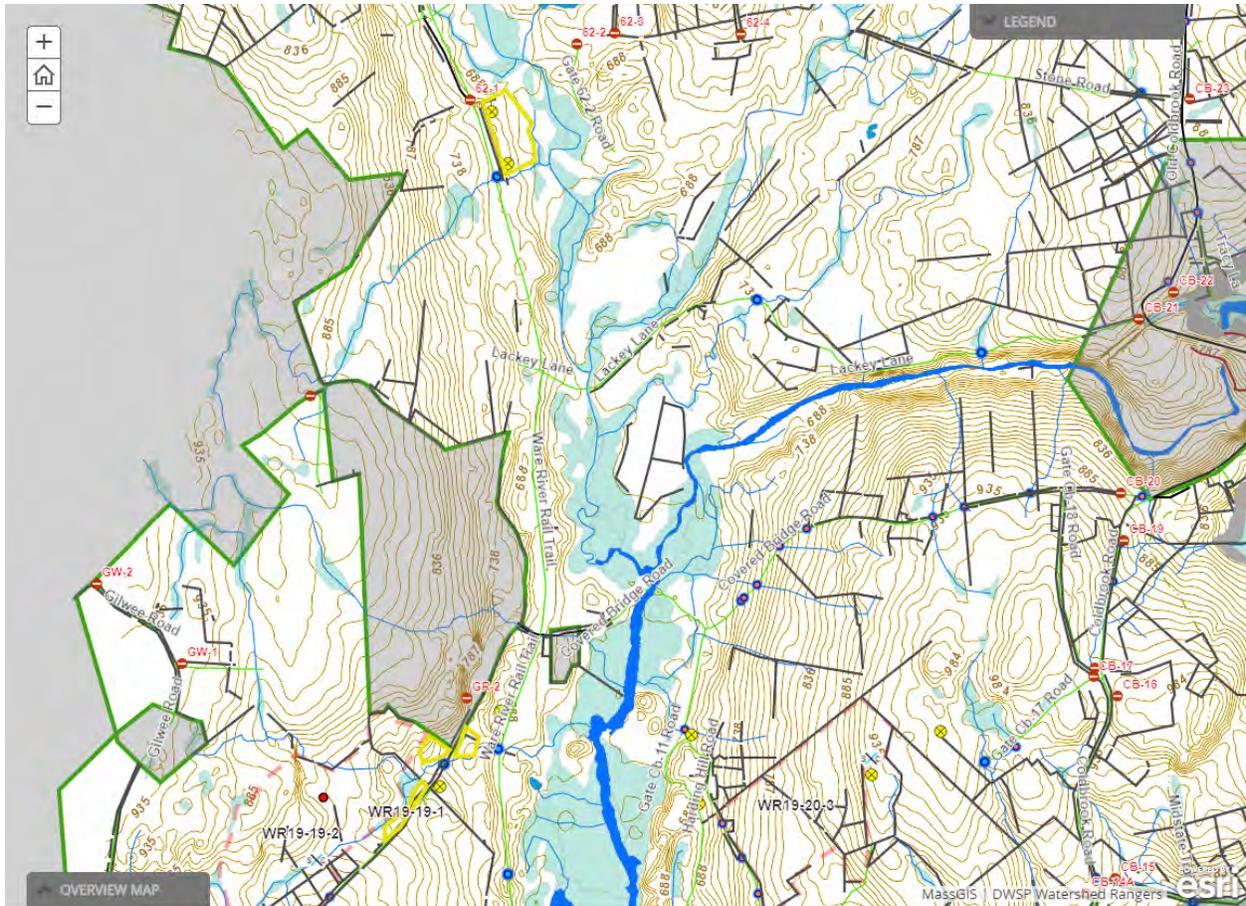
Cavity trees and potential/existing nest trees will be retained if possible. NHESP has determined that certain state-listed sensitive species or habitats may exist within the northern section of the lot proposal area. To protect them from unnecessary disturbance, detailed information regarding affected 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 harvest.



# Environmental Quality Engineering

## Comments on EQ Issues:

No perennial stream crossings.



## Forest Access Engineering

**Gravel needed:** No

**Landing work needed:** No

**Culverts needed:** No

**Work needed on permanent bridges:** No

**Beaver issue:** No

**Further comment on access needs:**

None.



DWSP FY 2019 Quabbin and Ware River Forestry Proposals – Master Legend for story maps

#### DCR DWSP Gates




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#### Stream Crossings




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#### Landings



#### Quabbin and Ware River Road Infrastructure Inventory (Public View)

Purpose

- Bridge
- Culvert - Stream
- Drainage culvert

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#### DCR DWSP Trails & Roads

Type

- Public Road
- Administrative Road
- Forest Road/Trail
- Trail

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#### NHESP Priority Habitats




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#### NHESP Certified Vernal Pools

NHESP Certified Vernal Pools




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#### WsPA Towns



#### Vernal Pools

STATUS

- NHESP certified
- Not a vernal pool
- Potential vernal pool
- DCR verified vernal pool

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#### Streams - Quabbin

FType

- Stream/River
- Canal/Ditch

#### Water Bodies - Quabbin

FType

- Reservoir
- Lake/Pond
- Stream/River
- Swamp/Marsh

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#### Streams - Ware River

FType

- Stream/River
- Canal/Ditch

#### Water Bodies - Ware River

FType

- Reservoir
- Lake/Pond
- Stream/River
- Swamp/Marsh
- Other

#### Cover Types, Filled

TYPE

- beaver meadow
- black birch/red maple/cherry
- hemlock
- hemlock/hardwood
- oak, mixed
- oak/hardwood
- poplar/gray birch
- red maple
- red oak
- red pine
- red pine/hardwood
- red/white spruce
- shrub swamp
- white pine
- white pine/hardwood
- white pine/hemlock
- white pine/oak
- coniferous wetland
- deciduous wetland
- mixed wooded wetland
- northern hardwoods
- grasses/herbaceous cover
- gravel pit

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#### Cover Types, Outlines



#### Subwatersheds



#### FY19 Subwatersheds

IDNumb

- 02
- 10
- 13
- 19
- 28
- 38
- 40
- 41
- 50
- 53
- 58
- 59
- 73
- 82
- 88
- 90
- 95
- 97
- 8063
- 45
- 8058
- 8059
- 21
- 24
- 25
- 27
- 31
- 44
- 57
- 68
- 74

#### FY19 Harvest Proposals




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#### DCR Boundary




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#### Stone Walls




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#### Soil Drainage

Drainage

- Well Drained Thick
- Moderately Well Drained
- Poorly To Very Poorly Drained
- Excessively Drained
- Well Drained Thin

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#### Extremely Stony Soils

STONE

- extremely stony

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#### Quabbin and Ware River Cultural Resources Inventory (Public view)




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#### Quab CR Slope

QuabbinCRSlope

- 0 - 7
- > 7

# Quabbin Harvest Proposal WR-19-19-02

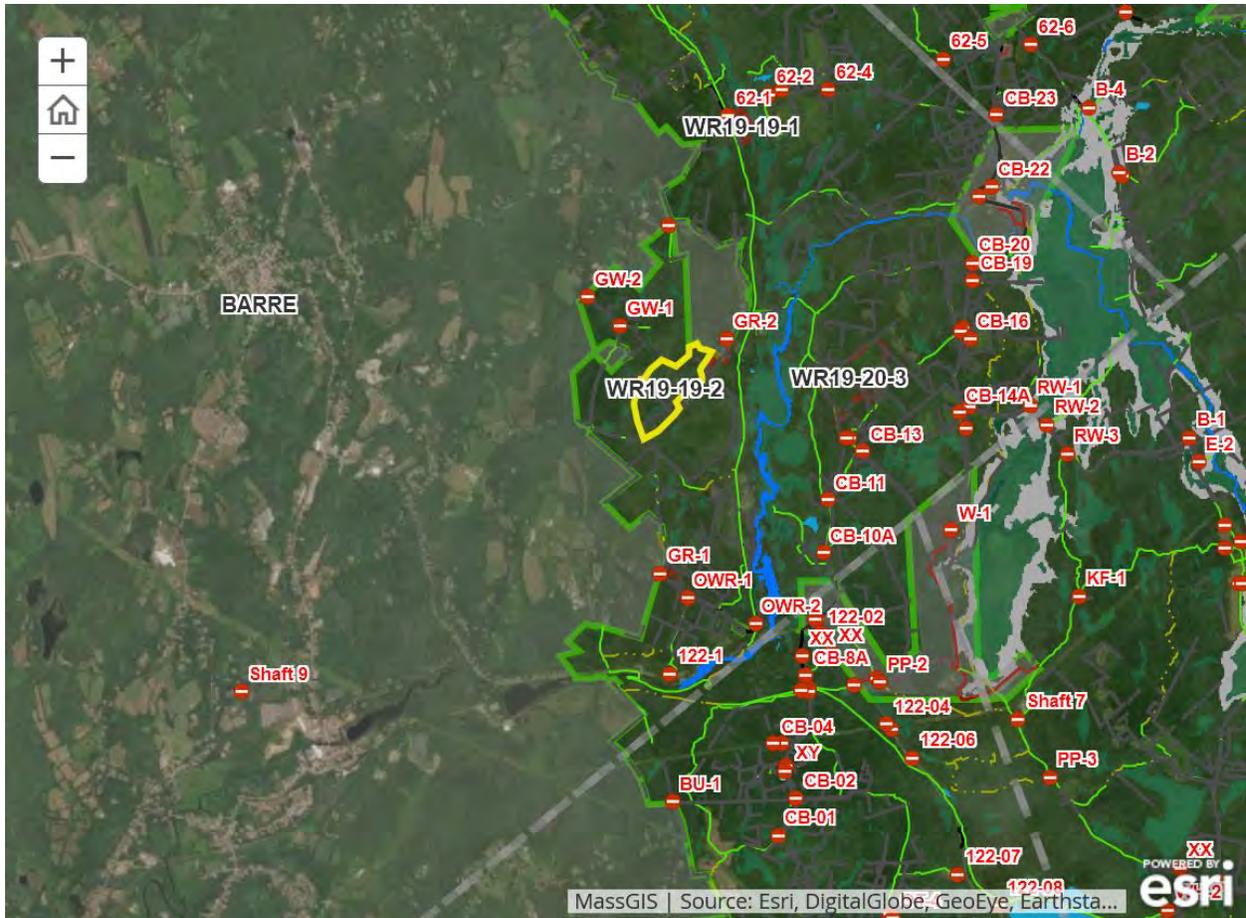
## Proposal Goals

This area is dominated by large, low quality, "old field" white pine. These stands are even aged and have little species diversity in the overstory. Removing patches of overstory white pine will create a new age class of seedlings/saplings with a more diverse species composition.

## Proposal Location

This proposal is located northwest of Granger Rd where it intersects with Adams Rd.

**Total Acres: 63.5**



### General Description

	Overstory Type(s)	Acres
<b>Dominant</b>	White Pine/hardwood	42
<b>Secondary</b>	White pine/hemlock	15.5
<b>Dominant</b>	Oak/hardwood	6

	Understory Type(s)

<b>Dominant</b>	Tree seedlings/saplings dominate site
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**Description of forest composition/condition:**

Much of the site, with the exception of what is directly adjacent to Granger Rd, is difficult to access due to a stream that bisects the lot and bluff/rock outcroppings that are present. There is no record of a past harvest in that part of the lot. An old powerlines right of way is still evident paralleling the stream. The power lines and poles have been removed.

The white pine/hardwood stand is fully stocked with approximately 170 square feet of basal area per acre, with approximately 50 square feet per acre in acceptable growing stock. The quality is poor, especially adjacent to Granger Rd, but there are some small patches of good quality pine in the northern part of the lot. Poor quality red maple, black cherry, yellow birch, and hemlock are also present in the overstory. Good quality red and white oak are also present. A few overstory red pine stems were observed by Granger Rd. The understory is well stocked with diverse tree seedlings and saplings through most of the stand. Black birch, red maple, hemlock, American beech, yellow birch, striped maple, white and red oak, and white ash were observed. There are some areas with less than adequate regeneration. This occurs generally where the white pine overstory is particularly dense, or where there is more of an overstory hemlock component.

The white pine-hemlock stand is fully stocked with approximately 170 square feet of basal area per acre, with approximately 45 square feet per acre in acceptable growing stock. Parts of this stand are very heavy to hemlock, with very little regeneration underneath. The hemlock is relatively good quality. White pine quality is poor. Red oak is present throughout the stand and is good quality. Poor quality red maple and black birch are also present in the overstory. Seedling and sapling size regeneration, where it is present, consists of hemlock, red maple, black birch and white pine.

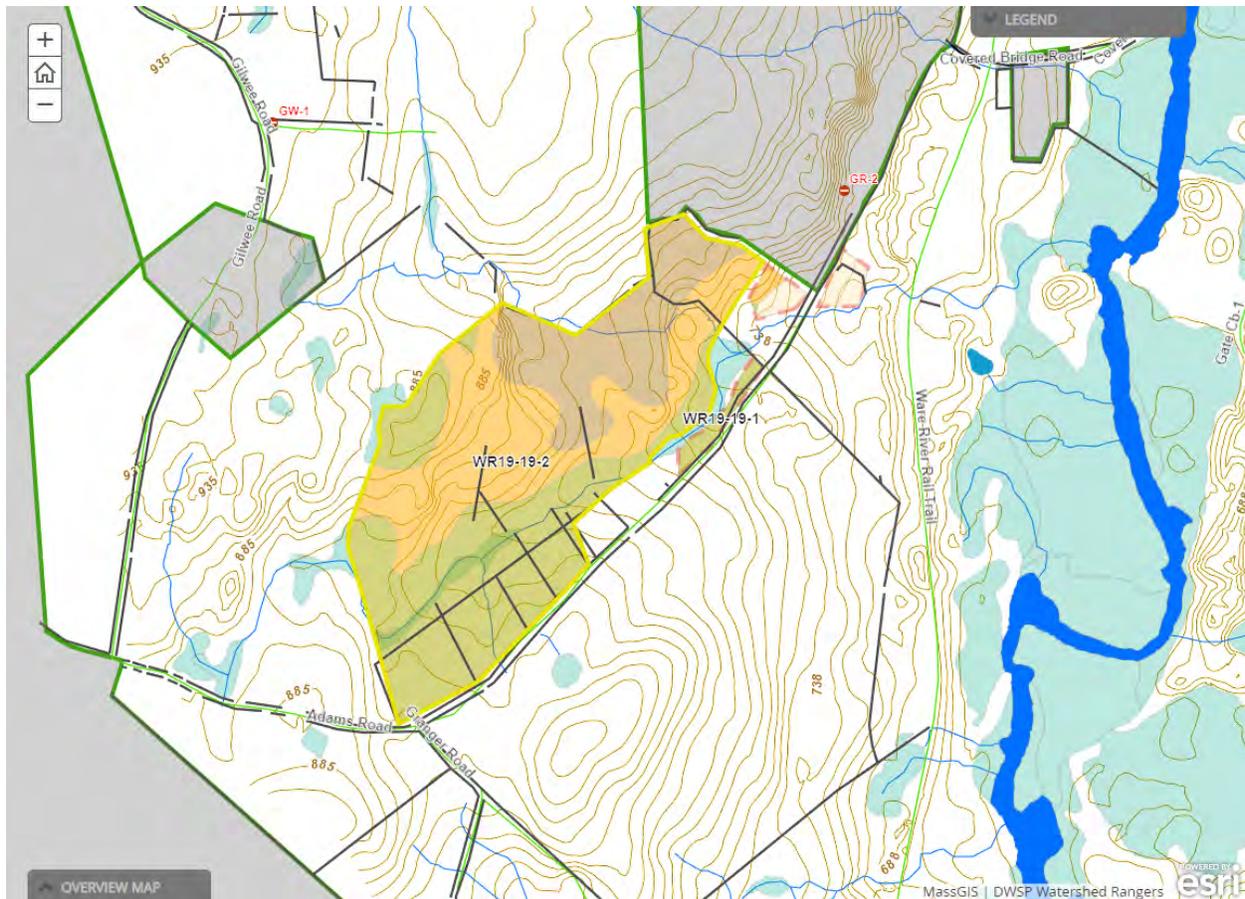
The oak hardwood stand is stocked with 95 square feet of basal area per acre, with approximately 45 square feet per acre of acceptable growing stock. Good quality, sawlog size red oak comprises approximately 50% of the basal area. The remainder is comprised of poor quality sawlog size black cherry, white oak, red maple, and white pine. Regeneration is plentiful and diverse, consisting of seedling and sapling size hemlock, red maple, white pine, red oak, and black birch.



## Soils

Drainage Class	%
Excessively Drained	0
Well Drained Thin	0
Well Drained Thick	56
Moderately Well Drained	44
Poorly to Very Poorly Drained	0

Soils present include: 910 C Woodbridge-Paxton (27.9 acres) which is moderately well drained and 925E Charlton-Chatfield-Hollis (21.6 acres) 926 C Charlton-Chatfield (12.7 acres) and 902 E Charlton-Paxton (1.2 acres) which are well drained.



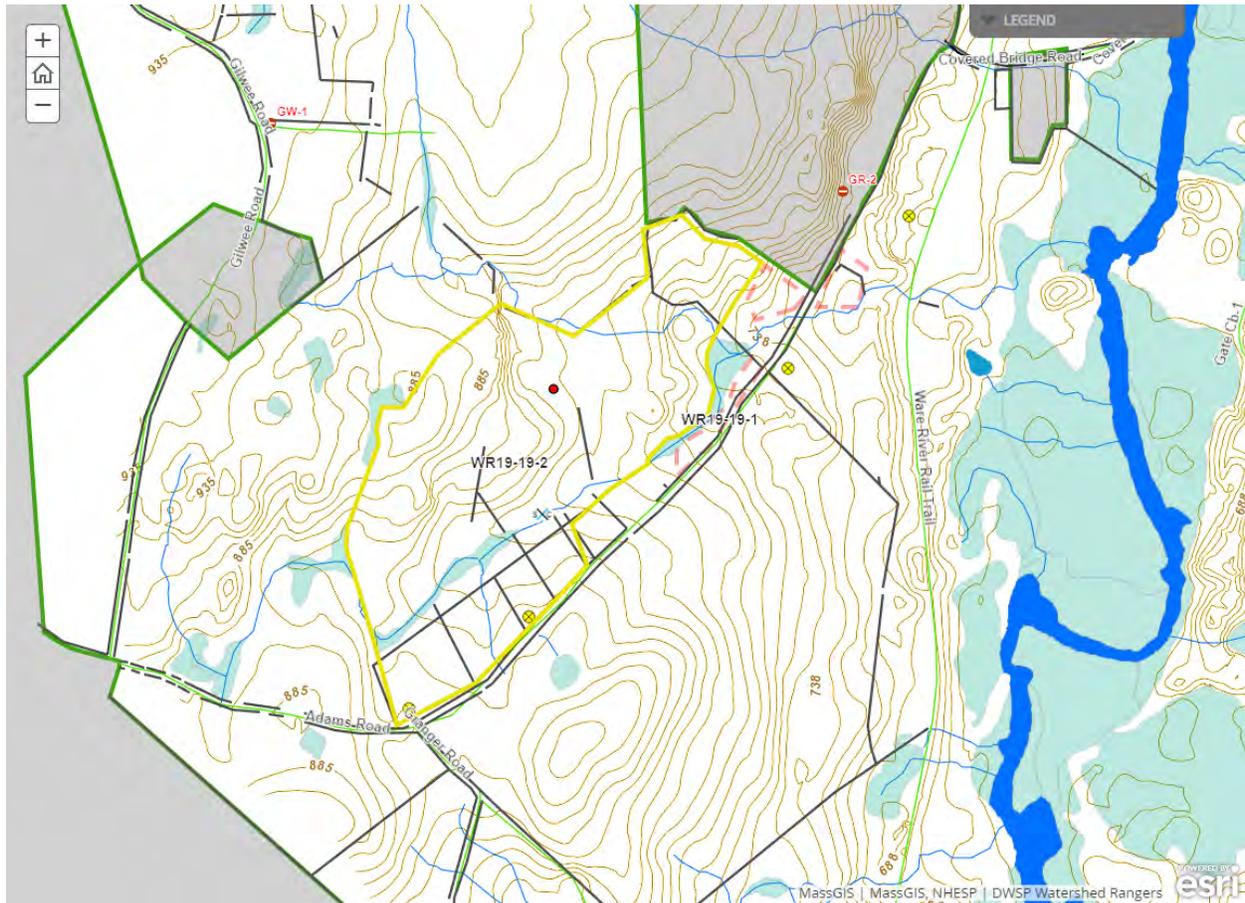
## Wetlands

- **Wetlands present?:** Yes
- **Streams present?:** Yes
- **Vernal pools present?:** Yes
- **Seeps present?:** Yes
- **Are stream crossings required?:** Yes
- **Are wetland crossings required?:** No
- **Is logging in filter strips planned?:** Yes
- **Is logging in wetlands planned?:** No

A stream and associated wetlands parallel the road and will need to be crossed to access the majority of the lot. A good spot for a stream crossing has been located in the field. A seasonal

intermittent stream in the southwestern corner of the lot may also have to be crossed to access the southwestern corner unless a second landing is built in that corner.

A DCR verified vernal pool is present in the central part of the lot. The pool will be buffered according to DWSP policies and [Massachusetts Forestry Best Management Practices](#).



## Silviculture

- **Acres in Intermediate cuts: 0**
- **Acres in prep/establishment cuts: 0**
- **Acres in Regeneration cuts: 20**
- **Average regen opening size: 1.5**
- **Maximum regen opening size: 5**

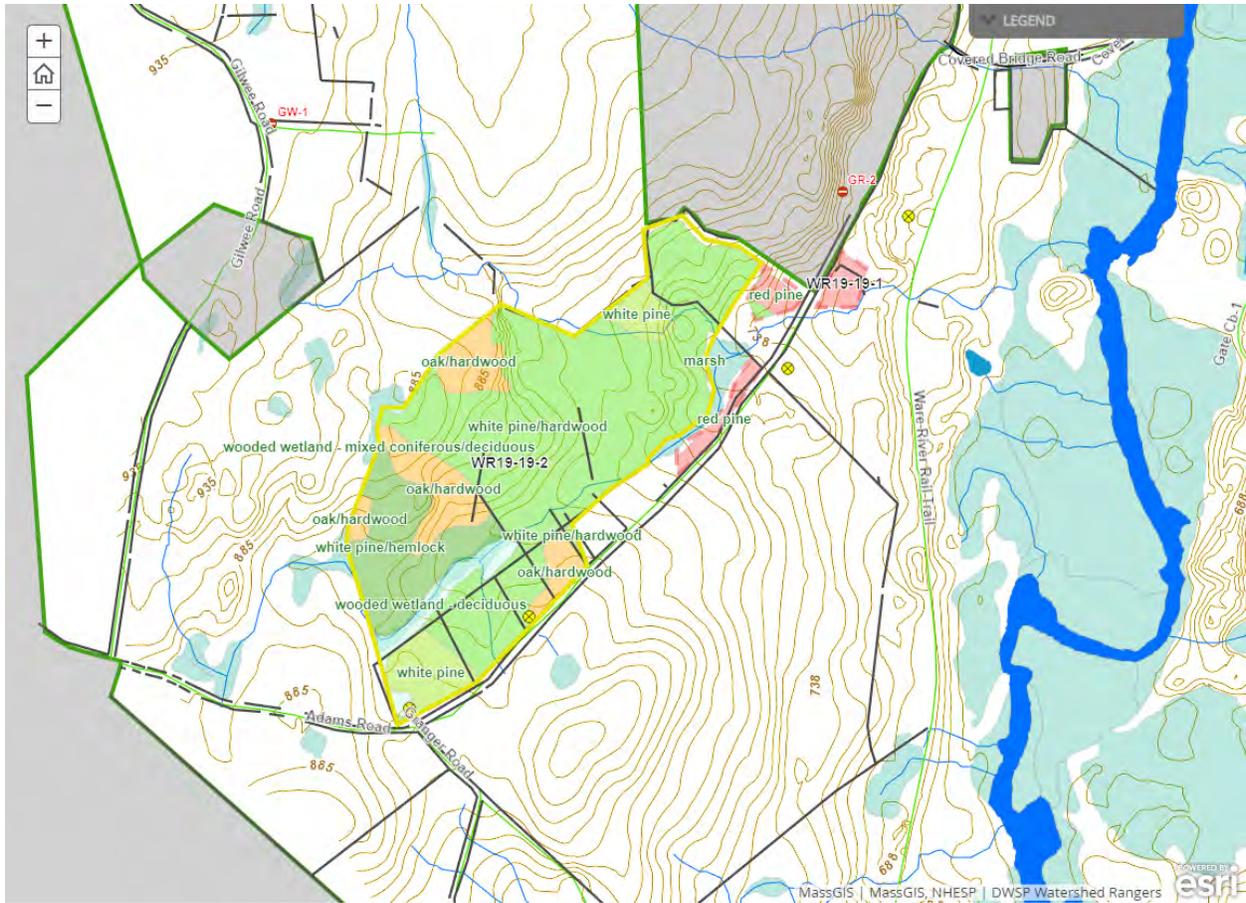
**Description of advance regeneration in proposal area:**

The understory is dominated by sapling and pole sized trees of many species. Red and white oak, white pine, hemlock, black birch, red maple, and black cherry were all observed. The regeneration is distributed throughout the stands. Browse was present but light, as these stands are all adjacent to frequently travelled roads.

**General comments on silviculture proposed:**

Within the white pine stands, 5 to 10 openings will be established, totaling 10 to 15 acres. The openings will be targeted to areas that are dominated by poorer quality white pine, and where diverse regeneration is present. One up to 5 acre opening will be established in the white pine hardwood stand. Another 2 to 2.5 acre opening will be established in the low quality white pine in the southwestern corner of the lot adjacent to Granger Rd. Several 0.5 to 1 acre openings will also be created. 5 square feet of basal area per acre of overstory trees will be retained for aesthetic purposes. In general, retention trees will be better quality hardwood where possible.

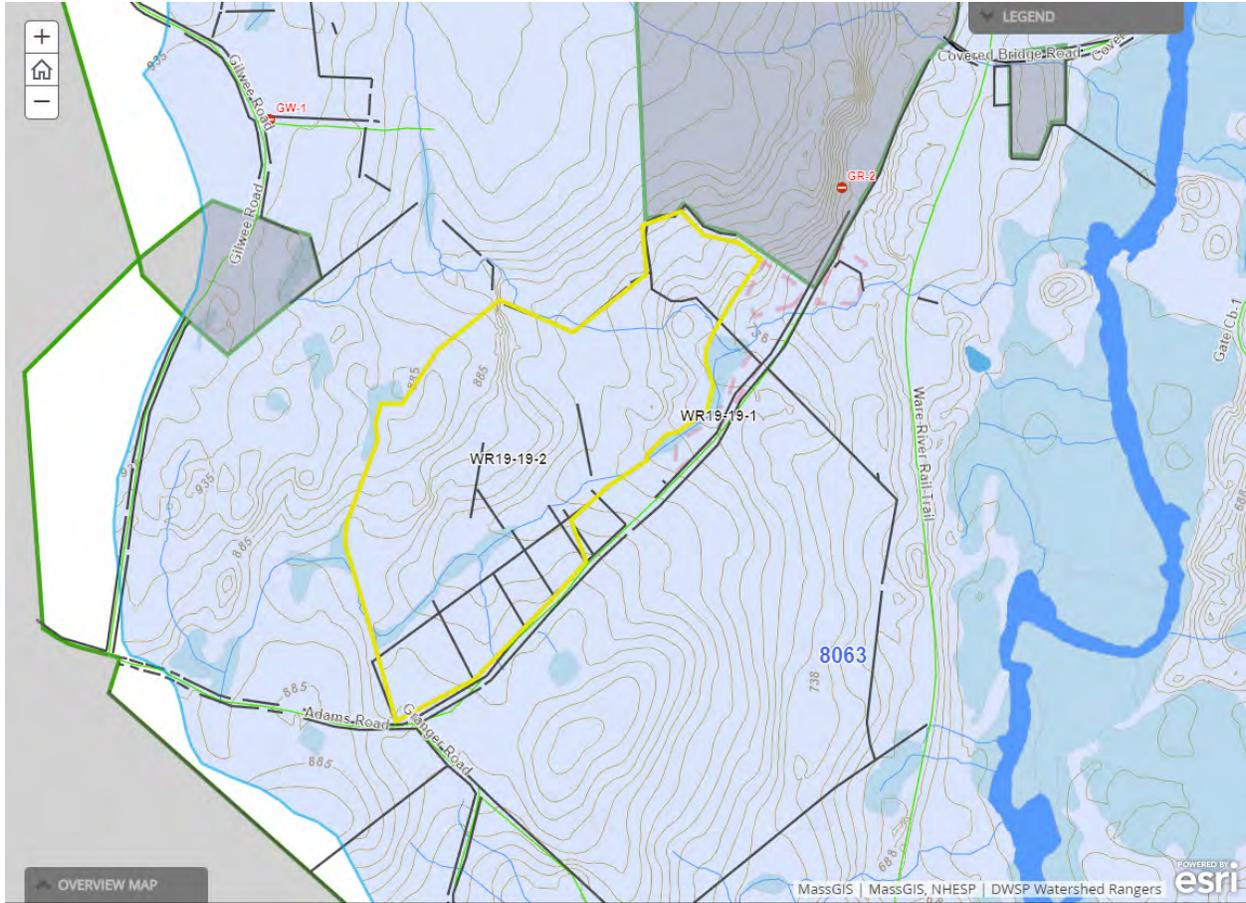
Within the oak hardwood stand, two 0.5 to 1 acre openings will be created targeting low quality hardwoods.



### Subwatershed Analysis

Sub-watershed number	Total DCR-owned Acres	Acres Regenerated on DCR Land in the last 10 years	Acres Remaining for Regenerating Up to the 25% / 10 Year	Acres part of this proposal
8063	2816	80	624	63.5

8063 - Ware - Proposal WR18-18-2 out to bid as lot 4396 in 3/18, 13.1 acres. Proposal WR18-28-03 approved with 20 acres of regeneration cuts proposed. Proposal WR16-3-1 approved with 17 acres of regeneration cuts proposed. Proposals WR 19-19-1 and WR 19-20-3 submitted this year.



## Harvesting Limitations

**Forwarder required:** No

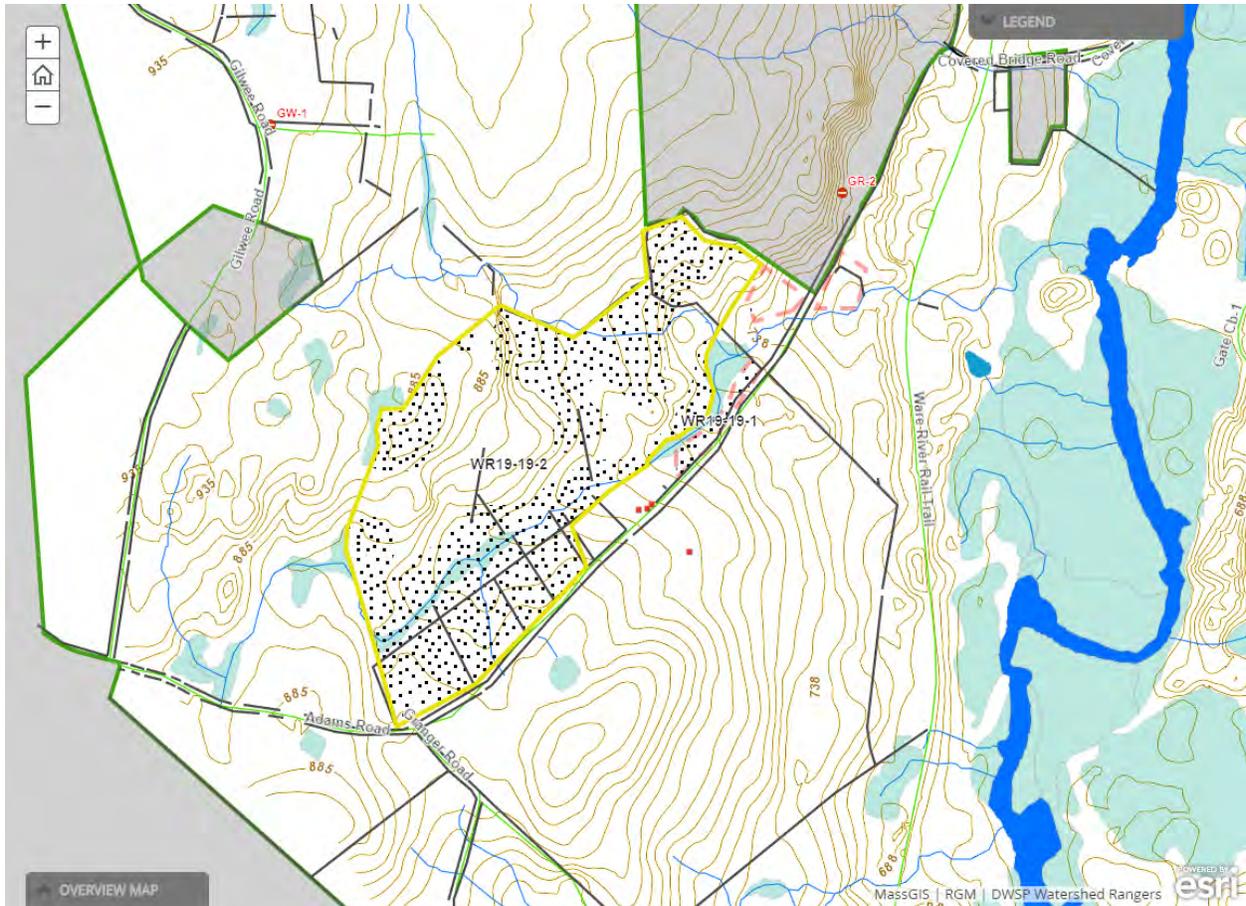
**Feller/processor required:** No

**Steep slopes present:** Yes

### Comments on harvesting limitations:

There are some bluffs and steep slopes on the lot. There are enough benches that most of the lot can be accessed.





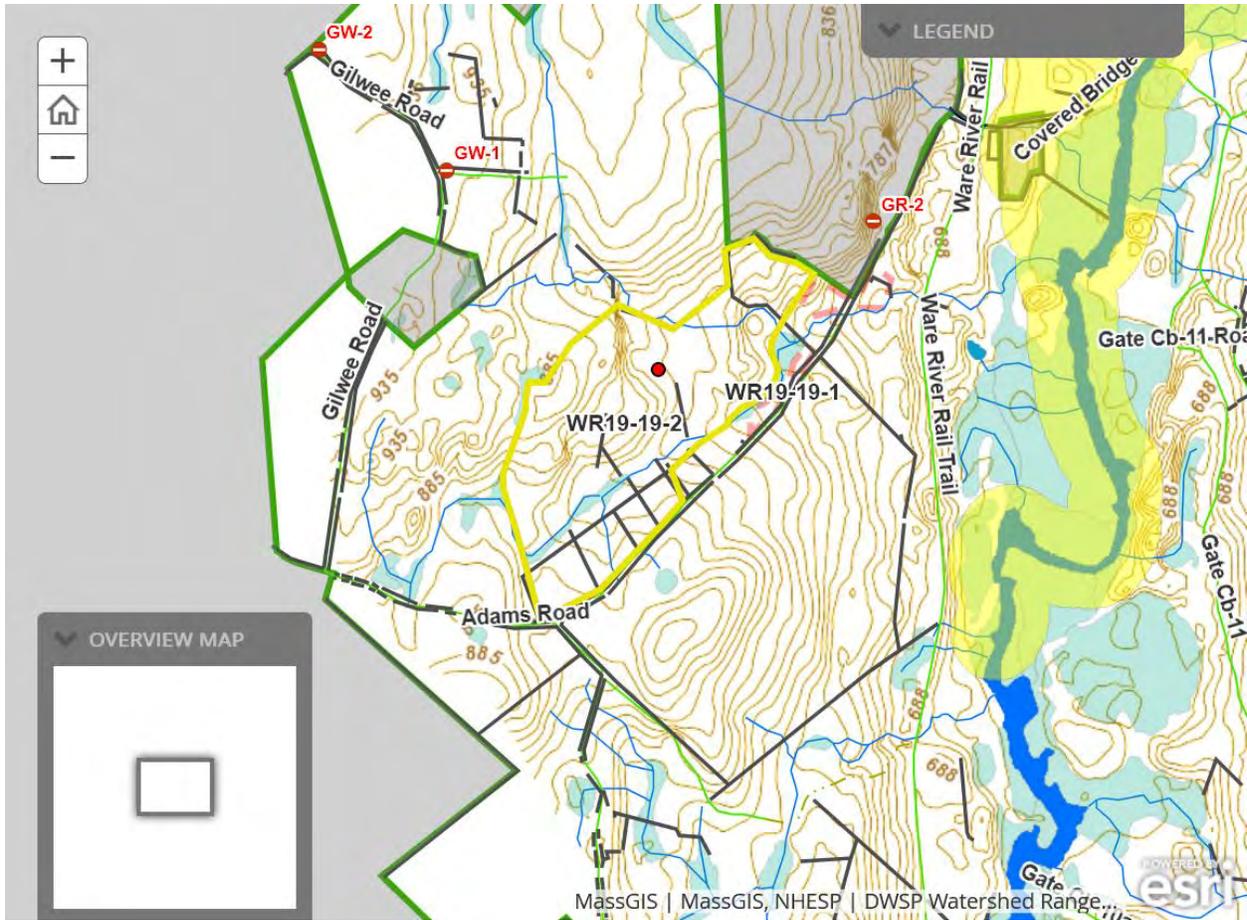
## Wildlife Resources & Rare and Endangered Species

### Comments on any unique or unusual sites or habitats on the lot:

Bluffs and rock outcroppings are present on the lot.

### General wildlife comments:

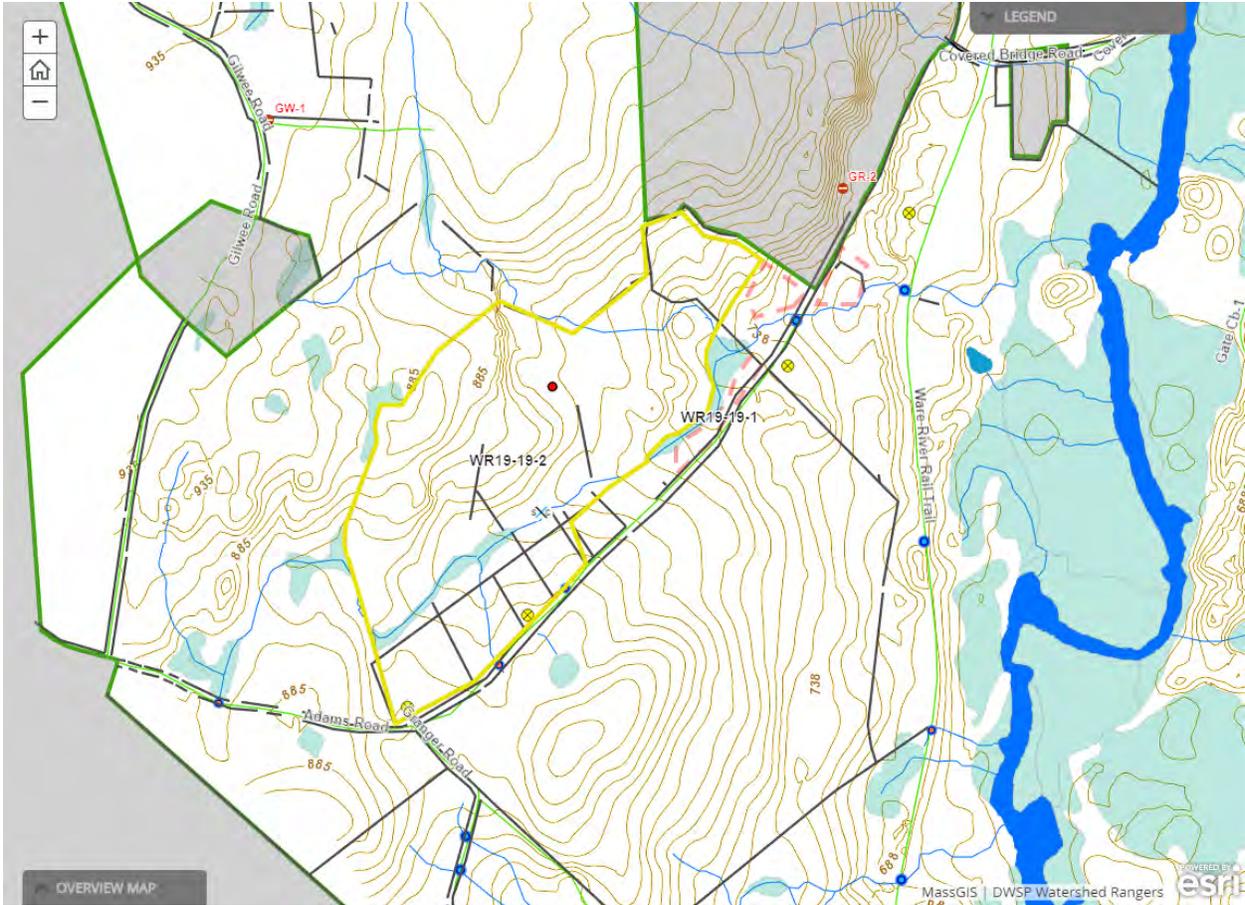
Cavity trees and potential/existing nest trees will be retained where possible. No rare species or habitats are listed within the proposed lot. Should new evidence of rare species or habitat be found NHESP will be consulted for appropriate best practices. One DCR verified vernal pool is present within the lot area.



## Environmental Quality Engineering

### Comments on EQ Issues:

The stream located on the proposed lot will be sampled for turbidity at three locations; upstream of the crossing, at the crossing and far downstream. Sampling will be conducted prior to active logging work to establish baseline, during logging work and post work for 12 months.



## Forest Access Engineering

**Gravel needed:** No

**Landing work needed:** No

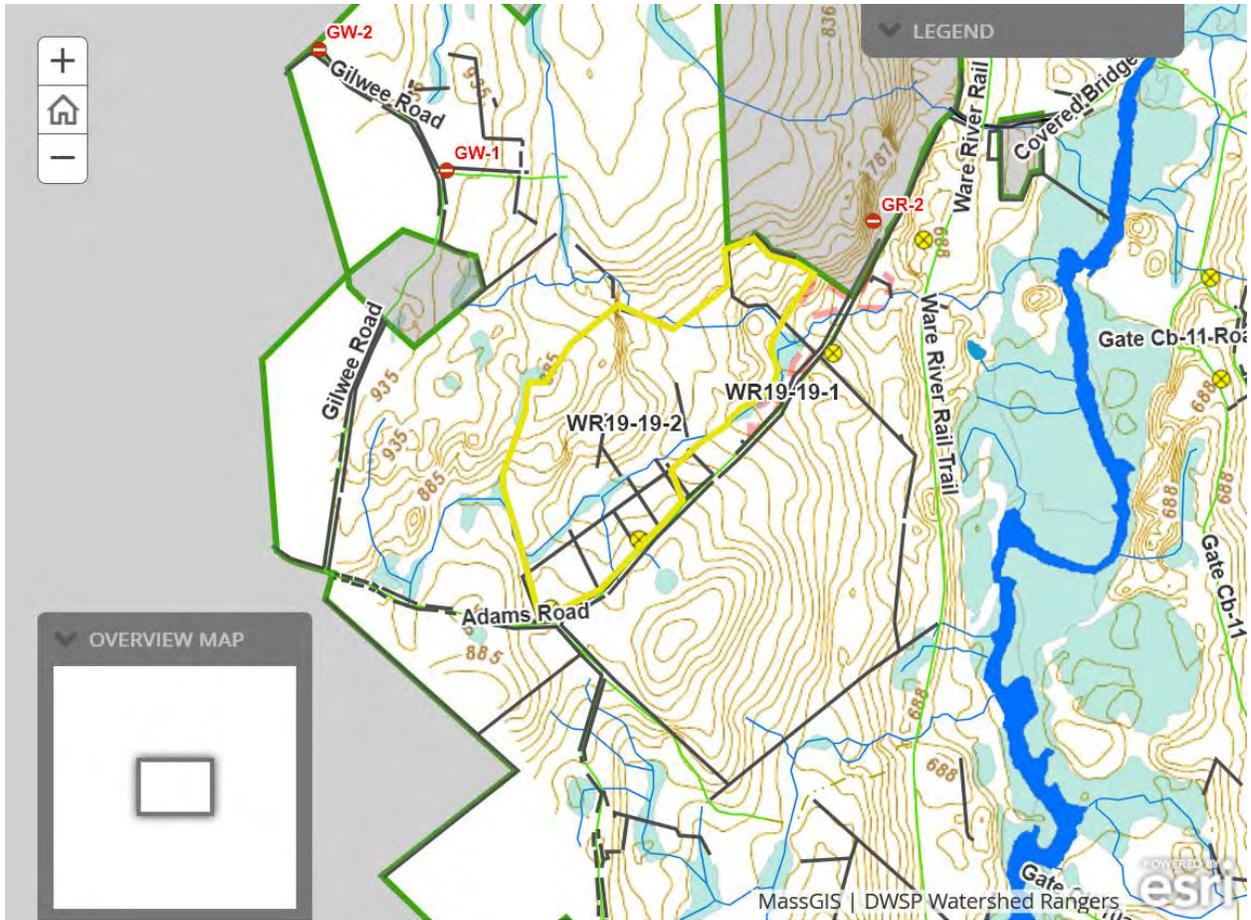
**Culverts needed:** No

**Work needed on permanent bridges:** No

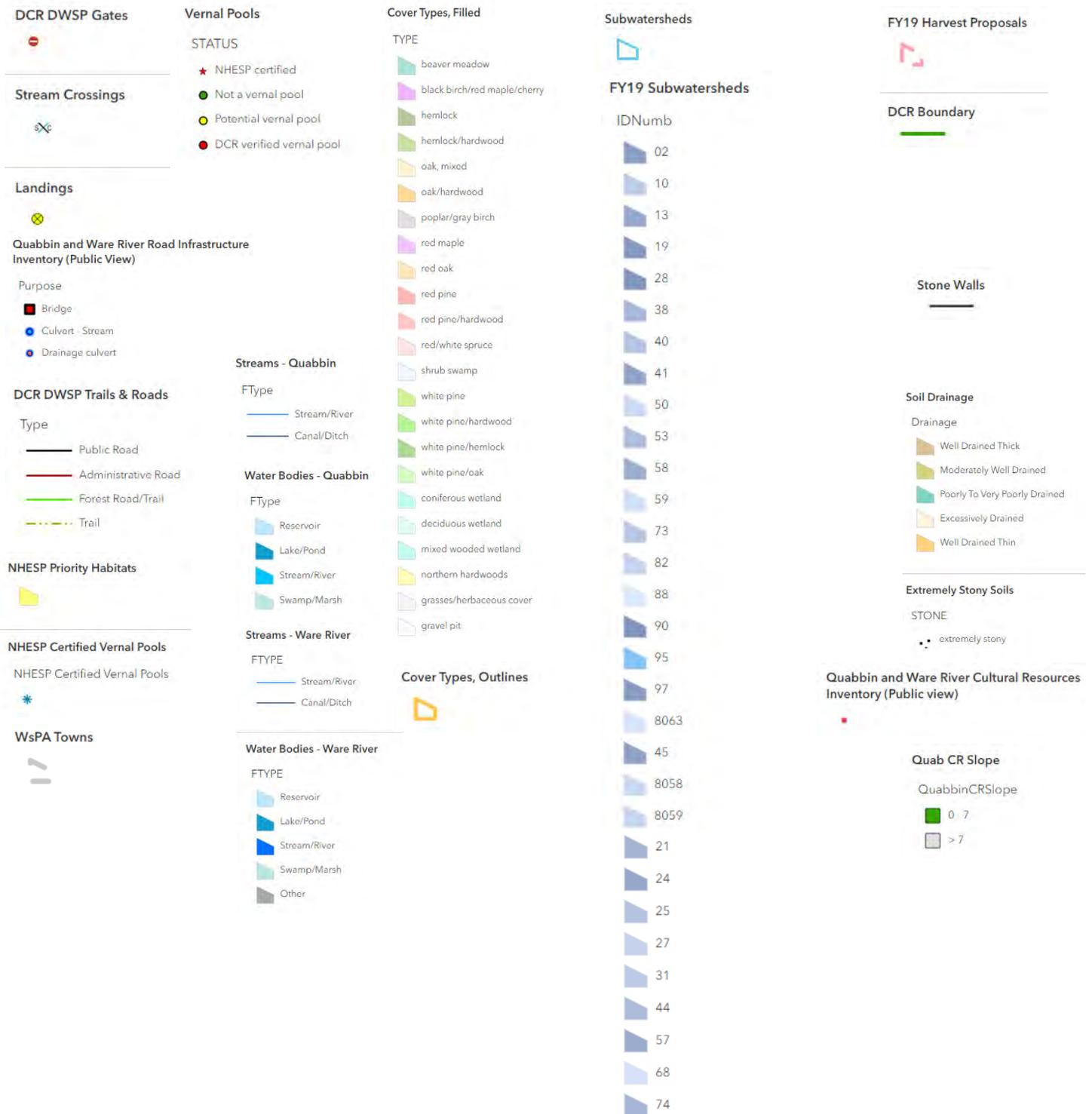
**Beaver issue:** No

**Further comment on access needs:**

None.



DWSP FY 2019 Quabbin and Ware River Forestry Proposals – Master Legend for story maps



# **Quabbin Harvest Proposal WR-19-20-3**

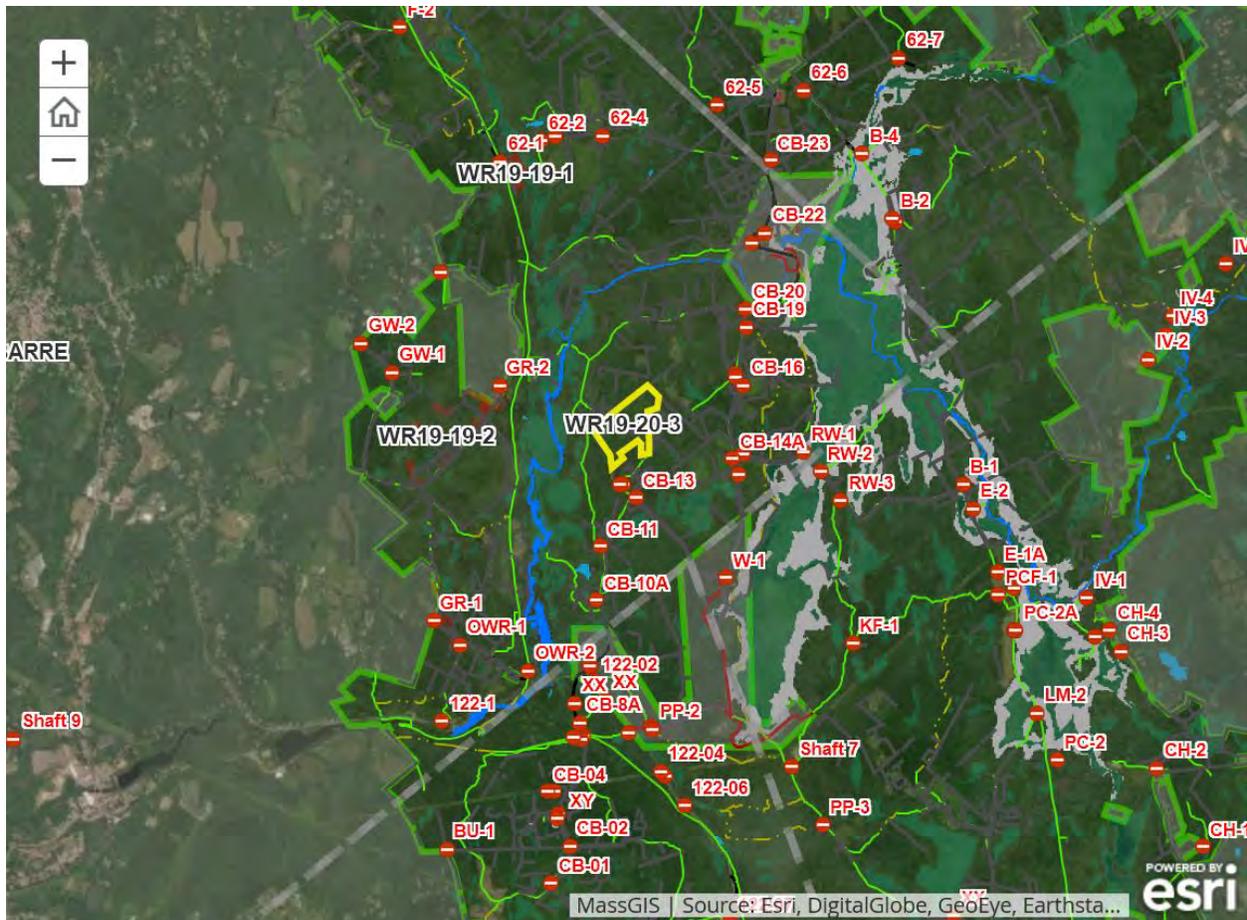
## **Proposal Goals**

The goal of this proposal is to create a large (20 to 25 acres) patch of young forest. Young forest provides important habitat for many species of plants and animals and is generally in short supply in the forests of the northeast.

## **Proposal Location**

This proposal is located on Harding Hill, and is part of the Young Forest Focus Area that was identified in the 2017 Quabbin/Ware Land Management Plan.

**Total Acres: 48.4**



### General Description

	Overstory Type(s)	Acres
Dominant	White Pine/hardwood	33
Secondary	Oak/hardwood	12.4
Dominant	Norway Spruce	3

	Understory Type(s)
Dominant	Tree seedlings/saplings dominate site

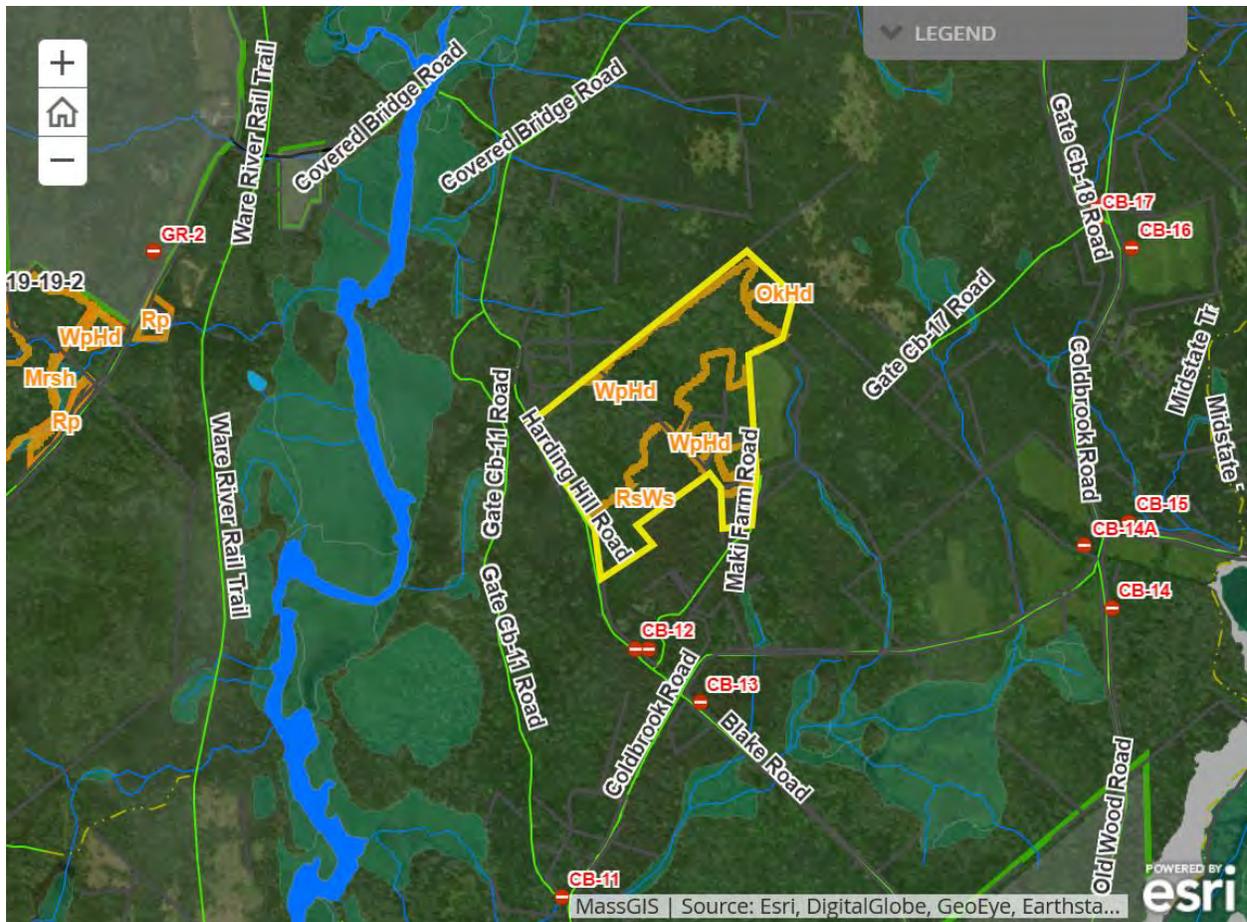
### Description of forest composition/condition:

The entire lot is old pasture land. Some small rock outcroppings exist in the middle of the lot. A 4 acre field is located directly adjacent to the east of the lot. The field is mowed by DWSP staff. A portion of the field may be used as a landing.

The spruce stand was thinned in 1995 as part of lot 217. Larch was removed from the hardwood stand next to the mowed field at that time as well. Some cutting was done adjacent to Harding Hill Rd, that was prior to 1995. It appears that white pine was harvested, leaving scattered large diameter white pine with low quality pole sized hardwood underneath.

The white pine/hardwood stand is fully stocked and dominated by mature, sawlog size white pine of varying quality. The stand averages approximately 170 square feet of basal area per acre, approximately 70% of which is white pine. In general, the white pine northwest of the mowed field is good quality. The quality decreases as you move down slope. Red maple, white ash, and red oak are the dominant hardwoods that are present in the overstory and comprise roughly 25% of stand basal area. The red maple and ash are poor quality, while the red oak ranges from good quality to poor quality. Black cherry, black birch, aspen, sugar maple, paper birch, and white oak are also present in the overstory. There is a small patch of 10 or 15 mature pitch pines present in the central part of the lot, north of the spruce stand. Tree seedlings and saplings of many species are present throughout the stand. Species observed include red and white oak, red maple, red spruce, white pine, American beech, hickory, and hemlock.

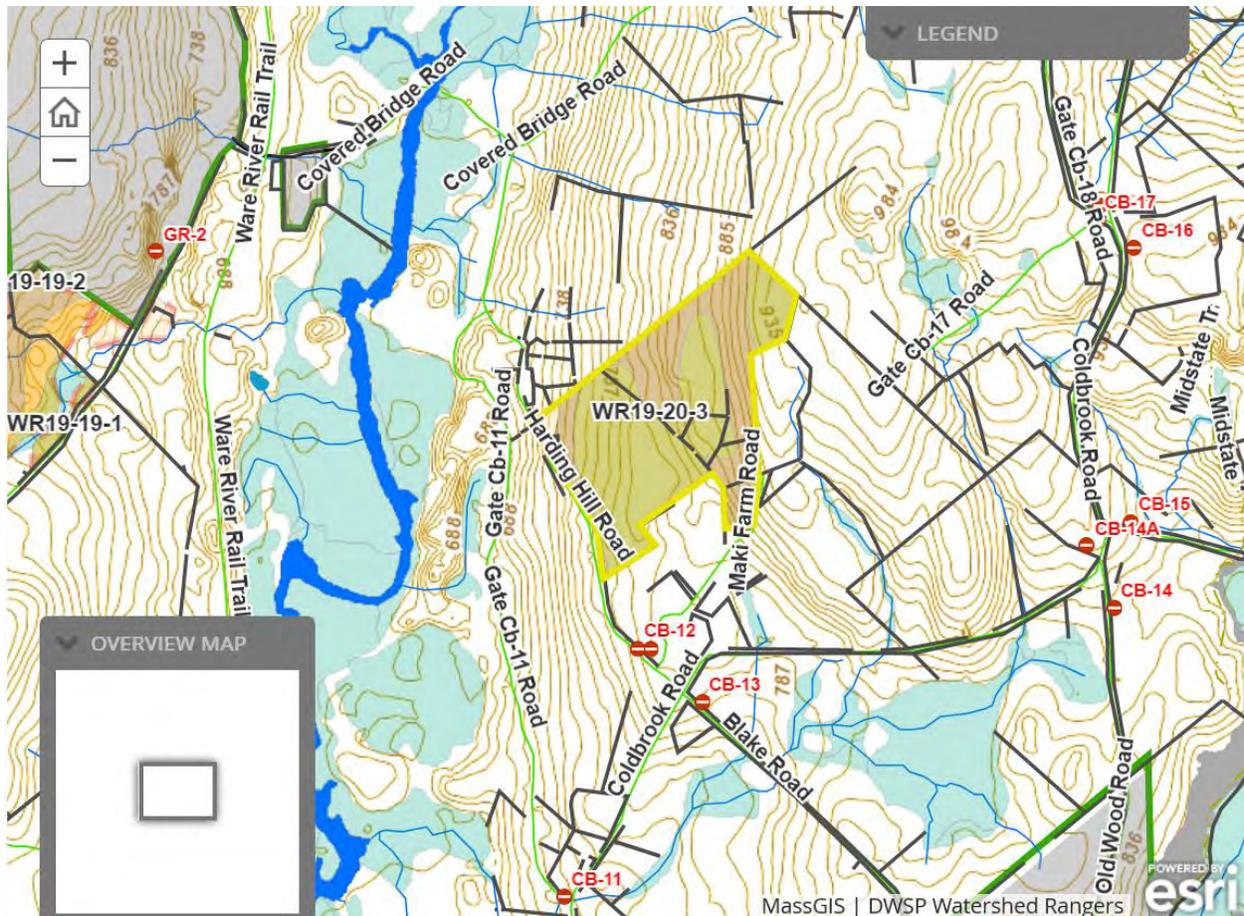
The oak hardwood stand is well stocked with an average of approximately 125 square feet of basal area per acre, approximately 20 square feet per acre of acceptable growing stock. Sawlog size red oak of variable quality is present throughout the stand. Low quality white ash, red maple, sugar maple, larch, black cherry, and American elm are also present in the overstory. Seedling and sapling size trees of multiple species are present throughout the stand. Species observed include sugar maple, black cherry, red maple, striped maple, red and white oak, Norway spruce, and black birch.



## Soils

Drainage Class	%
Excessively Drained	2
Well Drained Thin	0
Well Drained Thick	38
Moderately Well Drained	60
Poorly to Very Poorly Drained	0

Soils present include: 910 C Woodbridge-Paxton (29.2 acres) which is moderately well drained, 902E Charlton-Paxton (18.3 acres) which is well drained, and 253 E Hinckley loamy sand (0.8 acres) which is excessively well drained.

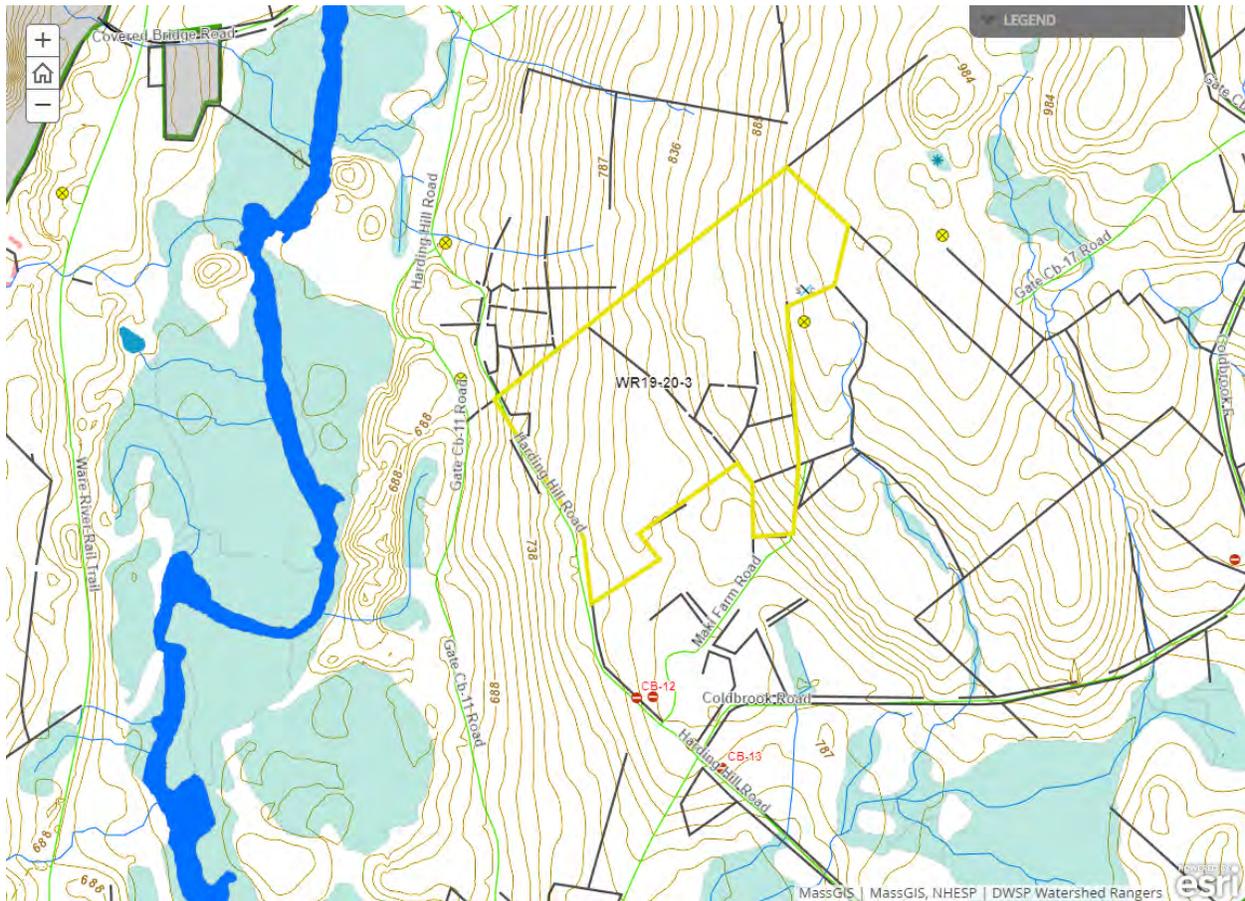


## Wetlands

- **Wetlands present?:** Yes
- **Streams present?:** Yes
- **Vernal pools present?:** No
- **Seeps present?:** Yes
- **Are stream crossings required?:** Yes
- **Are wetland crossings required?:** No
- **Is logging in filter strips planned?:** Yes
- **Is logging in wetlands planned?:** No

At least one seasonal stream will have to be crossed. It is just north of the edge of the mowed field. A good crossing spot has been located in the field. Several seasonal streams run

intermittently through the lot. There are several seeps present as well, particularly down the hill in the western part of the lot.



## Silviculture

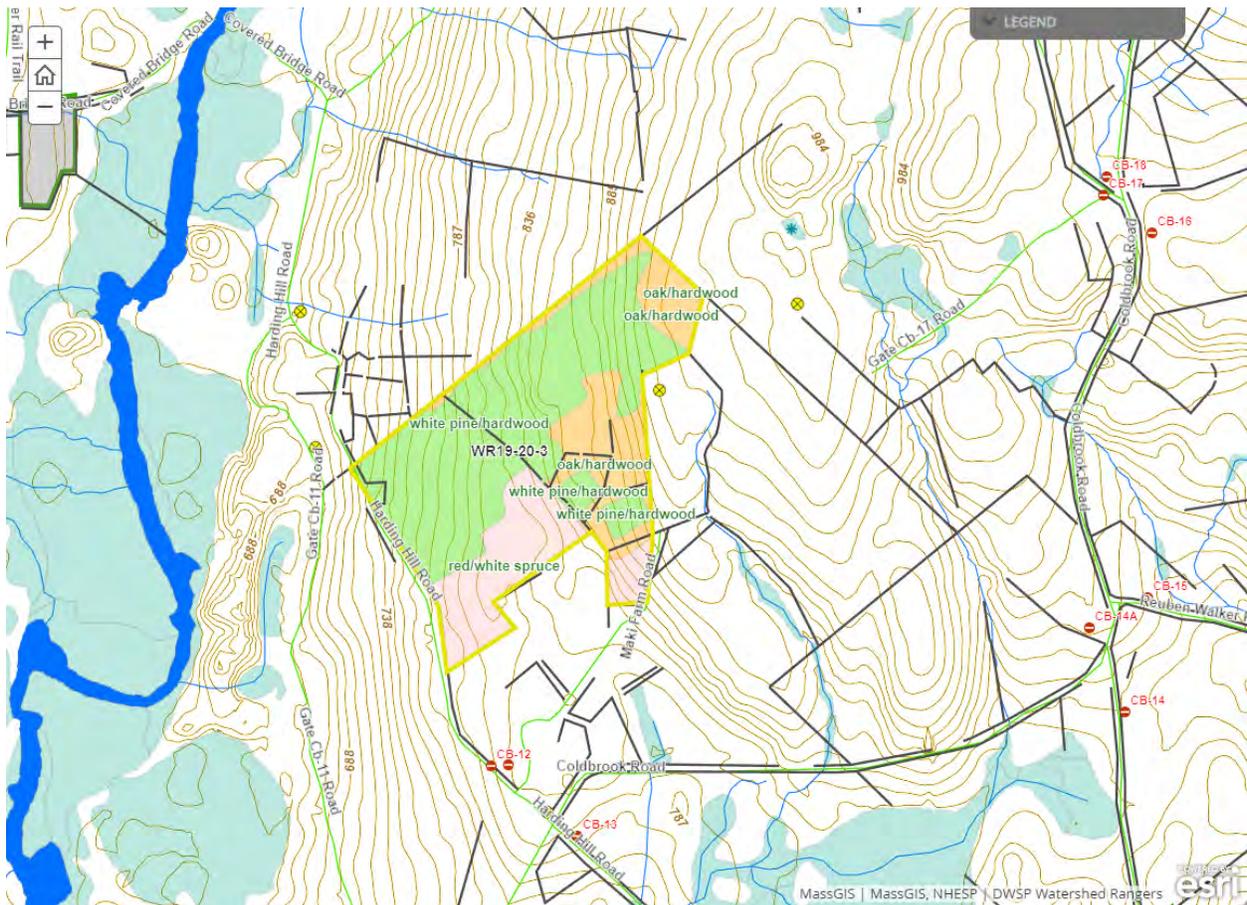
- Acres in Intermediate cuts: 0
- Acres in prep/establishment cuts: 0
- Acres in Regeneration cuts: 25
- Average regen opening size: 12
- Maximum regen opening size: 15

### Description of advance regeneration in proposal area:

Tree seedlings and saplings of many species are abundant throughout the lot. Species observed include red and white oak, red maple, red spruce, white pine, American beech, hickory, hemlock, sugar maple, black cherry, striped maple, and black birch. Browse was light to medium throughout the lot.

**General comments on silviculture proposed:**

This lot is the first to be proposed as part of the Young Forest Focus Area in the Ware River Watershed. The objective on this lot is to establish large patches of young forest. The intent is to create 25 acres of young forest through two harvests conducted 3 years apart. The first harvest will be a clearcut of 10 to 15 acres adjacent to the mowed field. The second harvest will be a 10 to 15 acre clearcut adjacent to the initial cut 3 years later. Approval from the commissioner will be required. Individual or patches of overstory trees will not be retained for the sake of aesthetics. There are streams, seeps, stonewalls, and a possible vernal pool, as well as topography, that will lead to some overstory trees being retained in buffer and filter strips and some irregularity in the shape of the patches.

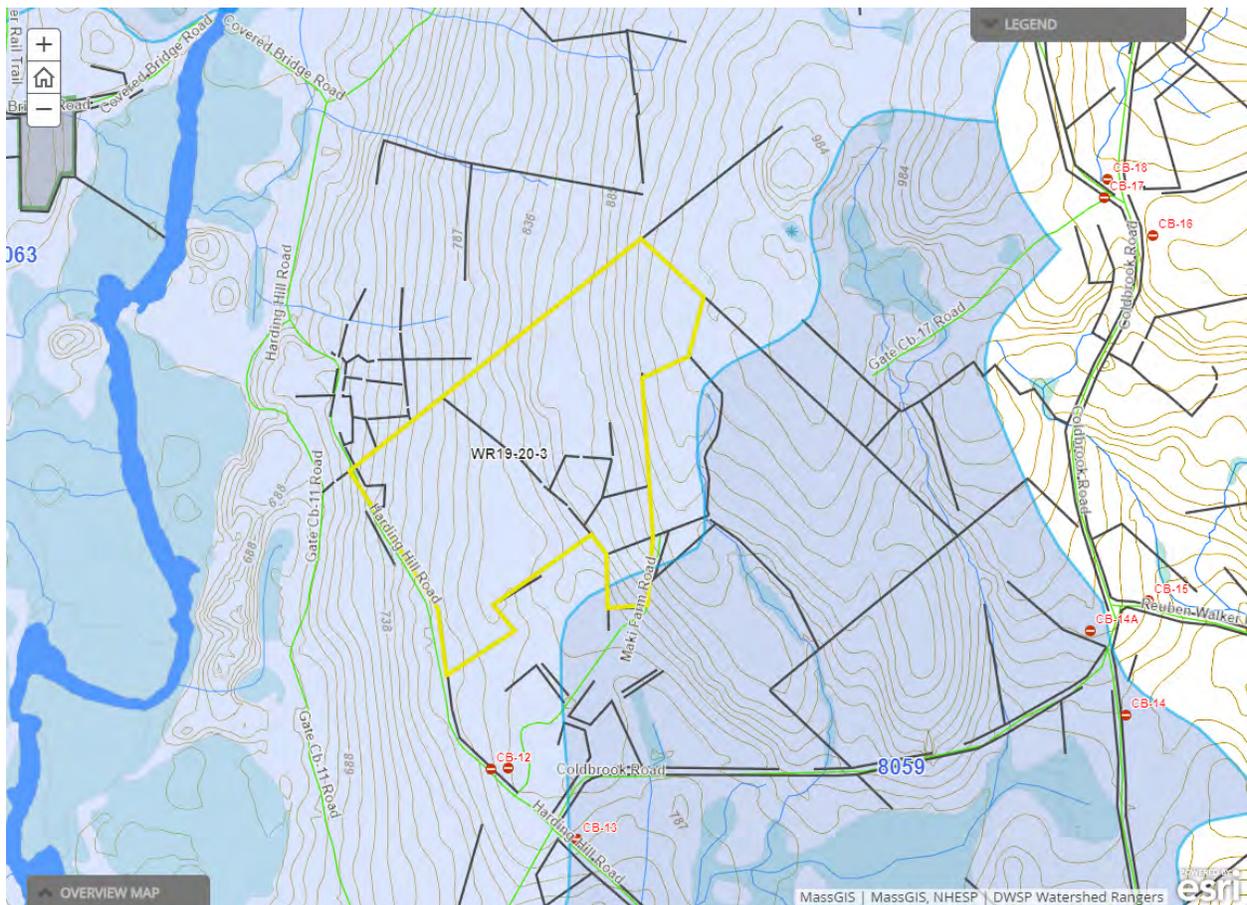


**Subwatershed Analysis**

Sub-watershed number	Total DCR-owned Acres	Acres Regenerated on DCR Land in the last 10 years	Acres Remaining for Regenerating Up to the 25% / 10 Year	Acres part of this proposal

8063	2816	80	624	47.6
8059	299	0	74	0.8

8063 - Ware - Proposal WR18-18-2 out to bid as lot 4396 in 3/18, 13.1 acres. Proposal WR18-28-03 approved with 20 acres of regeneration cuts proposed. Proposal WR16-3-1 approved with 17 acres of regeneration cuts proposed. Proposals Wr 19-19-1 and 2 submitted this year.



## Harvesting Limitations

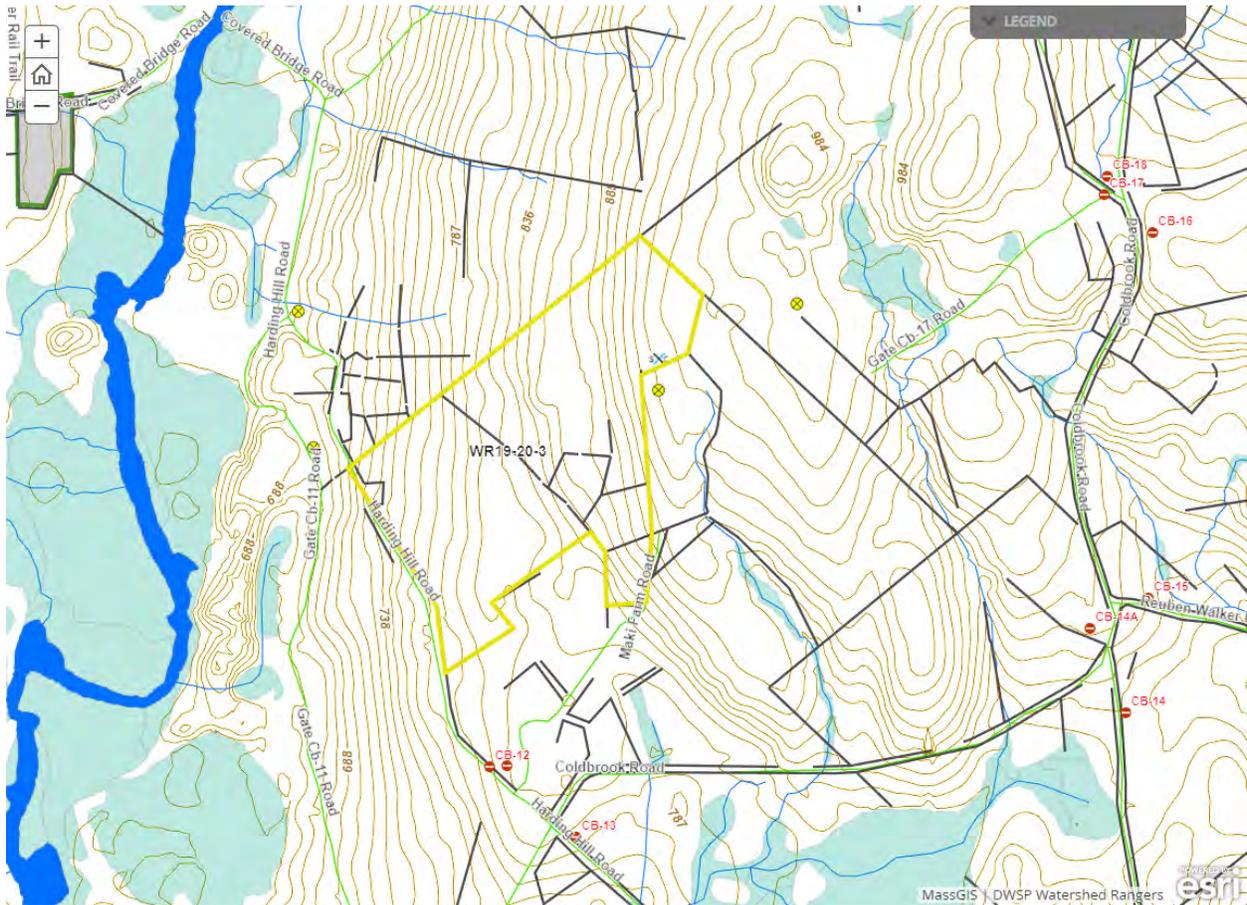
**Forwarder required:** No

**Feller/processor required:** No

**Steep slopes present:** Yes

**Comments on harvesting limitations:**

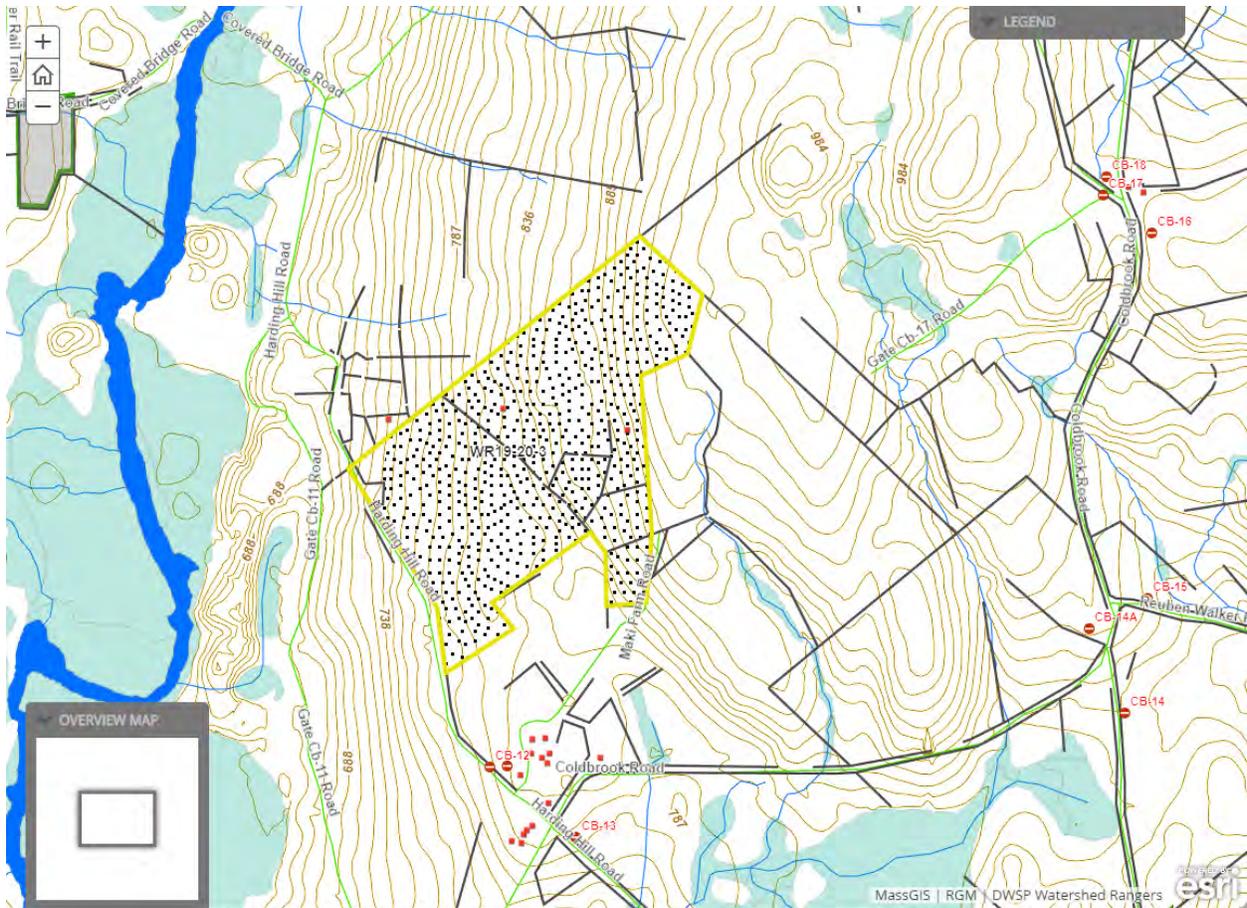
There are some bluffs and steep slopes on the lot. There are enough benches that most of the lot can be accessed.



**Cultural Resources**

**Comments on Cultural Resources:**

There is a possibly man-made dug well, probably for livestock, and drainage ditch. If the landing at 5 corners on Coldbrook Rd is used, there are several cellar holes/foundations in the area that will need to be avoided and protected. Existing barways will be used where feasible and harvest layout will protect walls as much as possible. If applicable, DWSP will follow any additional recommendations from DCR's Archeologist regarding protection of sensitive sites.



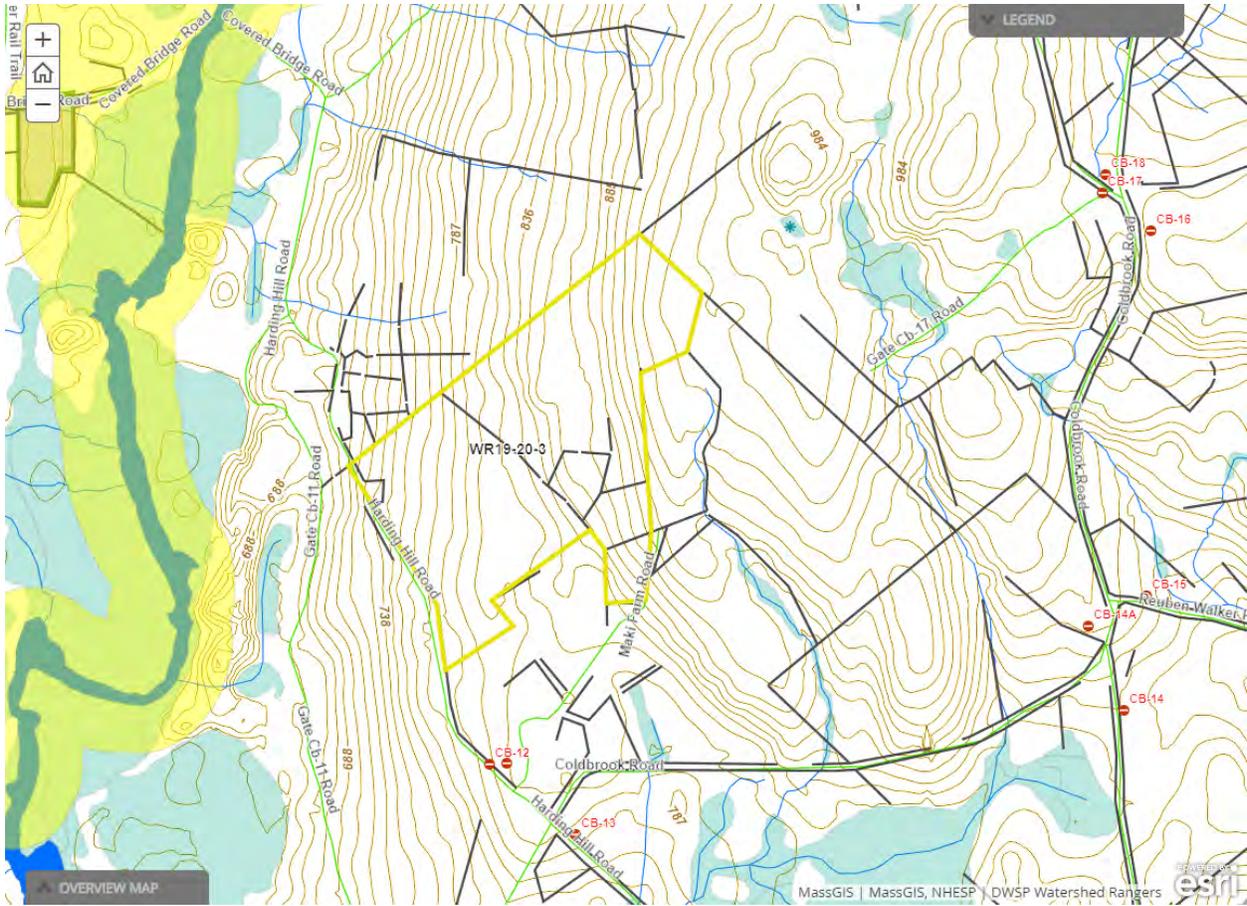
## Wildlife Resources & Rare and Endangered Species

### Comments on any unique or unusual sites or habitats on the lot:

This lot is the first to be proposed as part of the Young Forest Focus Area in the Ware River Watershed.

### Comments on Rare Species/Habitats:

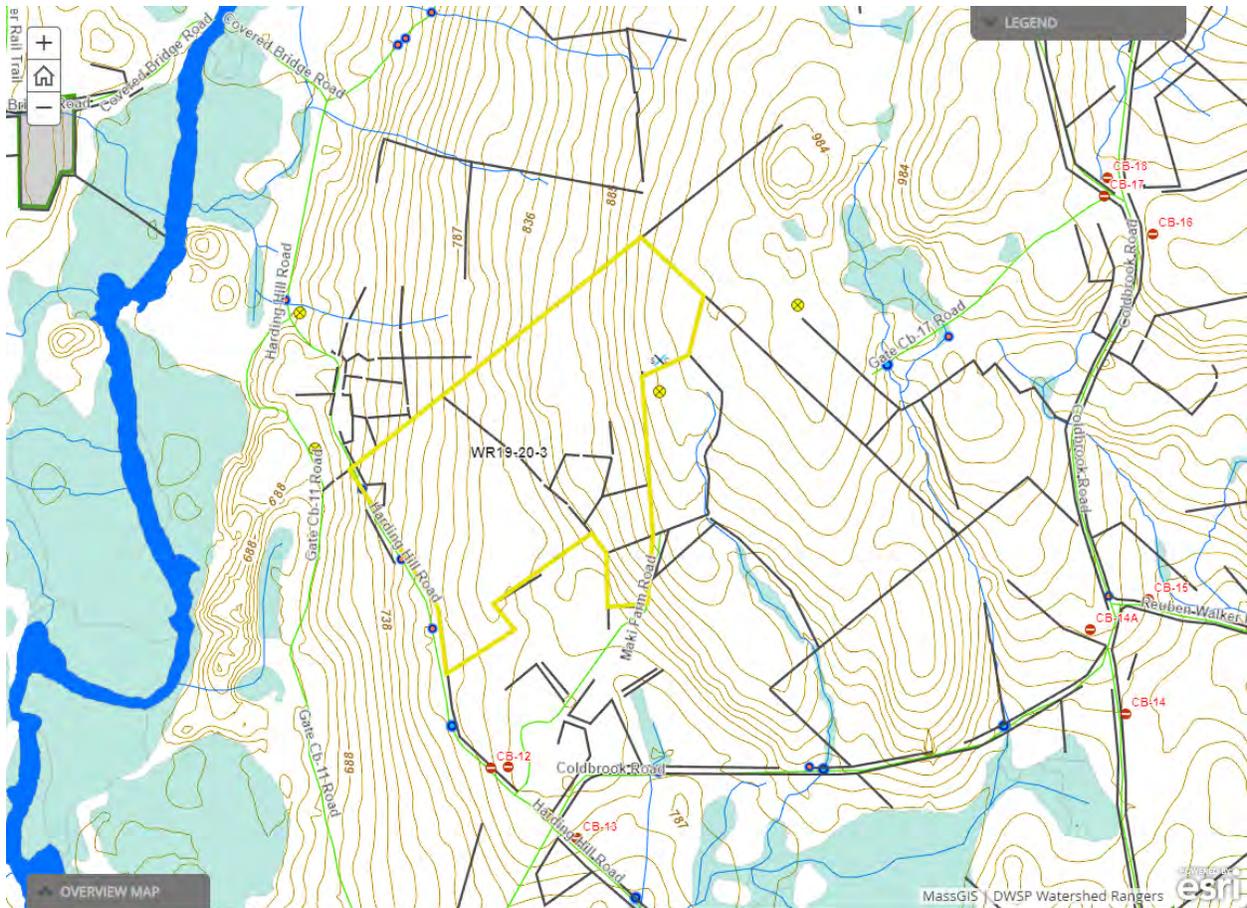
Cavity trees and potential/existing nest trees will be retained if possible. No rare species or habitats are listed for the proposal area. Should new evidence or rare species or habitats be found NHESP will be consulted for best practices.



## Environmental Quality Engineering

### Comments on EQ Issues:

No EQ crossings or EQ concerns.



## Forest Access Engineering

**Gravel needed:** Yes

**Landing work needed:** Yes

**Culverts needed:** No

**Work needed on permanent bridges:** No

**Beaver issue:** No

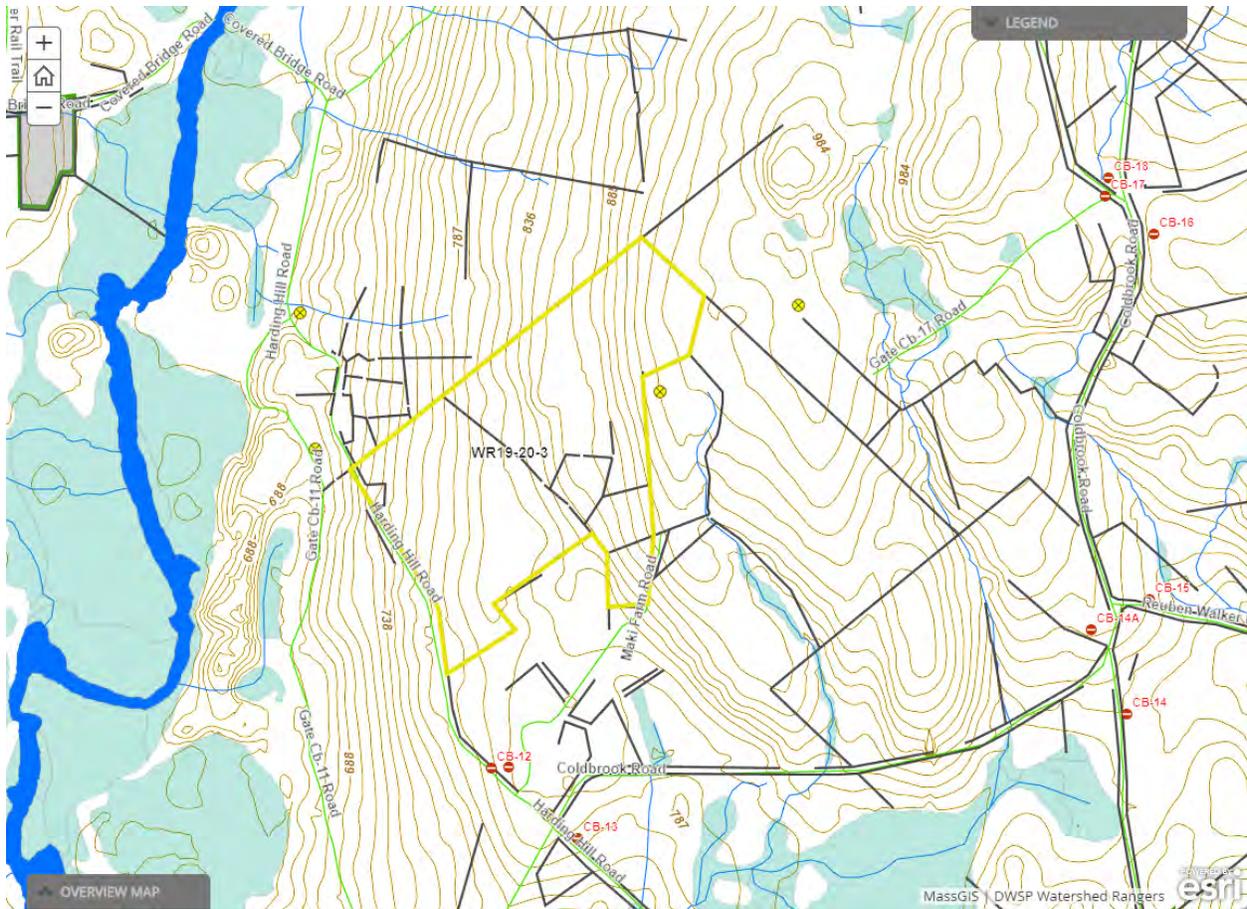
### Further comment on access needs:

There are many options for landings in this area. The best landing location would be in the mowed field. That would require upgrading the road from the 5 corners to the field. Upgrading

the road would help with accessing the field for mowing, and would be helpful in future harvests in the Young Forest Focus Area. There is one stream crossing on that road that runs through a wet area that would need gravel. The road may need to be widened/straightened in a few spots. The portion of the road on the hill after the crossing and before the field would need some drainage work.

Harding Hill Road will need to be graded if the landing is going to be located there. The existing gravel pit should be mined to help with Harding Hill Road and the road to mowed field. The gravel pit could then be used as a landing for future harvests.

Other possible landing spots exist at the 5 corners and on the Dump Rd below Harding Hill Rd. The 5 corners landing would require the least road work, but it is the longest skid and there are cultural resources in that area that would need to be avoided. The Dump Rd landing would require Dump Rd to be graded and would involve having a skidder crossing on Harding Hill Rd.



DWSP FY 2019 Quabbin and Ware River Forestry Proposals – Master Legend for story maps

**DCR DWSP Gates**




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**Stream Crossings**




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**Landings**



**Quabbin and Ware River Road Infrastructure Inventory (Public View)**

Purpose

- Bridge
- Culvert - Stream
- Drainage culvert

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**DCR DWSP Trails & Roads**

Type

- Public Road
- Administrative Road
- Forest Road/Trail
- Trail

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**NHESP Priority Habitats**




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**NHESP Certified Vernal Pools**

NHESP Certified Vernal Pools




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**WsPA Towns**



**Vernal Pools**

STATUS

- NHESP certified
- Not a vernal pool
- Potential vernal pool
- DCR verified vernal pool

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**Streams - Quabbin**

FType

- Stream/River
- Canal/Ditch

**Water Bodies - Quabbin**

FType

- Reservoir
- Lake/Pond
- Stream/River
- Swamp/Marsh

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**Streams - Ware River**

FType

- Stream/River
- Canal/Ditch

**Water Bodies - Ware River**

FType

- Reservoir
- Lake/Pond
- Stream/River
- Swamp/Marsh
- Other

**Cover Types, Filled**

TYPE

- beaver meadow
- black birch/red maple/cherry
- hemlock
- hemlock/hardwood
- oak, mixed
- oak/hardwood
- poplar/gray birch
- red maple
- red oak
- red pine
- red pine/hardwood
- red/white spruce
- shrub swamp
- white pine
- white pine/hardwood
- white pine/hemlock
- white pine/oak
- coniferous wetland
- deciduous wetland
- mixed wooded wetland
- northern hardwoods
- grasses/herbaceous cover
- gravel pit

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**Cover Types, Outlines**



**Subwatersheds**

**FY19 Subwatersheds**

IDNumb

- 02
- 10
- 13
- 19
- 28
- 38
- 40
- 41
- 50
- 53
- 58
- 59
- 73
- 82
- 88
- 90
- 95
- 97
- 8063
- 45
- 8058
- 8059
- 21
- 24
- 25
- 27
- 31
- 44
- 57
- 68
- 74

**FY19 Harvest Proposals**




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**DCR Boundary**




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**Stone Walls**




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**Soil Drainage**

Drainage

- Well Drained Thick
- Moderately Well Drained
- Poorly To Very Poorly Drained
- Excessively Drained
- Well Drained Thin

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**Extremely Stony Soils**

STONE

- extremely stony

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**Quabbin and Ware River Cultural Resources Inventory (Public view)**




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**Quab CR Slope**

QuabbinCRSlope

- 0 - 7
- > 7