

[Division of Water Supply Protection](#)

## DCR Division of Water Supply Protection: FY2022 Forest Harvest Proposals

### USING THIS INTERACTIVE STORY MAP

**Each tab** across the top of this page will open up an interactive map journal focused on one of the FY 2022 proposals. This year there are ten at Quabbin, five at Ware River, and six at Wachusett (the last tab on the right will open up the list of lots that cannot be fit across the top). As you scroll down in the frame on the left side, maps will update to highlight appropriate information relevant to the accompanying text section. The maps themselves can also be panned and zoomed using your mouse. *(If you are having issues with loading times or seemingly missing information, we have found that **clearing your browser cache** can help.)* A tab discussion archaeological review and protection of cultural resources during forestry activities has been included at the end.

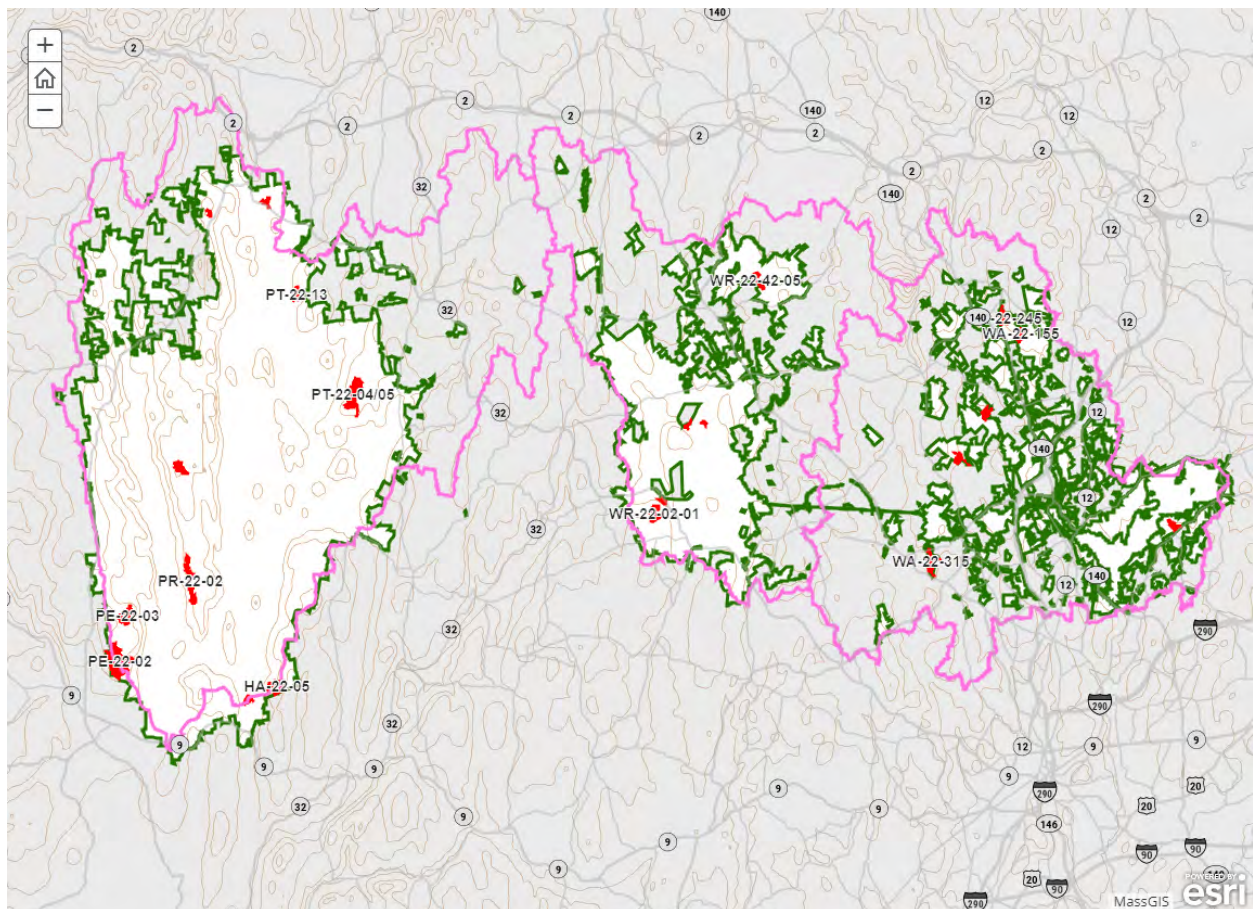
**Public comment** on these proposals is welcome and can be submitted online at this link: <https://www.mass.gov/forms/dcr-public-comments>. Comments may also be submitted by U.S. mail to

Department of Conservation and Recreation  
Office of Public Outreach  
251 Causeway Street  
Boston, MA 02114

**These proposals were presented at the Quabbin Watershed Advisory Committee meeting on June 28, 2021, and the Ware River Watershed Advisory on July 8, 2021. A link to this interactive web map application was also distributed to all advisory boards and committees, and letters were sent to individual Select Boards of affected towns.**

**Public Comments will be accepted until the close of business on Friday, August 6, 2021.**

If you have any questions, please contact Natural Resources Specialist Brian Keevan at [brian.keevan@mass.gov](mailto:brian.keevan@mass.gov) (preferred) or at (413) 213-7948.





# DWSP Forestry and Cultural Resources

## WATERSHED PROTECTION FORESTRY

[The Division of Water Supply Protection](#) (DWSP) is mandated to protect drinking water resources for over three million Massachusetts residents. DWSP owns and manages over 100,000 acres of land within the Quabbin Reservoir, Ware River, Wachusett Reservoir, and Sudbury Reservoir watersheds. Forests on these lands serve as a living, protective filter, producing high quality water in our streams and reservoirs. DWSP is committed to maintaining a watershed protection forest cover on the vast majority of its lands, and has determined that the most resilient and protective forest is one that is vigorously growing and comprised of a broad diversity of tree species and ages. The Division's long-term objective is to steadily transition today's mostly even-aged forest into a forest with more balanced proportions of young, middle-aged, and older trees of a variety of native species. These conditions have been shown to promote and enhance native plant and wildlife biodiversity. DWSP's working hypothesis is that a diverse forest structure will also promote resiliency in the event of large and small scale natural disturbances such as increasingly severe weather events, disease outbreaks, and insect pest infestations.

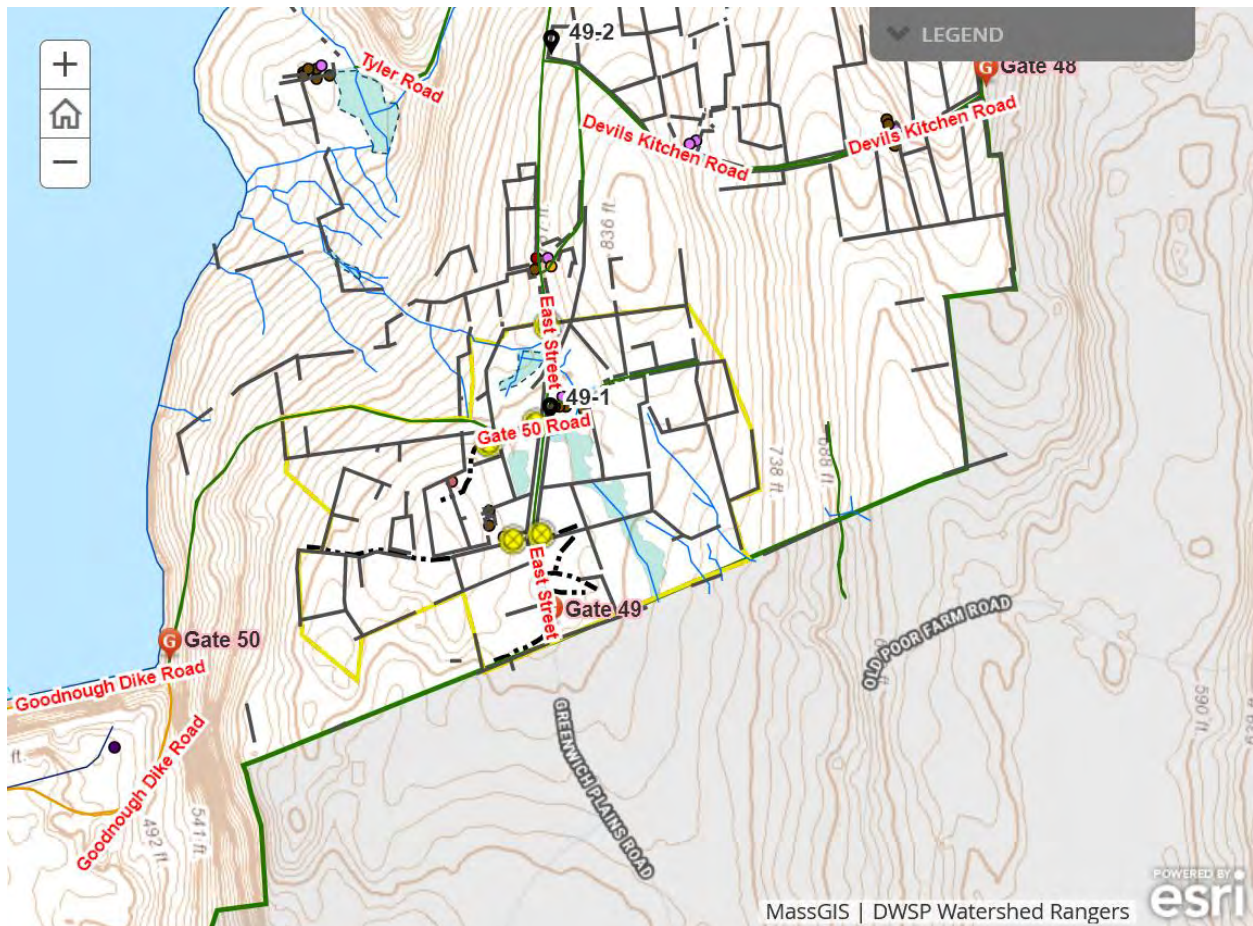
For full details on DWSP watershed land management please see the:

[2017 Land Management Plan](#) (opens a pdf)



## DWSP FORESTRY PLANNING AND REVIEW PROCESS

[DWSP Foresters](#) are responsible for the design, preparation, implementation, and oversight of forest management operations. Each year they prepare a number of timber harvest proposals which are reviewed for compliance with Land Management Plan goals and for protection of environmental resources by DWSP professionals in Natural Resources, Environmental Quality, and Watershed Management. Cultural resource review is completed by DCR's Archaeologist. Following this process, these proposals are made available for public comment as presented here.



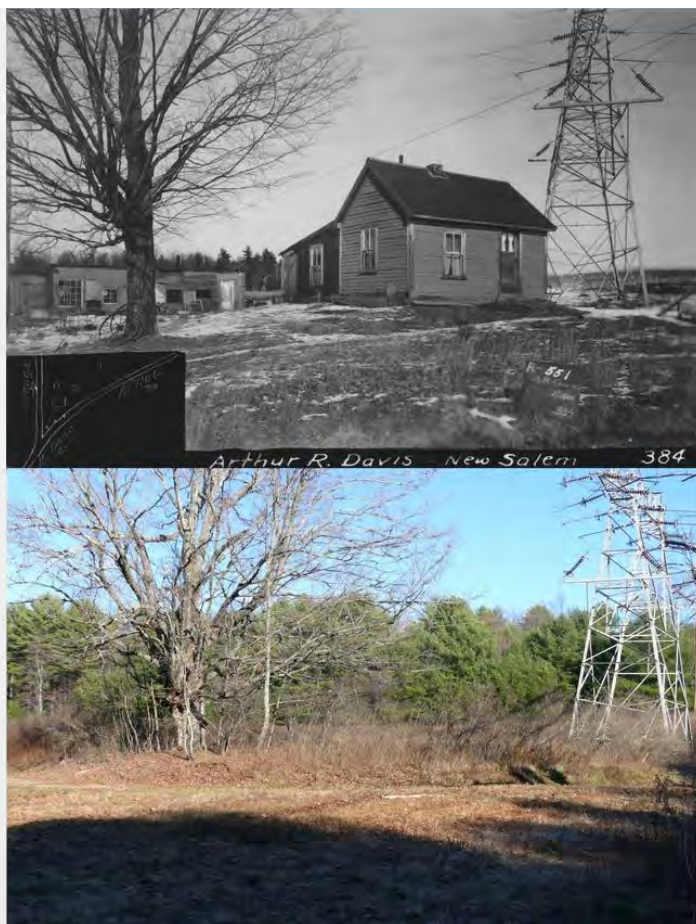
## Cultural Resource Protection and DWSP Forestry Activities

Cultural resource review has been a standard part of the internal review of DCR forestry activities for over two decades. In addition to overseeing historical preservation activities throughout the DCR Parks system, the DCR archaeologist reviews the areas we propose to harvest for proximity to known or potentially sensitive sites, both historic and pre-Contact.

Feedback is often fairly standard. If there are known to be significant historic or archaeological resources documented within the proposed project parcel, then the lot will have restrictions to be operated when the ground is dry, frozen, or can support harvesting equipment. A standing requirement is that any cultural resource features located before or during the forestry project will be protected according to guidelines set forth in the current DWSP's Land Management Program and indicated on harvest maps accordingly. And foresters are asked to flag, protect, photograph, and map any cultural features and contact DCR staff archaeologist if there are any questions or concerns.

In most cases on DWSP properties, the cultural resource sites are easily identified as recent historical activities associated with agricultural land clearing and farming by European colonists. Stone walls, cellar holes, foundations, and wells are routinely encountered by foresters as they walk DWSP's watershed forests. Some of these structures are well-documented, especially at Quabbin, while others would require research to determine original owner/builder, last known owner, etc. Systematic surveys were conducted of all the known historical sites at Quabbin by researchers in the 1990s, using property maps created when the lands were surveyed and taken for construction of the reservoir. Much of this information is available upon request at the Quabbin Visitor Center in Belchertown.



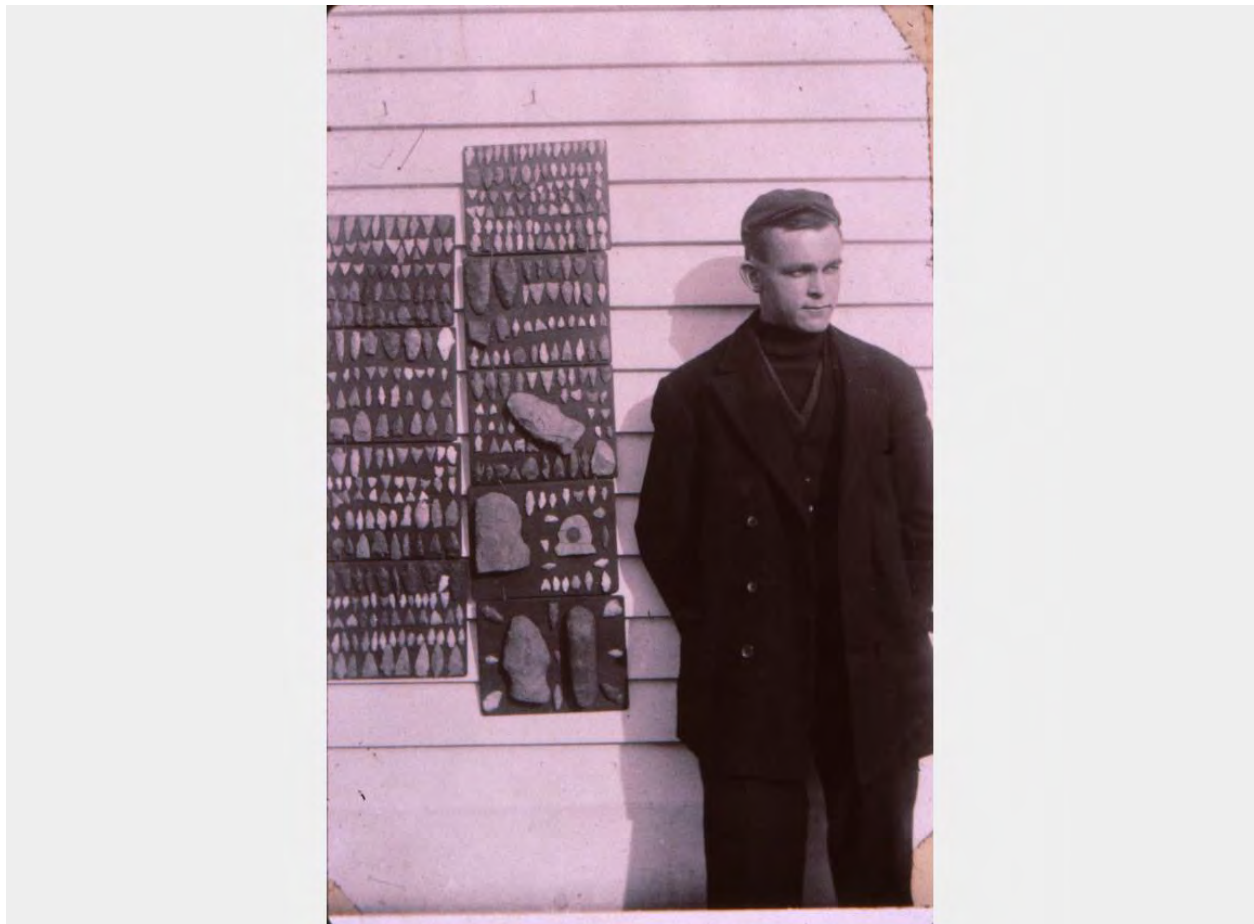


## Protection of Sensitive Sites

These lands had been occupied for thousands of years before the influx of Europeans in the 17th century and the reworking of the landscape to suit their agricultural way of life. Plowed soils often revealed artifacts from pre-Contact land use, such as the tools and weapons collected by this enthusiast from pre-Quabbin Enfield.

DCR's archaeologist routinely consults Massachusetts Historical Commission records to determine proximity of proposed activities to known protected sites such as villages and burial sites. Models are also consulted that use ground conditions such as topography and distance to water sources to estimate the potential locations of other pre-Contact sites such as seasonally occupied camps.

In an effort to protect this information it will not be included in the public documentation for the forestry proposals. DWSP foresters abide by all recommendations pertaining to protection of historic and pre-Contact cultural resources.





## Ongoing Field Mapping of Cultural Resources

Known and visible features and sites are mapped using GIS and are incorporated into editable digital field maps. Mapping apps for smartphones and tablets have revolutionized the ability for foresters to verify locations and add previously unmapped features right in the field. This technology aids immensely in planning harvesting operations.

At Ware River, Wachusett, and Sudbury no modern systematic surveys have been conducted, although the foresters routinely map stone walls and other features and do consult property sheets that show locations of extant homes and outbuildings at the time of land takings.

Most of what you will read in these individual lot proposals will be the foresters' assessments of visible cultural features in the area, and these are nearly always stone features related to colonial and post-colonial land use.





# Ware River Harvest Proposal WR-22-2-1

## Proposal Goals

The goal for this proposal is to make the forest more diverse and resilient. It will reduce the amount of mature, old field white pine and replace it with patches of young forest of diverse species.

## Proposal Location

This lot is in the town of Oakham. It is bordered on the west by Coldbrook Road, on the north by power lines, on the east by streams and wetlands, and to the south by wetlands and lot 217 and a wetland.

**Total Acres: 78**



## General Description

	Overstory Type(s)	Acres
<b>Dominant</b>	White pine - oak	65
<b>Secondary</b>	Oak - hardwood	13

## Secondary

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

Secondary	
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**Description of forest composition/condition:**

The only recorded harvest in the area is lot 164, a 26 acre shelterwood in the northwestern portion of the lot that was completed in 1988. No discernable openings were created during that harvest. The 1938 aerial photos show this area was young forest at that time. The entire lot appears to be even aged with multiple species dominating the overstory.

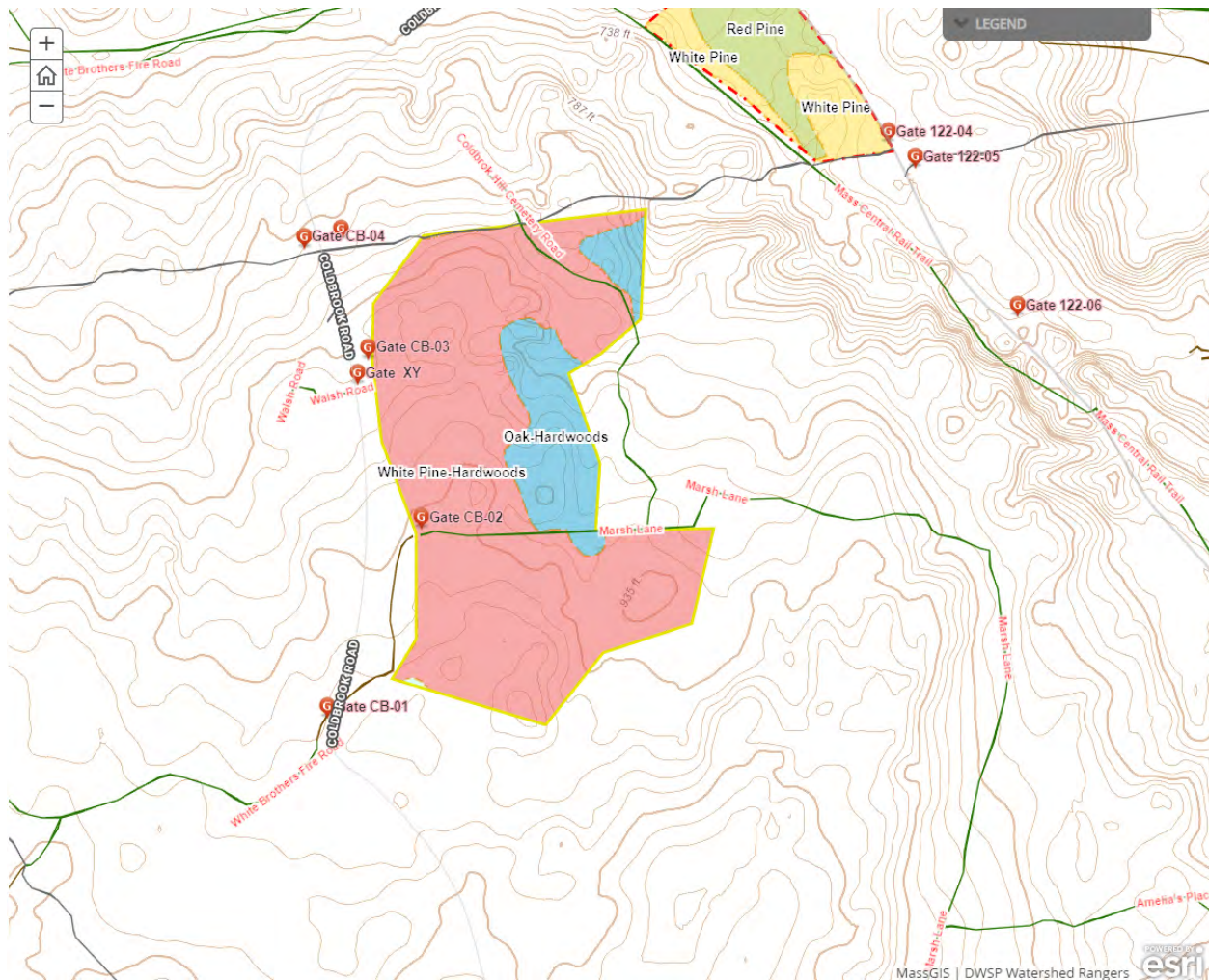
White pine/Oak - This stand is dominated by mature, sawlog size white pine and red, black, white, and scarlet oak. Red maple, black birch, black cherry, aspen, eastern hemlock, and yellow birch are also found in the overstory. The stand is well stocked with approximately 160 square feet of basal area per acre, with approximately 30 square feet per acre in acceptable growing stock. The quality of the overstory white pine varies greatly. The quality is better generally in the northern portion of the lot, and poorer south of Marsh Lane. The quality of the oak also varies from good to poor, but is more patchy throughout the stand. The quality of the other hardwoods is generally poor. Regeneration is well established throughout the lot and consists of red maple, black birch, red, white, black, and scarlet oak, white pine, eastern hemlock, and Norway spruce seedlings. American chestnut sprouts are also present.

Oak/hardwood - This stand is dominated by mature, sawlog size red, white, and black oak. Scarlet oak, white pine, red maple, paper birch and yellow birch are also present in the overstory. American basswood was observed in the overstory along the brook on the eastern edge of the lot north of Marsh Lane. The stand is well stocked with approximately 128 square feet of basal area per acre, with approximately 33 square feet per acre in acceptable growing stock. The quality of the oak is not particularly good. There are occasional nice stems, but there are patches of low quality stems throughout the stand. Regeneration is well established with white pine, eastern hemlock, black birch red maple, red oak, and Norway spruce seedlings.

**Assessment of Terrestrial Invasive Species:**

Glossy buckthorn is present, particularly adjacent to the Norway spruce stands along Coldbrook Road.





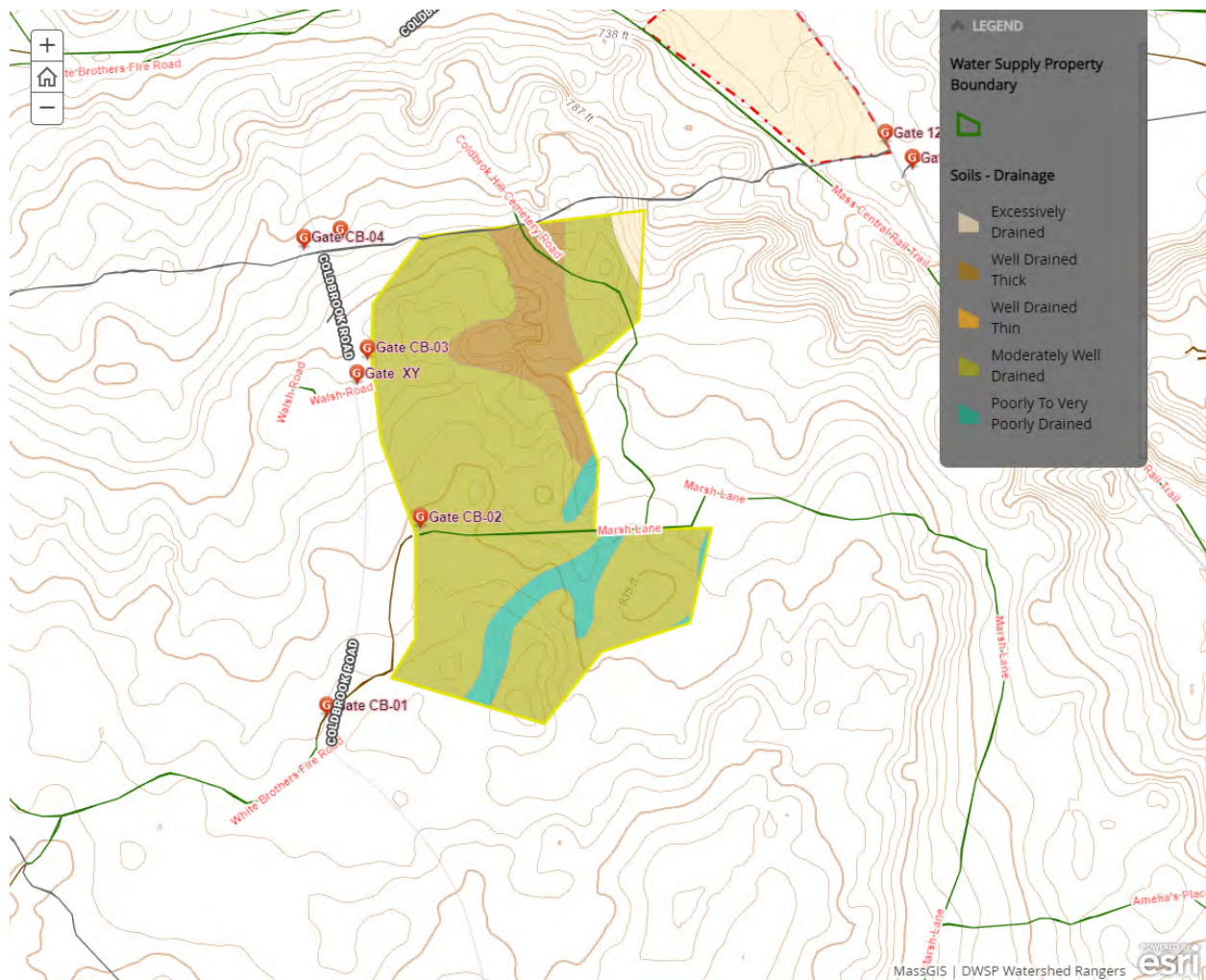
## Soils

Drainage Class	%
Excessively Drained	0
Well Drained Thin	0
Well Drained Thick	13
Moderately Well Drained	78
Poorly to Very Poorly Drained	7

927C Montauk-Scituate-Canton association, 3 to 15 percent slopes, extremely stony - Moderately well drained - 61 acres

915E - Montauk-Canton association, 15 to 45 percent slopes, extremely stony - Well Drained thick - 10 acres

918B - Ridgebury-Whitman association, 0 to 8 percent slopes, extremely stony - Poorly to very poorly drained - 5.6 acres - thin vein of wet soils running roughly north to south through the middle of the southern portion of the lot below Marsh Lane. Will have to be crossed to access the southeastern portion of the lot.

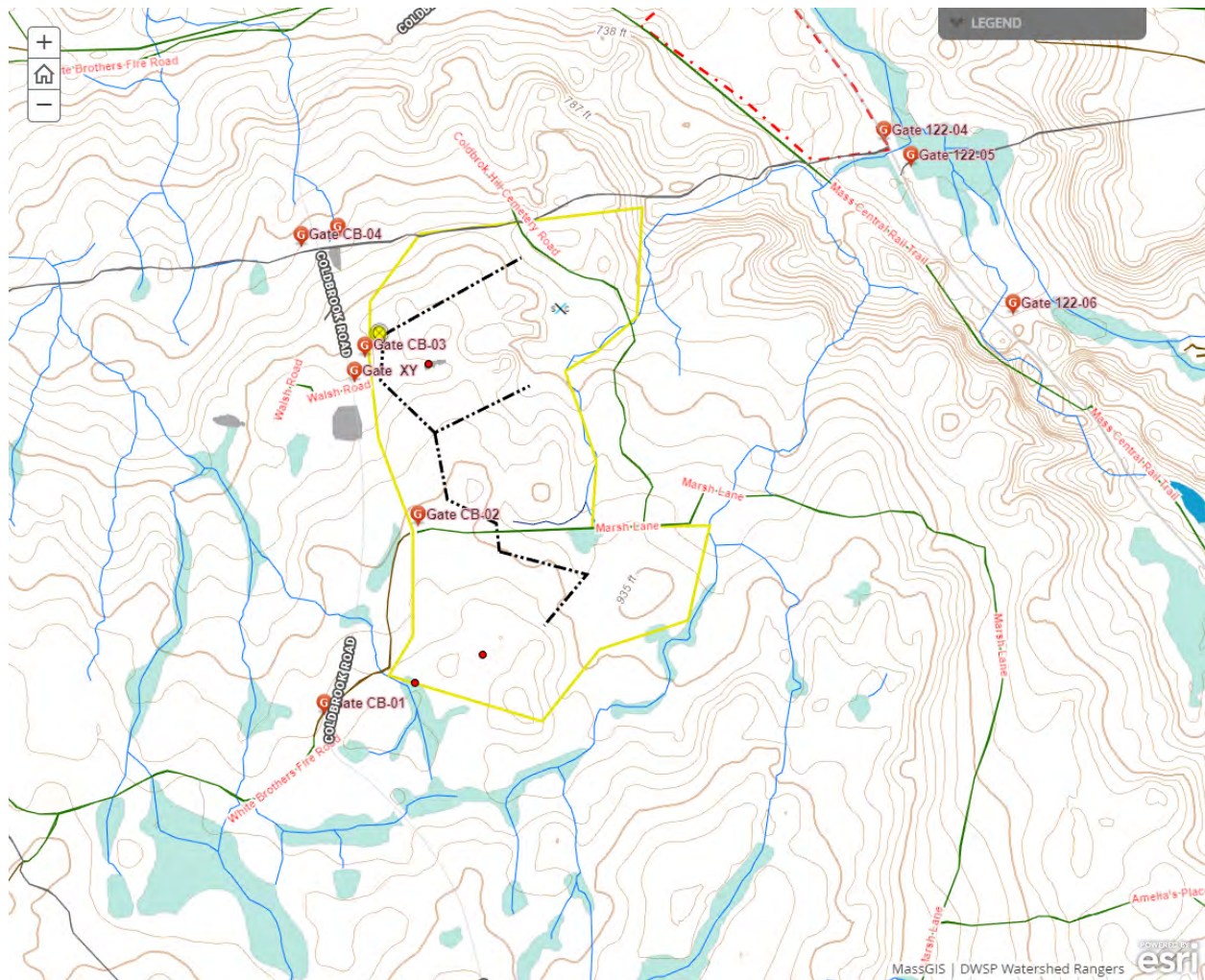


## Wetlands

- Wetlands present? - **Yes**
- Streams present? - **Yes**
- Vernal pools present? - **Yes**
- Seeps present? - **None known**



- Are stream crossings required? - **Yes**
- Are wetland crossings required? - **Yes**
- Is logging in filter strips planned? - **Yes**
- Is logging in wetlands planned? - **No**



## Silviculture

Acres in Intermediate cuts: **0**

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

Acres in Regeneration cuts: **26**

Average regen opening size: **2**



Maximum regen opening size: 5

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

Regeneration is well established throughout the lot and consists of red maple, black birch, red, white, black, and scarlet oak, white pine, eastern hemlock, and Norway spruce seedlings. American chestnut sprouts are also present.

**General comments on silviculture proposed:**

White pine/oak - Group selection will be used to establish regeneration openings in this stand. At least 1, up to 2 openings between 2 to 5 acres will be created in the southern part of the lot, targeting the poorest quality white pine and areas with the best regeneration. Another 10 to 15 acres of openings in groups between 1 and 2 acres will be established throughout the stand. At least 5 square feet of basal area per acre of the best formed, most vigorous stems of all species will be retained in all openings. Some tending/improvement cutting will be done along skid trails.

Oak/hardwood - Group selection will be used to establish regeneration openings in this stand. Up to 5 acres of openings in groups between 0.5 and 2 acres will be established through out the stand, targeting the poorest quality oak stems. At least 5 square feet of basal area per acre of the best formed, most vigorous stems of all species will be retained in all openings. Some tending/improvement cutting will be done along skid trails.



## Subwatershed Analysis

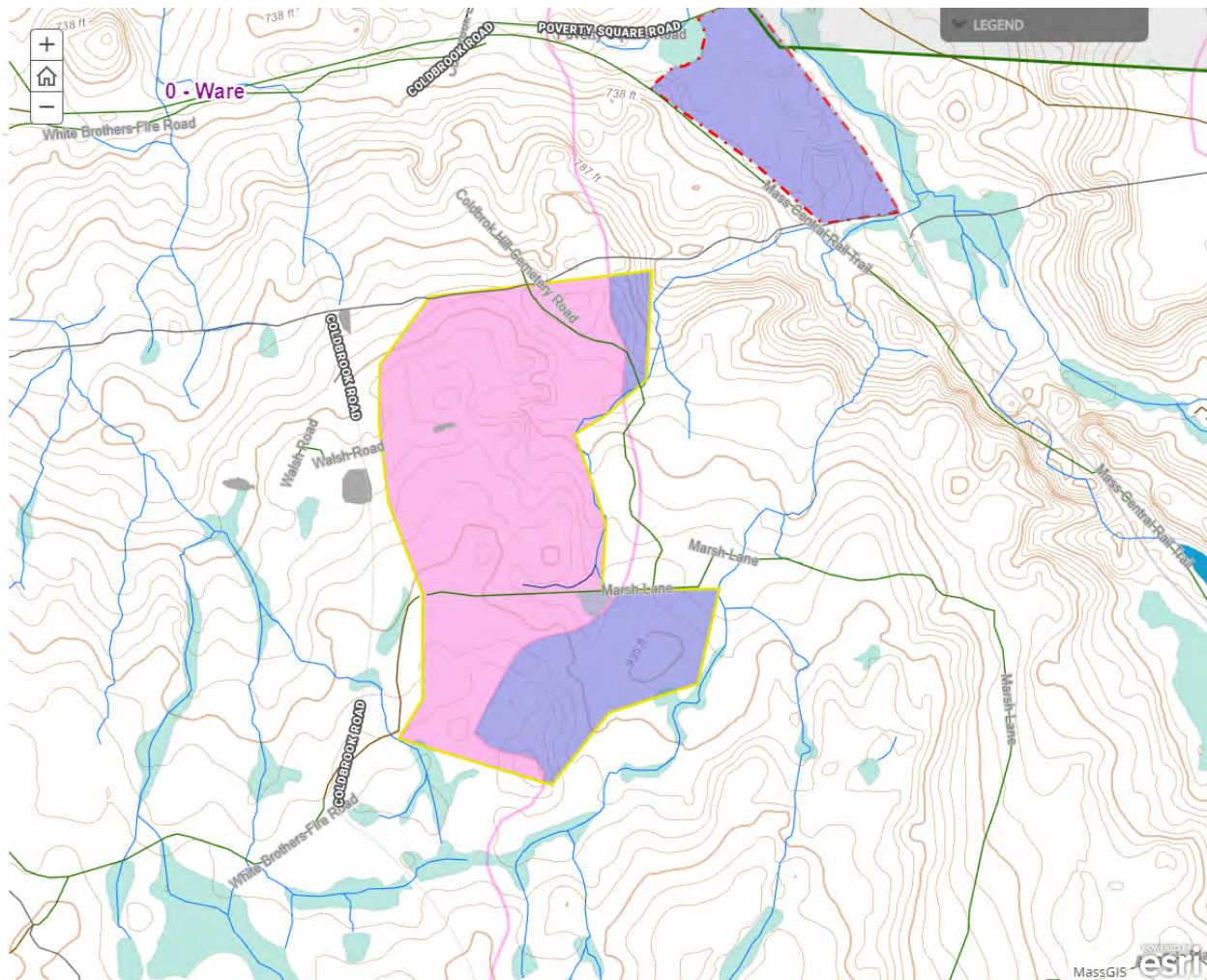
Sub-watershed number	Total DCR-owned Acres	Acres Regenerated on DCR Land in the last 10 years	Acres Remaining for Regenerating Up to the 25% / 10 Year	Acres part of this proposal
8063 (Ware River Intake)	3072	59	709	58
8061 (Parker Brook)	3133	62	721	20

8063 - Ware - 6.5 acres in lot 4401 were harvested this winter with another 4 acres left to be harvested this summer. Lot 4404, 33.2 acres, has been sold but not yet cut. There are 3 acres in



proposal WR-22-22-4, 79 acres in proposal WR-21-21-3, 48 acres in proposal WR-19-20-3 in this subwatershed.

8061 - Parker - There are 17 acres in proposal WR-22-2-2, 26 acres in proposal WR-21-8-2, 8 acres in proposal WR-20-4-1, 11 acres in proposal WR-20-8-2, 5 acres in proposal WR-16-3-1, and 46 acres in proposal WR-17-7-1 in this subwatershed.



## Harvesting Limitations

Forwarder required: **No**

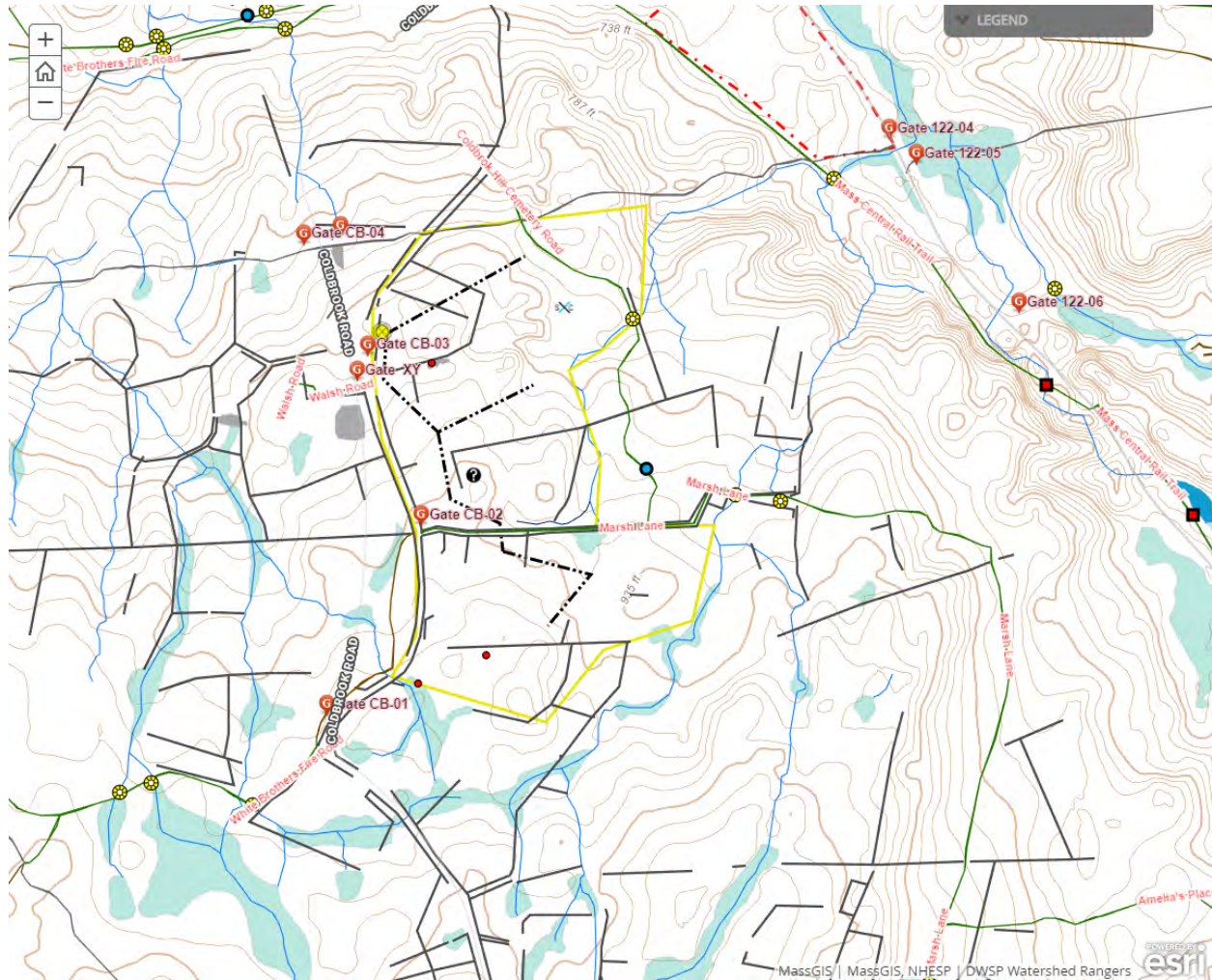
Feller/processor required: **No**

Steep slopes present: **No**



**Comments on harvesting limitations:**

No specific equipment requirements.

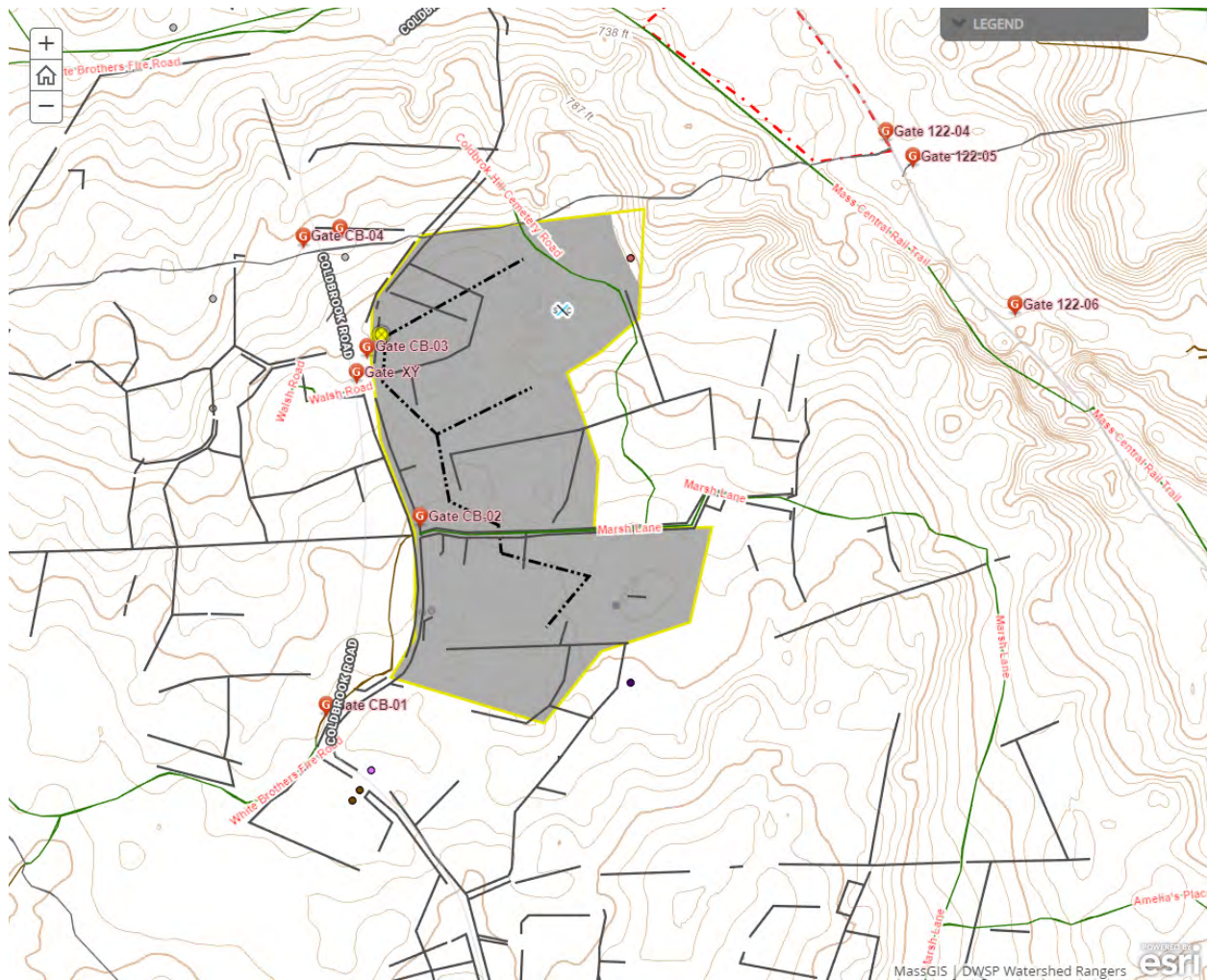


## Cultural Resources

**Comments on Cultural Resources:**

There are two historical burial sites on this proposal. One headstone with multiple possible graves is located in the very northeastern corner of the lot, at the reported site of an old schoolhouse. No evidence of the schoolhouse is present, but the grave stone is still present. One local historian believes there may be other unmarked graves in near the site. The entire area will be buffered. Another headstone is located in the southwestern portion of the lot just off of Coldbrook Road. That site will be well buffered as well. There is also a cellar hole south of the

intersection of Coldbrook Rd and Marsh Lane that will be buffered. There are stone walls present throughout the lot that will have to be crossed to access the lot.



## Wildlife Resources & Rare and Endangered Species

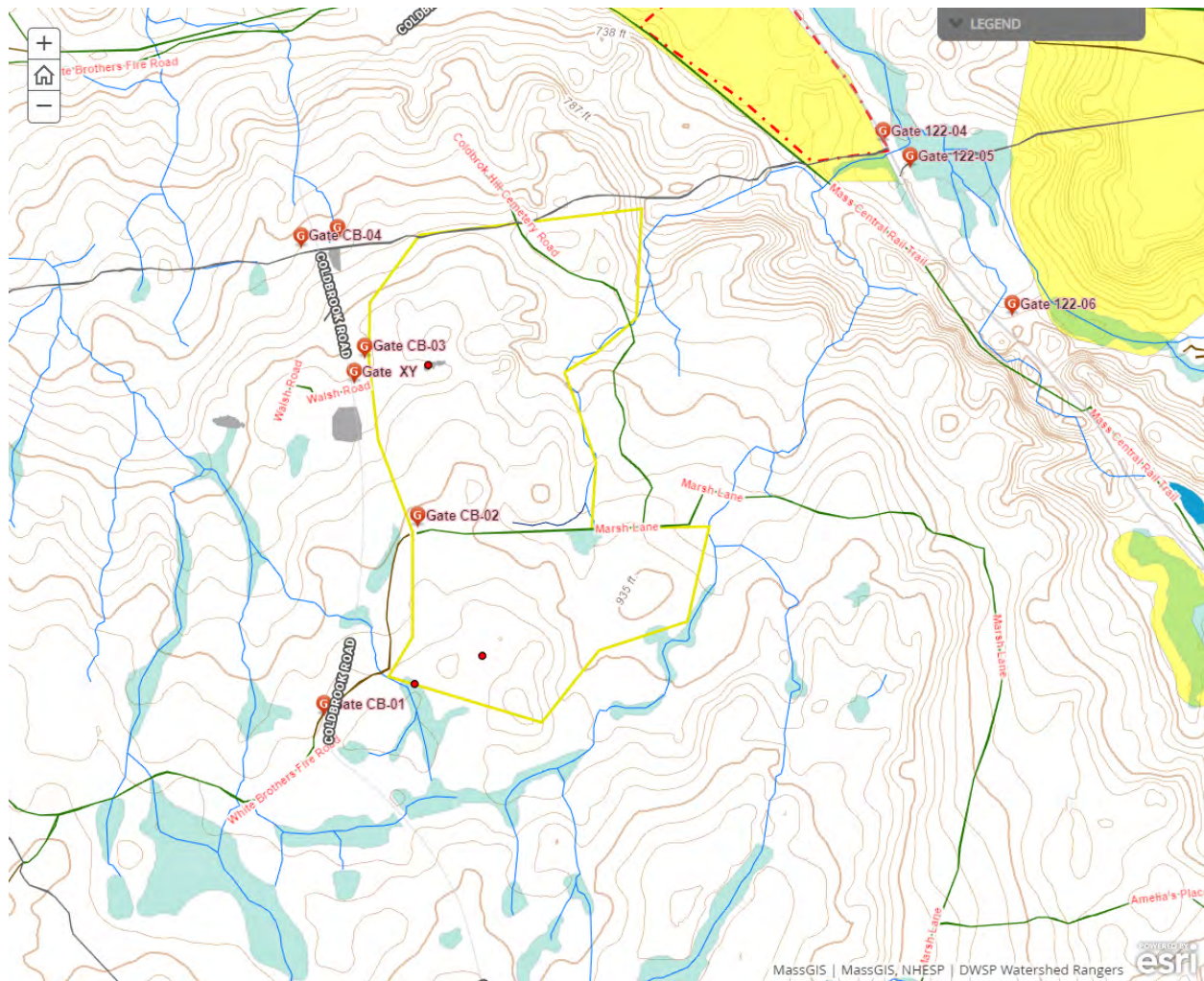
**General Wildlife Comments:**

Moose and deer sign and browse were observed on the lot..

**Comments on Rare Species/Habitats:**

No known rare species or priority habitats on site.



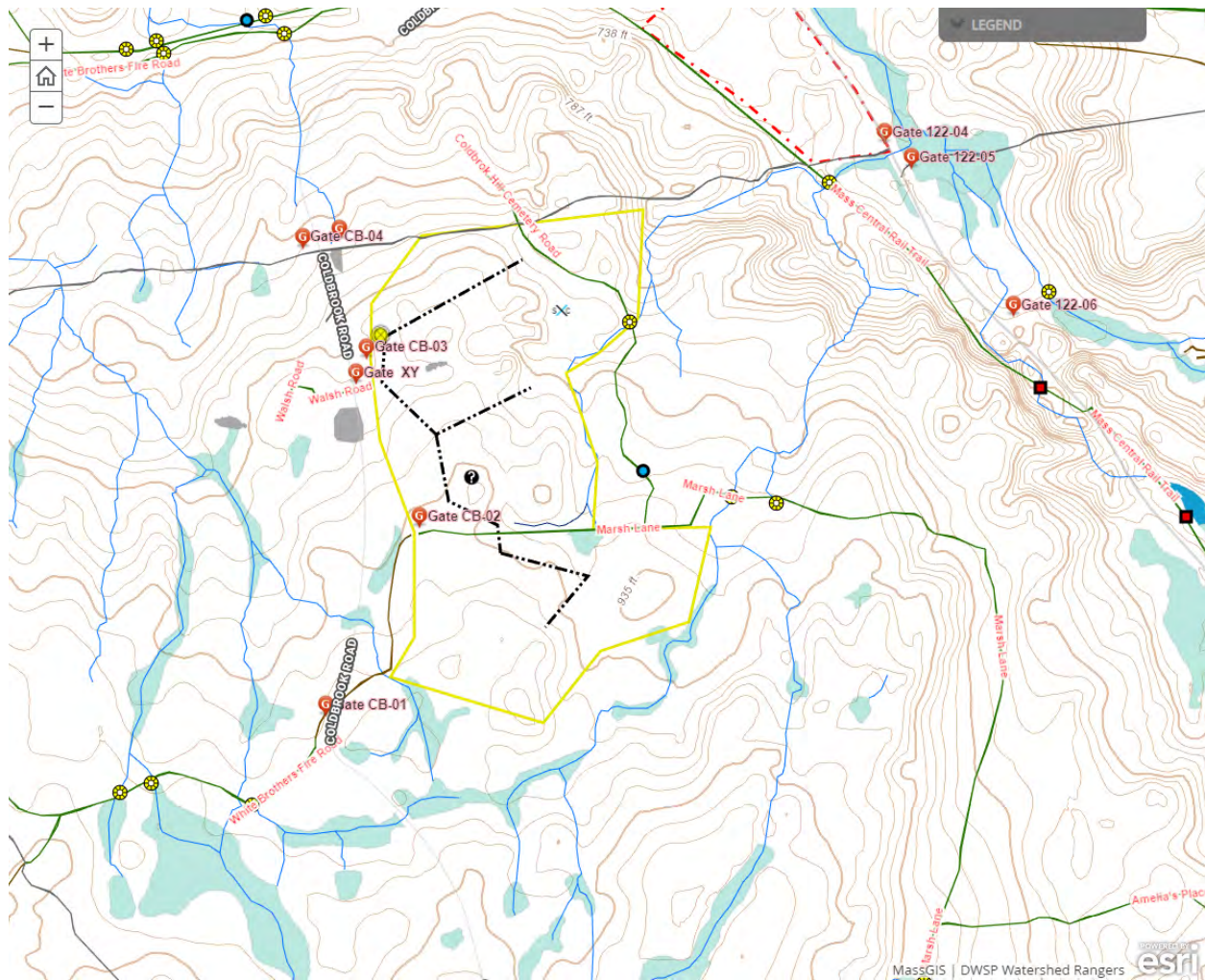


## Environmental Quality Engineering

### Comments on EQ Issues:

No crossings are planned that would require EQ monitoring.





## Forest Access Engineering

**Gravel needed:** No

**Landing work needed:** Yes

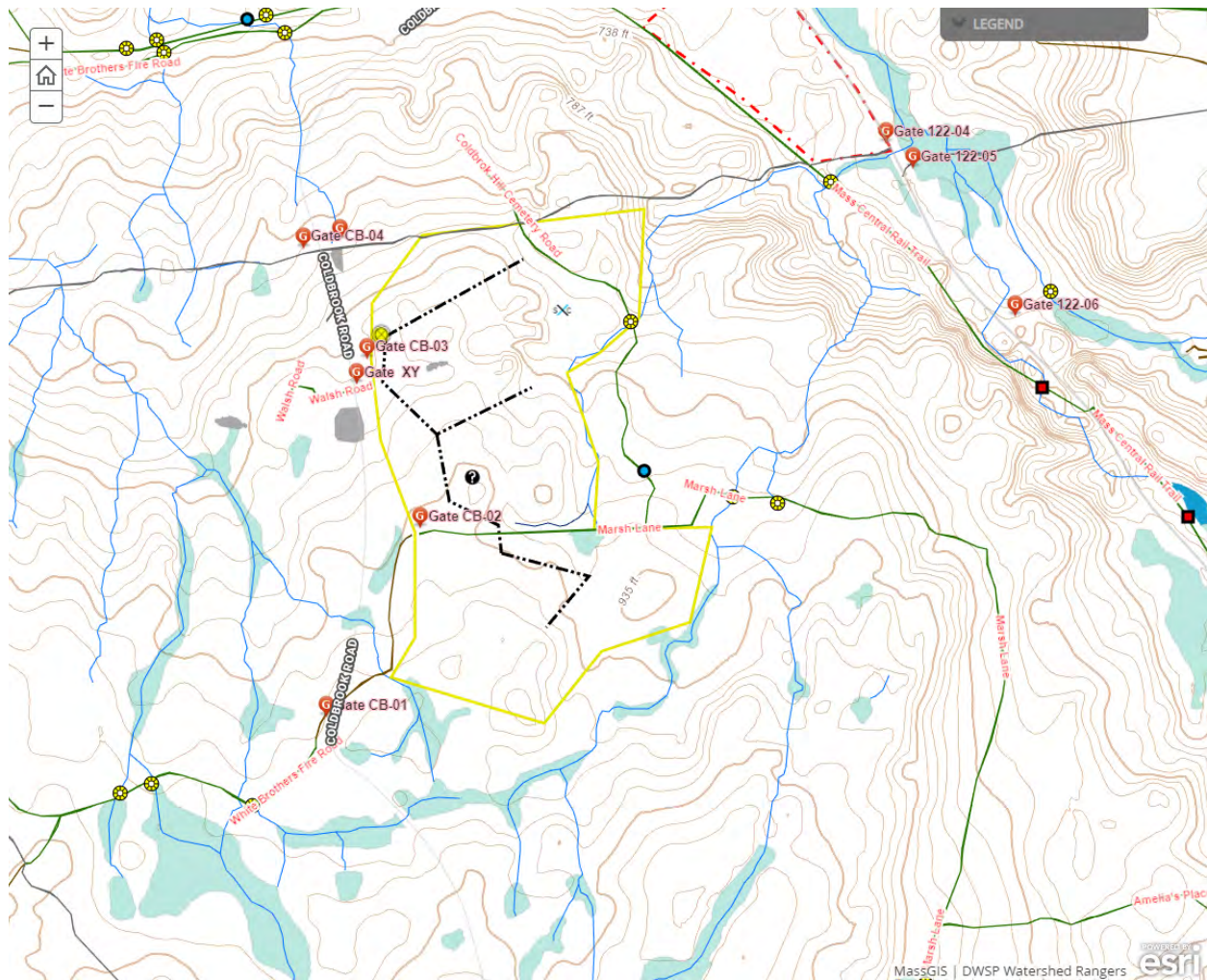
**Culverts needed:** No

**Work needed on permanent bridges:** No

**Beaver issue:** No

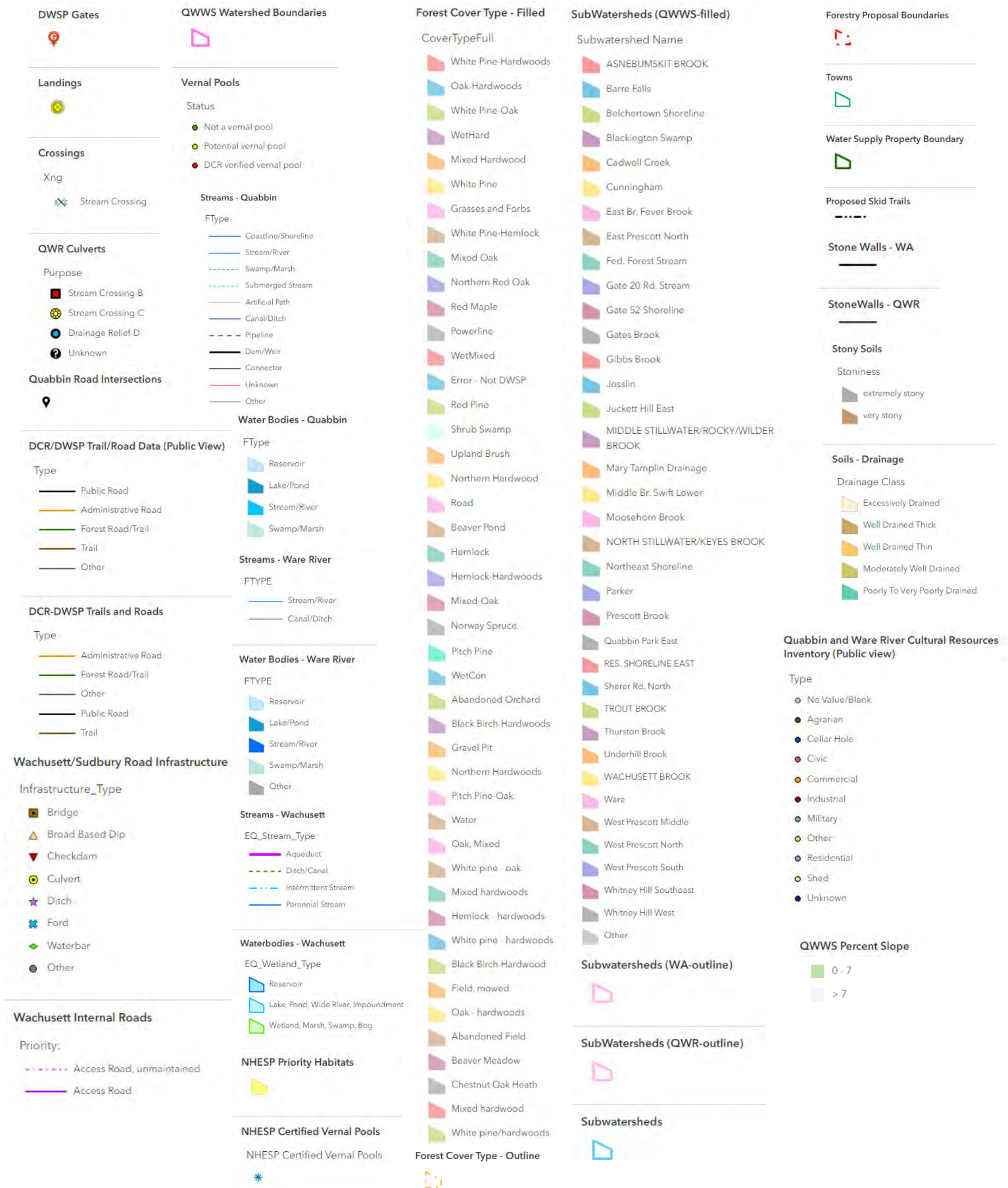
**Further comment on access needs:**

The landing will be located on Old Coldbrook Road. The gate off of Coldbrook Road may need to be moved during operations to facilitate access.





## DWSP FY 2022 Forestry Proposals – Master Legend for story maps





# **Ware River Harvest Proposal WR-22-2-2**

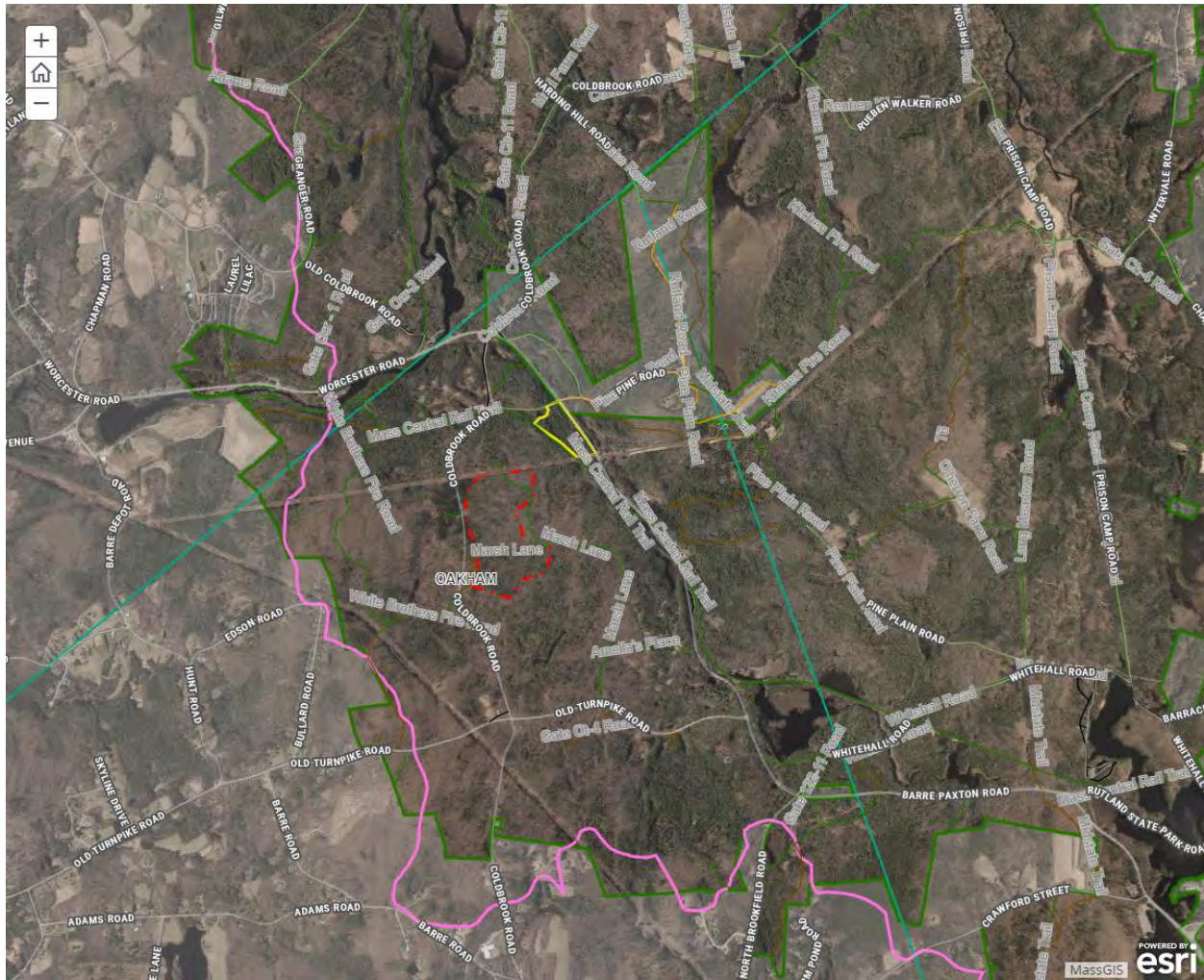
## **Proposal Goals**

The goals for this proposal are to remove plantation red pine before it succumbs to red pine scale and to release abundant regeneration that has been established by past thinnings.

## **Proposal Location**

This lot is in the town of Oakham at Poverty Square Road and Route 122. It is bordered on the east by Route 122, to the north by Poverty Square Road and a pond, to the west by the Mass Central Rail Trail, and to the south by powerlines.

**Total Acres: 17**



## General Description

	Overstory Type(s)	Acres
<b>Dominant</b>	Red pine	13
<b>Secondary</b>	White pine - oak	4

## Secondary

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

<b>Secondary</b>
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**Description of forest composition/condition:**

The 1938 aerial photos show most of this area as open pasture land with several structures adjacent to Route 122. The area, known as poverty square, had a gas station and several houses and barns. The real estate sheet shows that red pine, spruce, and larch were planted in the area in 1936. Lot 4272 was a 10.6 acre red pine seed tree cut completed in 1999 in the red pine stand. The harvest aimed to leave approximately 20 square feet of basal area per acre of overstory red pine stems.

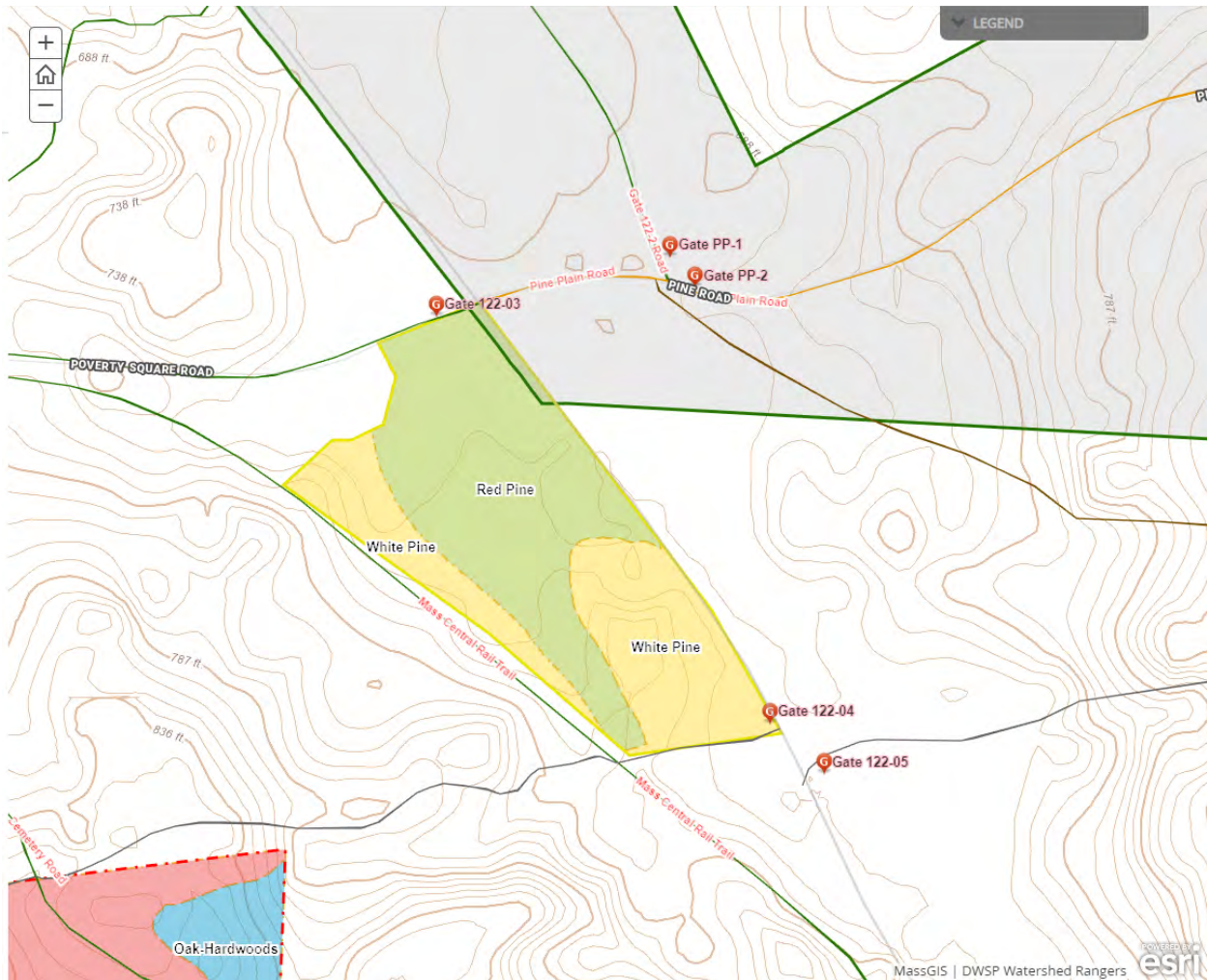
**Red Pine** - This stand is two aged, with scattered overstory red pine stems over pole stems of mixed species. Mortality of residual overstory red pine is heavy in spots, leaving very scattered overstory stems. Occasional white pine, Norway spruce, pitch pine, and red oak stems are also found in the overstory. There is approximately 16 square feet of basal area per acre of sawlog size red pine, most of which is good quality. It is patchy though with some areas having 40 square feet per acre and others having none. Regeneration is heavy to white pine poles in some spots, with areas of red oak mixed with black cherry, black oak, white oak, Norway spruce, and eastern hemlock. The poles are approximately 30 feet tall and vary greatly in quality. Some of the white pine poles have been heavily affected by the white pine weevil, while the quality is good in other areas. There are areas with 100 to 130 square feet of basal area per acre of pole white pine, generally where the overstory red pine is most sparse. Some good quality red and white oak poles are also present. White pine, red oak, black birch, red maple, black cherry, white birch, eastern hemlock, and grey birch seedlings are also present.

**White pine/oak** - This stand is the southern edge of the lot along Route 122 and the power lines. It was not planted, probably due to slope and dry soils. Much of it will not be accessible due to slope and proximity to Route 122, but the edge of the stand adjacent to the red pine stand is accessible. Some thinning was done on the edge of the stand. It is even aged with multiple species. The stand is dominated by sawlog size white pine and white and red oak. Black oak, black cherry, red maple, pitch pine, eastern hemlock, and European larch are also present in the overstory. The quality of the white pine is poor. The stand is well stocked with approximately 145 square feet of basal area per acre, with approximately 30 square feet per acre in acceptable growing stock. Regeneration is well established in the accessible portion of the lot with white pine, red and white oak, red maple, black cherry, and eastern hemlock seedlings.

**Assessment of Terrestrial Invasive Species:**



Glossy buckthorn is well established throughout the lot, particularly in the red pine stand. Wild grape is also thick in spots.



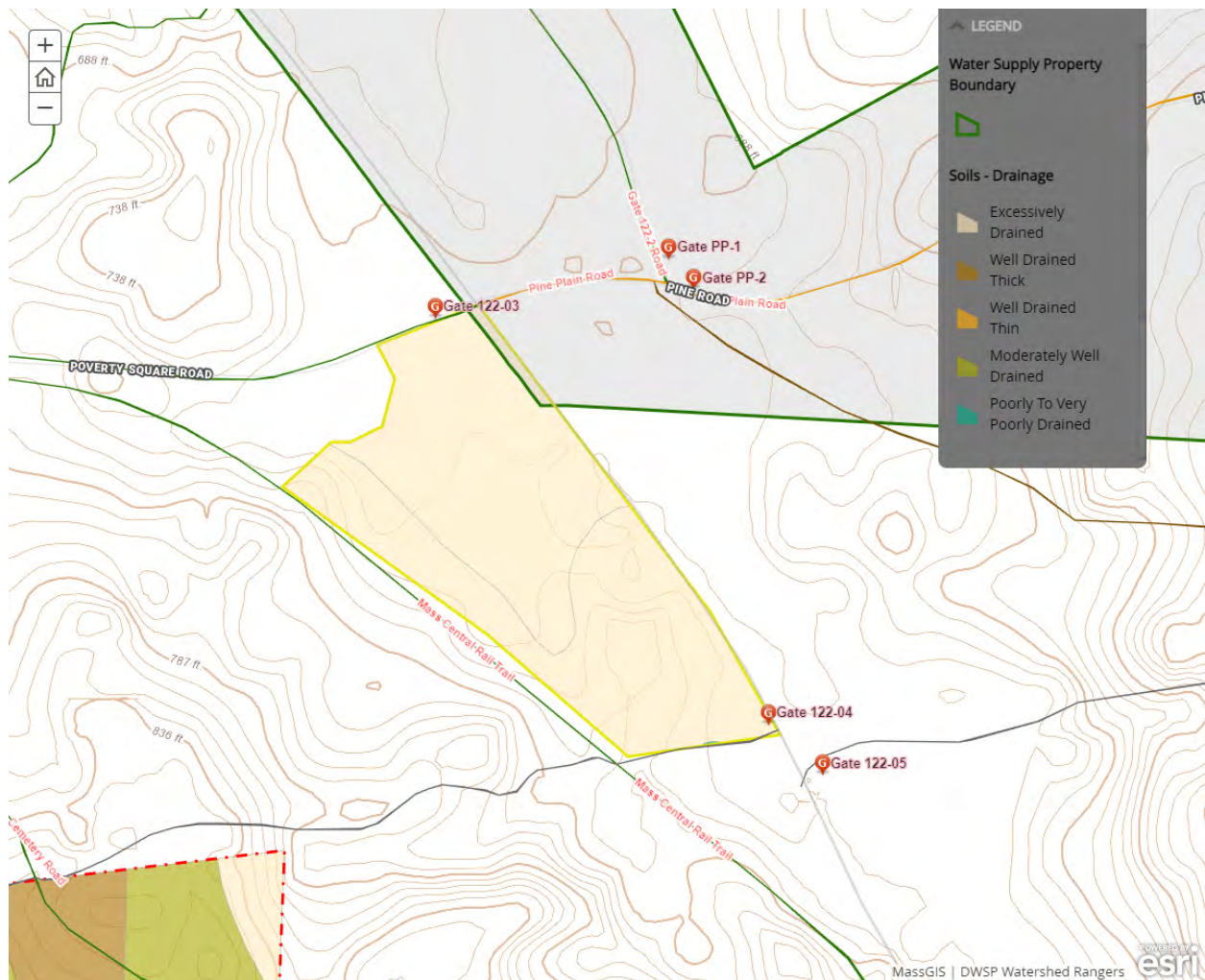
## Soils

Drainage Class	%
Excessively Drained	100
Well Drained Thin	0
Well Drained Thick	0
Moderately Well Drained	0

Poorly to Very Poorly Drained	0
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253D - Hinckley loamy sand, 15 to 25 percent slopes - Excessively drained - 8.6 acres

253B - Hinckley loamy sand, 3 to 8 percent slopes - Excessively drained - 8.0 acres

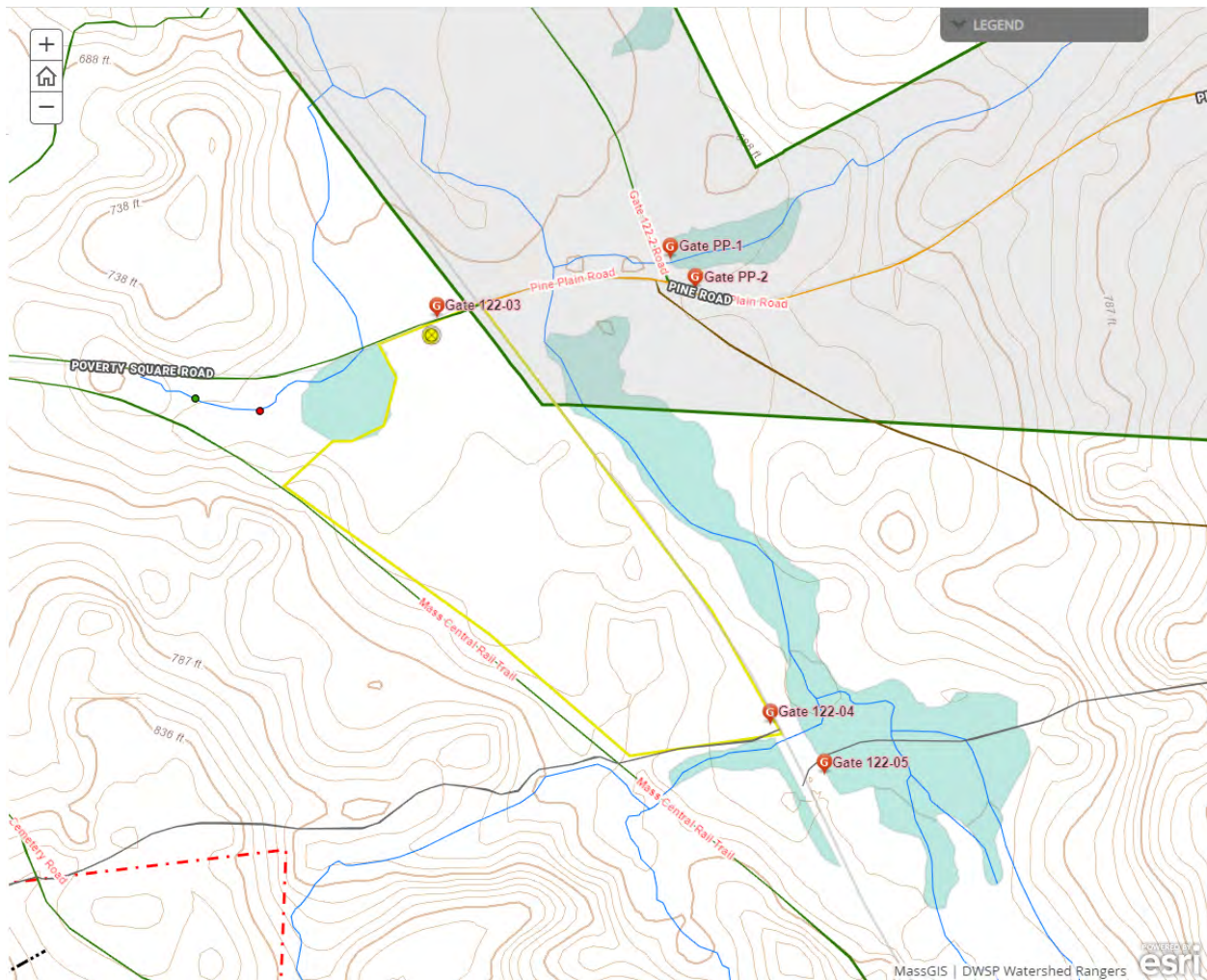


## Wetlands

- Wetlands present? - **Yes**
- Streams present? - **No**
- Vernal pools present? - **Yes**
- Seeps present? - **None known**
- Are stream crossings required? - **No**
- Are wetland crossings required? - **No**



- Is logging in filter strips planned? - **No**
- Is logging in wetlands planned? - **No**



## Silviculture

Acres in Intermediate cuts: **0**

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

Acres in Regeneration cuts: **14**

Average regen opening size: **13**

Maximum regen opening size: **13**



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

Regeneration is heavy to white pine poles in some spots, with areas of red oak mixed with black cherry, black oak, white oak, Norway spruce, and eastern hemlock. The poles are approximately 30 feet tall and vary greatly in quality. Some of the white pine poles have been heavily affected by the white pine weevil, while the quality is good in other areas. There are areas with 100 to 130 square feet of basal area per acre of pole white pine, generally where the overstory red pine is most sparse. Some good quality red and white oak poles are also present. White pine, red oak, black birch, red maple, black cherry, white birch, eastern hemlock, and grey birch seedlings are also present.

**General comments on silviculture proposed:**

Red pine - All overstory red pine and Norway spruce stems will be harvested. Healthy overstory stems of other species will be retained for structure and diversity, though they are very sparse and less than 5 square feet of basal area per acre. The established regeneration will be protected as much as possible, and thinned where there is enough good quality pole size regeneration to warrant treatment.

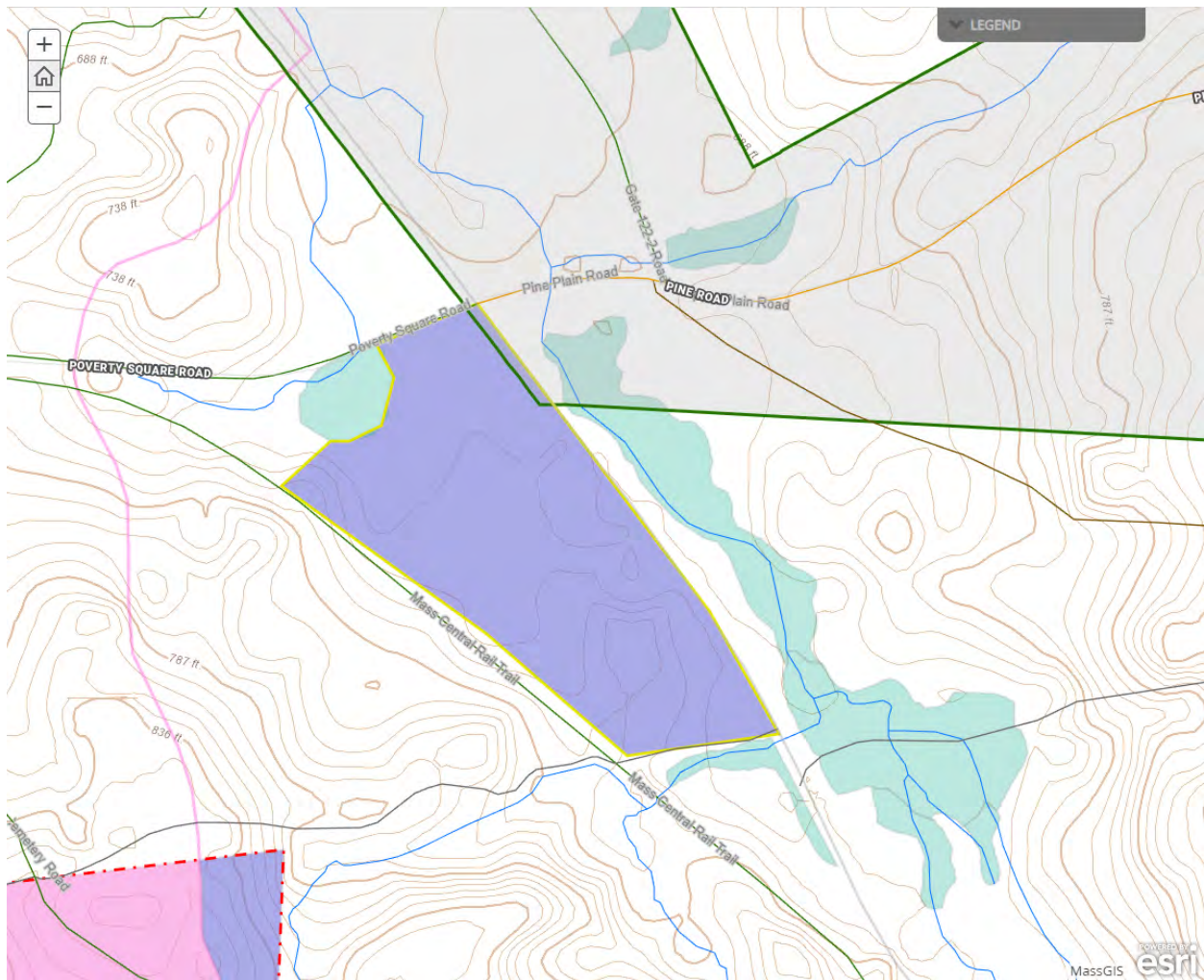
White pine/oak - A 1- to 2-acre opening will be established, targeting the poorest quality white pine stems. At least 5 square feet of basal area per acre of the best formed, most vigorous stems of all species will be retained in the opening.



## 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
8061 (Parker Brook)	3133	62	721	17

8061 - Parker - There are 20 acres in proposal WR-22-2-1, 26 acres in proposal WR-21-8-2, 8 acres in proposal WR-20-4-1, 11 acres in proposal WR-20-8-2, 5 acres in proposal WR-16-3-1, and 46 acres in proposal WR-17-7-1 in this subwatershed.



## Harvesting Limitations

Forwarder required: **No**

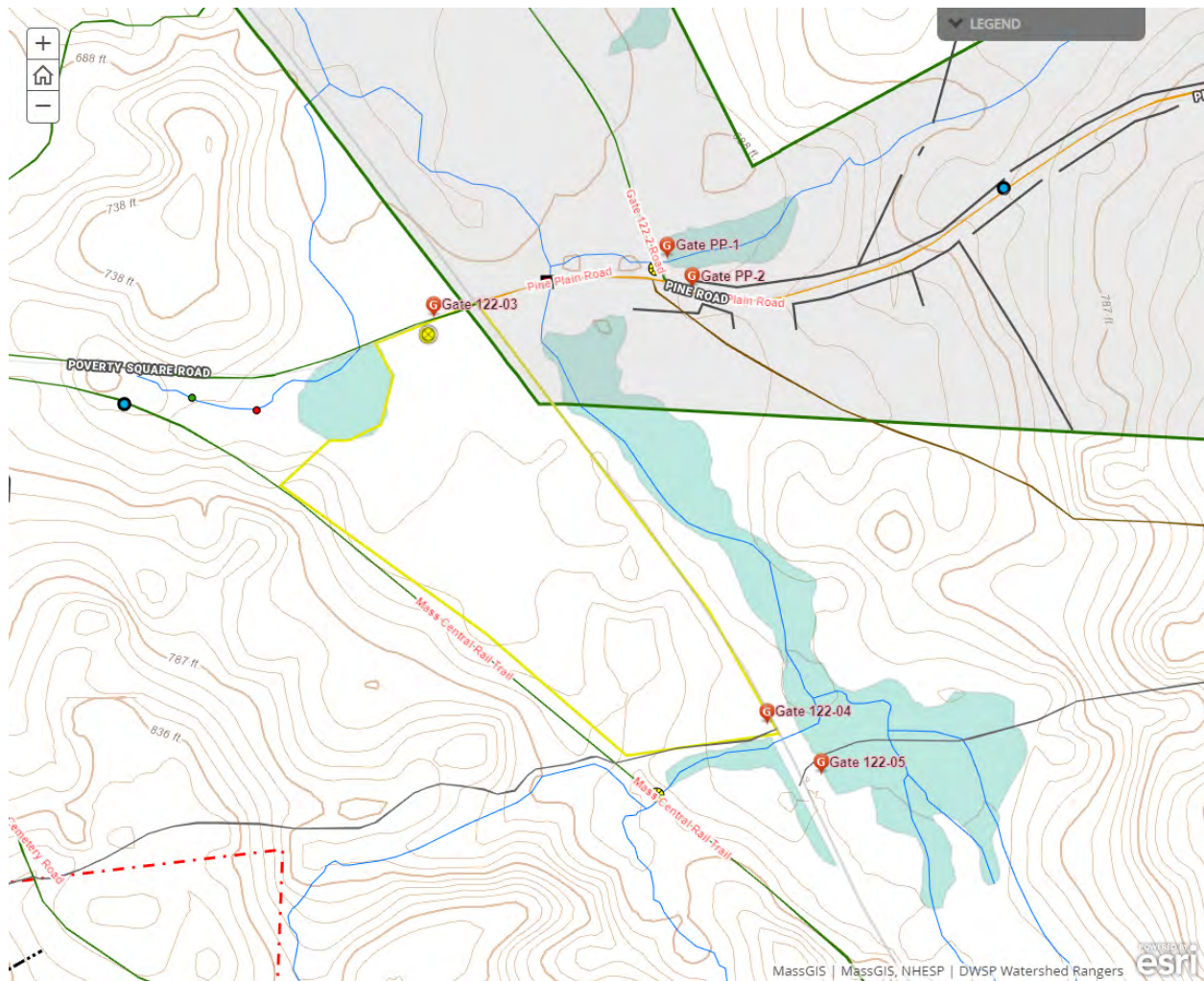
Feller/processor required: **No**

Steep slopes present: **No**

### Comments on harvesting limitations:

No specific equipment requirements.

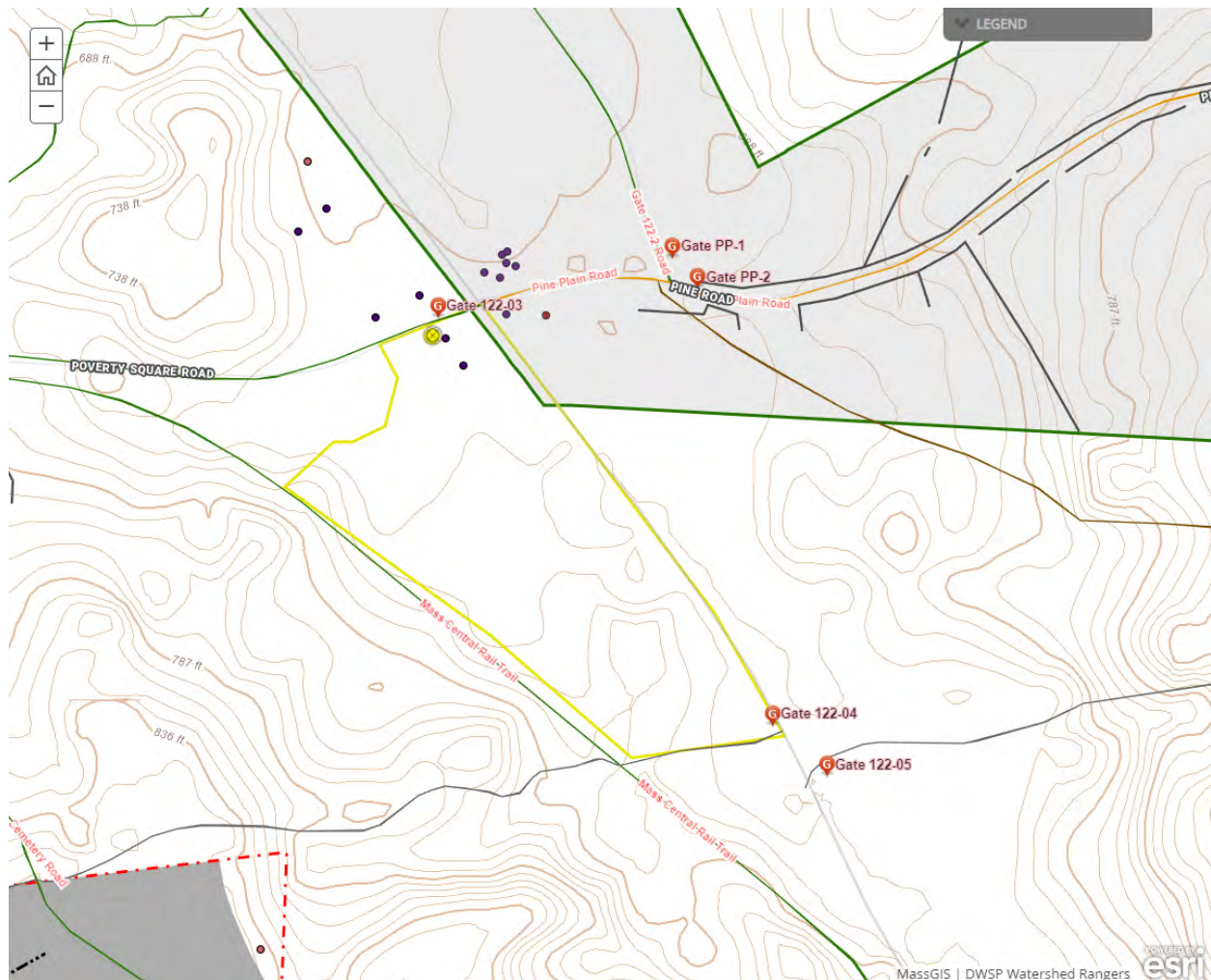




## Cultural Resources

### Comments on Cultural Resources:

There are several foundations along Route 122. This area was known as Poverty Square and was home to a filling station and several houses/barns. One concrete foundation is close to where the landing will need to be located and will be buffered as much as possible.



## Wildlife Resources & Rare and Endangered Species

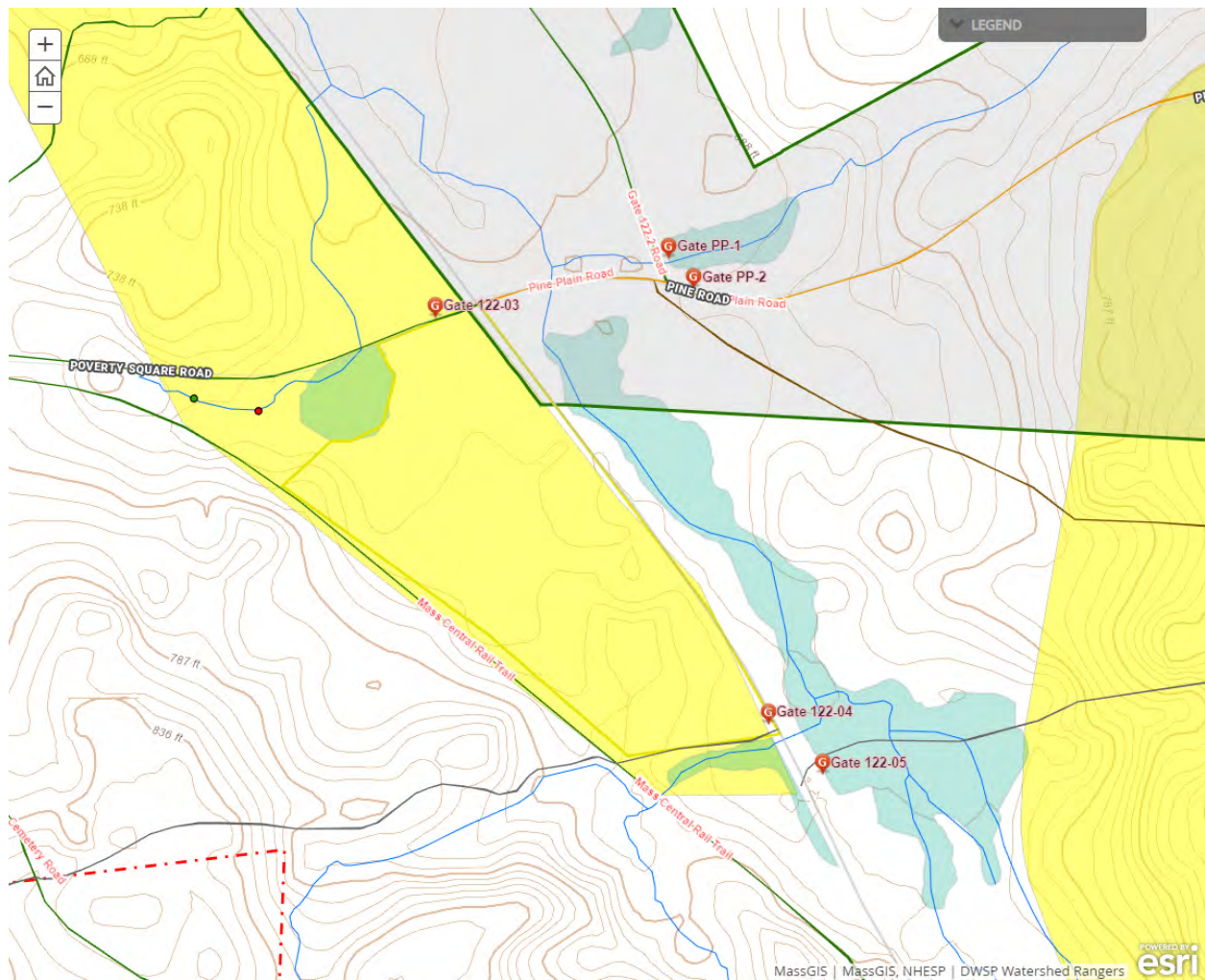
### General Wildlife Comments:

Moose and deer presence noted.

### Comments on Rare Species/Habitats:

No rare plants or priority habitats here, but a DFW/NHESP-recognized natural community known as a 'kettlehole level bog' exists adjacent to the proposal area. Care will be taken to avoid disturbance to this feature.



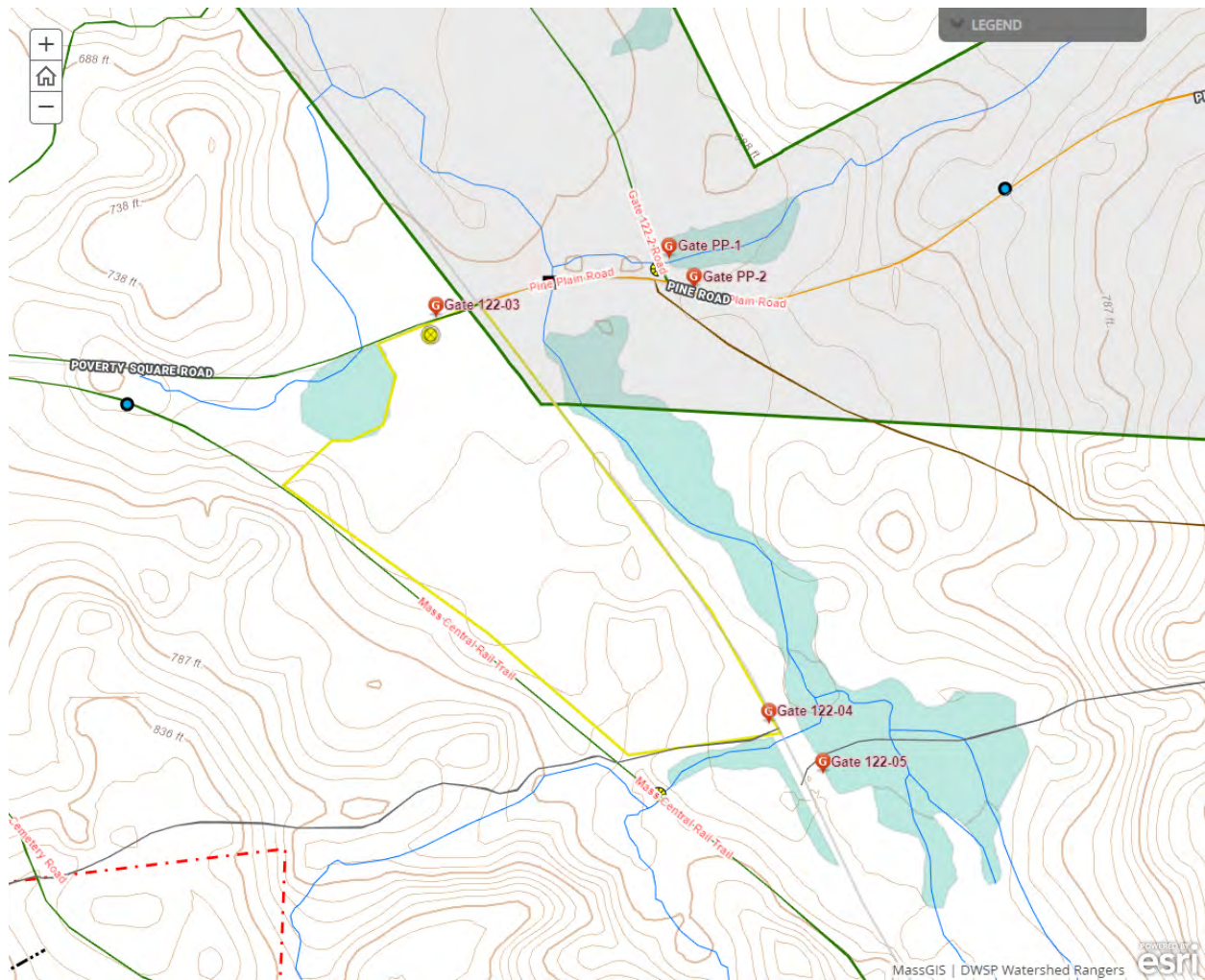


## Environmental Quality Engineering

### Comments on EQ Issues:

No crossings are planned that would require EQ monitoring.





## Forest Access Engineering

**Gravel needed:** No

**Landing work needed:** No

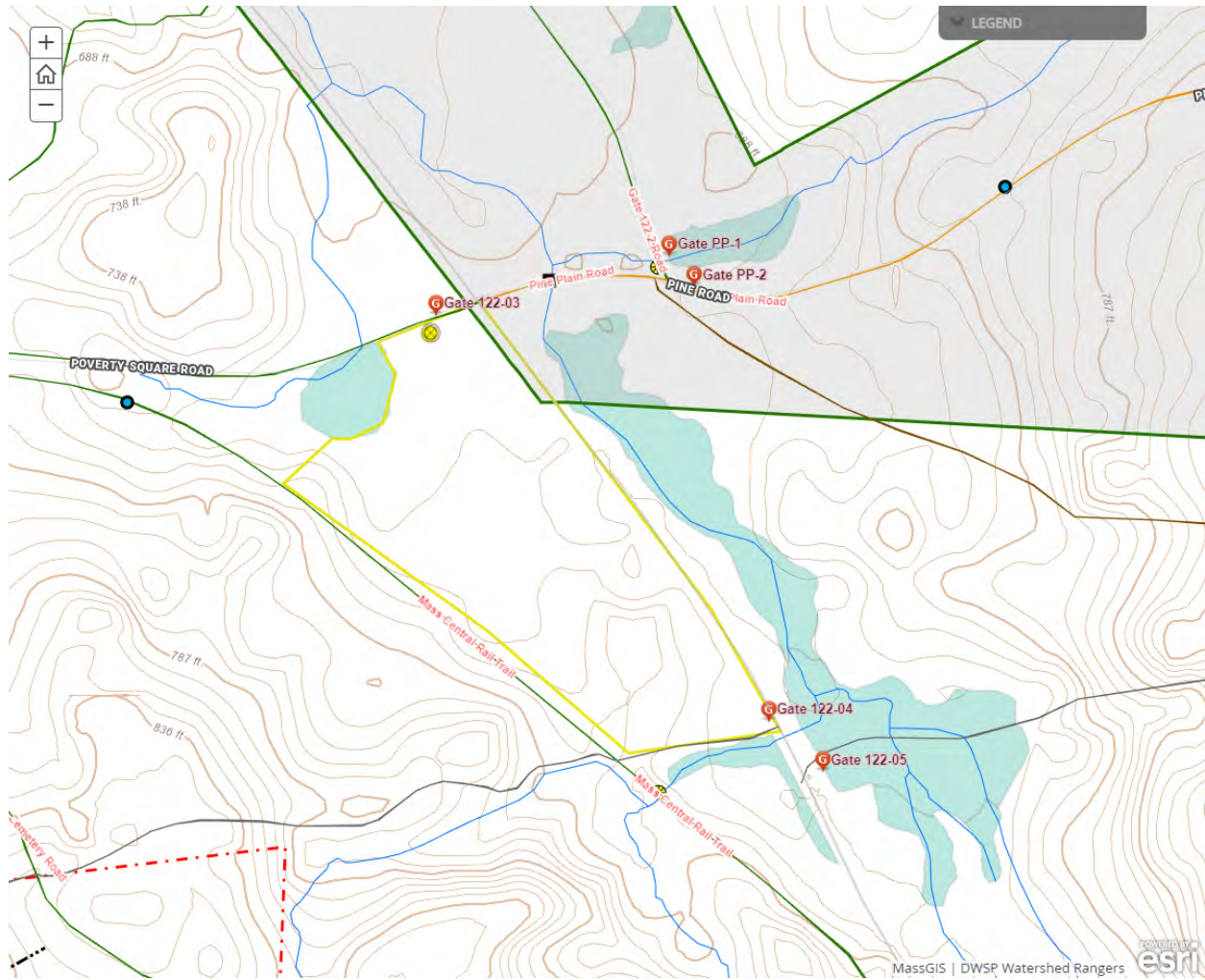
**Culverts needed:** No

**Work needed on permanent bridges:** No

**Beaver issue:** No

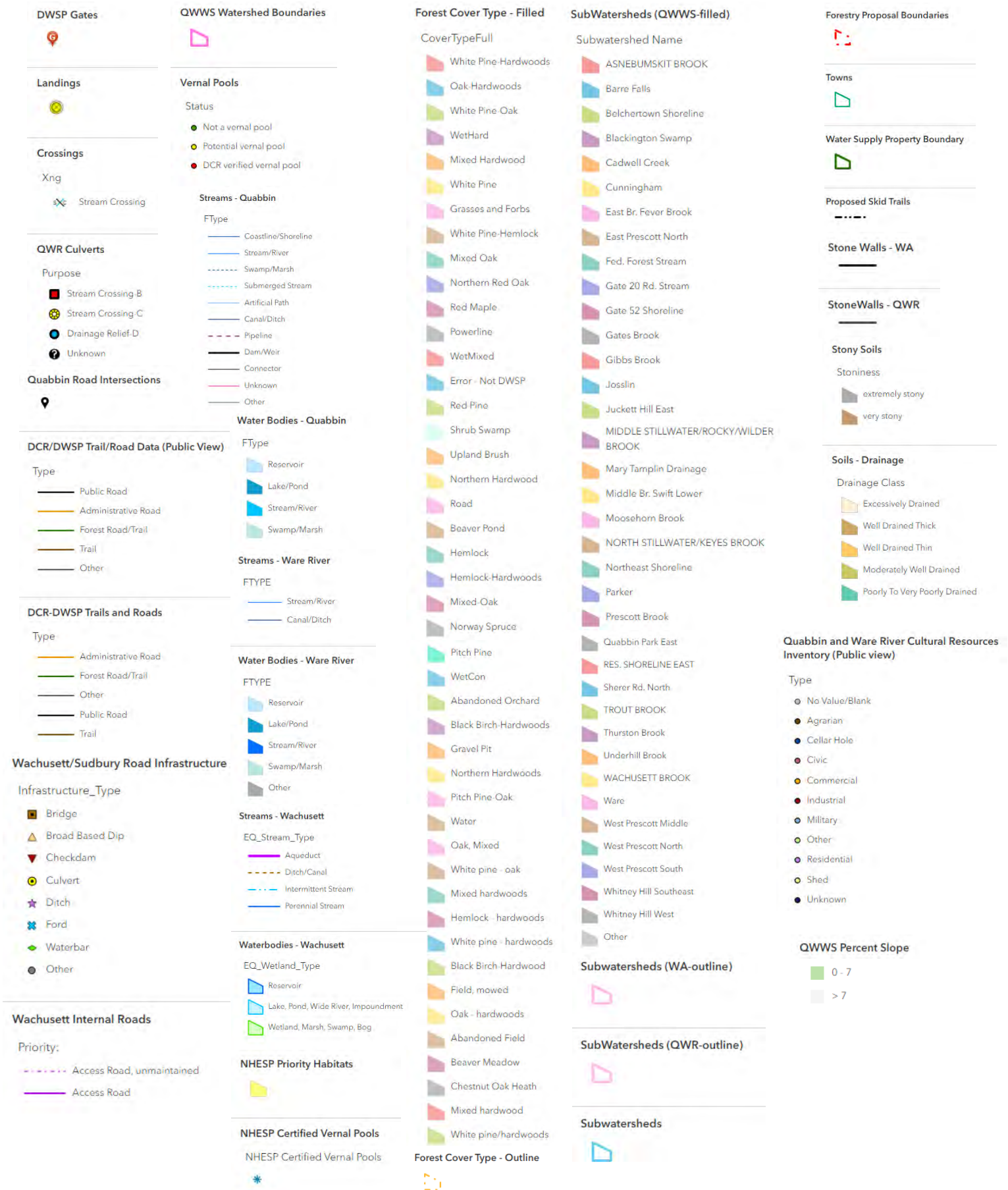
**Further comment on access needs:**

No work should be necessary for access.





## DWSP FY 2022 Forestry Proposals – Master Legend for story maps





# **Ware River Harvest Proposal WR-22-22-3**

## **Proposal Goals**

The goals for this proposal are to remove plantation red pine before it succumbs to red pine scale and to release regeneration that has been established naturally.

## **Proposal Location**

The area to be harvested in this proposal is in the town of Barre. The landing is in the town of Hubbardston south of Route 62 off of (DCR gated interior road) Brigham Road. This proposal follows the outline of a red pine stand on the east side of the Ware River, just west of the Barre/Hubbardston town line.

**Total Acres: 8**



## General Description

	Overstory Type(s)	Acres
<b>Dominant</b>	Red pine	8
<b>Secondary</b>		

## Secondary

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

<b>Secondary</b>	
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**Description of forest composition/condition:**

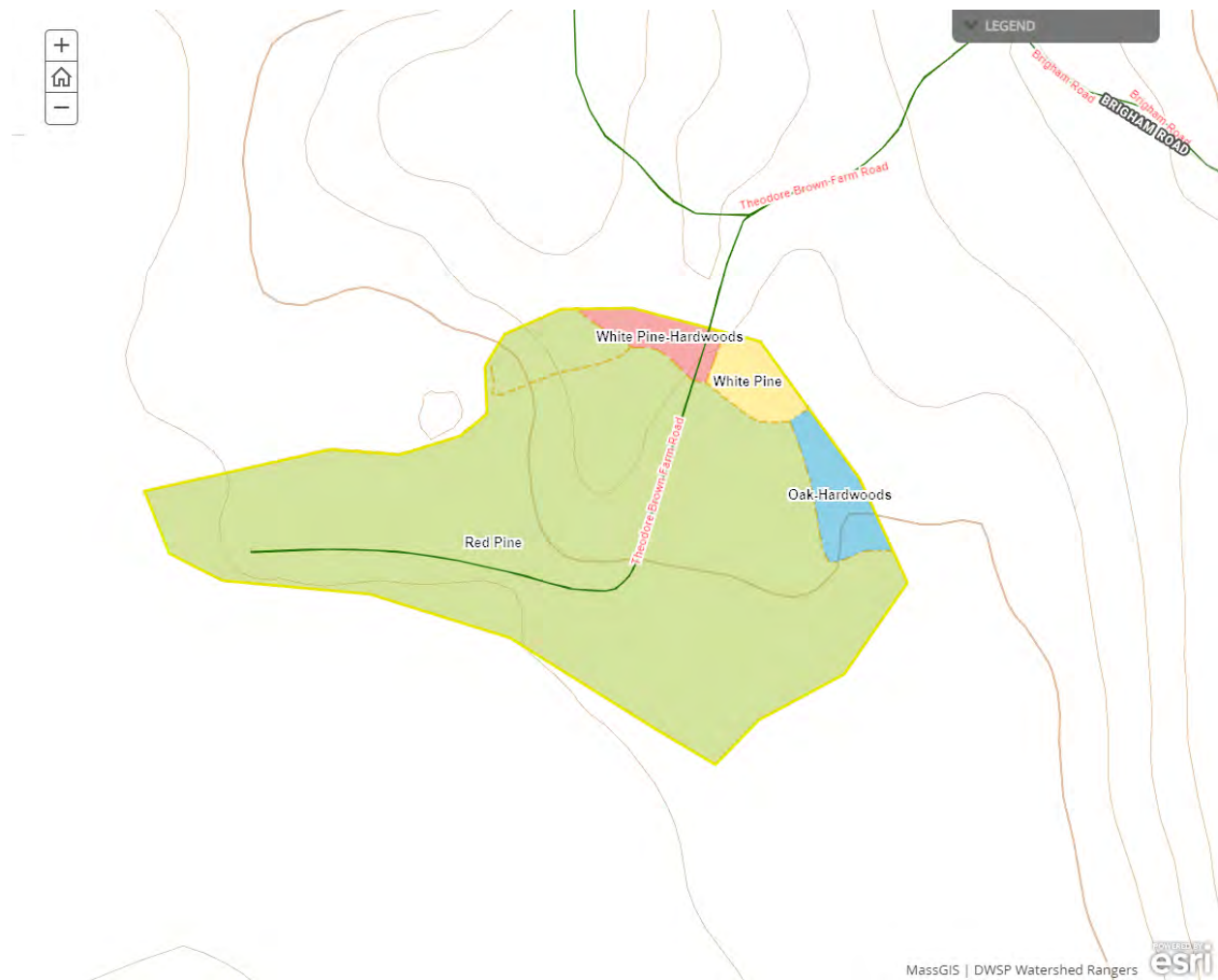
Some light thinning was done in parts of the stand at some point 30 or more years ago. The 1938 aerial photos appear to show this area as young plantation at that time.

This red pine plantation is dominated by good quality, mature, sawlog size red pine. Scattered white pine, red oak, and eastern hemlock are occasionally also present in the overstory. The stand averages approximately 140 square feet of basal area per acre of overstory trees, 95% of which are red pine. Overall quality is good with approximately 125 square feet per acre in acceptable growing stock. The stand is two-aged with well established regeneration consisting of saplings and small poles, except in the flood zone where regeneration is sparse. Regeneration consists of white pine, red oak, white oak, red maple, black birch, eastern hemlock, white birch, American beech, and black cherry. Mortality is present in the overstory red pine, in and outside of the flood zone. Fire scars are visible in white pine stems in the adjacent white pine stand. Fire history on the site is probably due to a historically popular fishing/illegal use spot on the shore in the stand.

**Assessment of Terrestrial Invasive Species:**

Glossy buckthorn is well established throughout the stand.





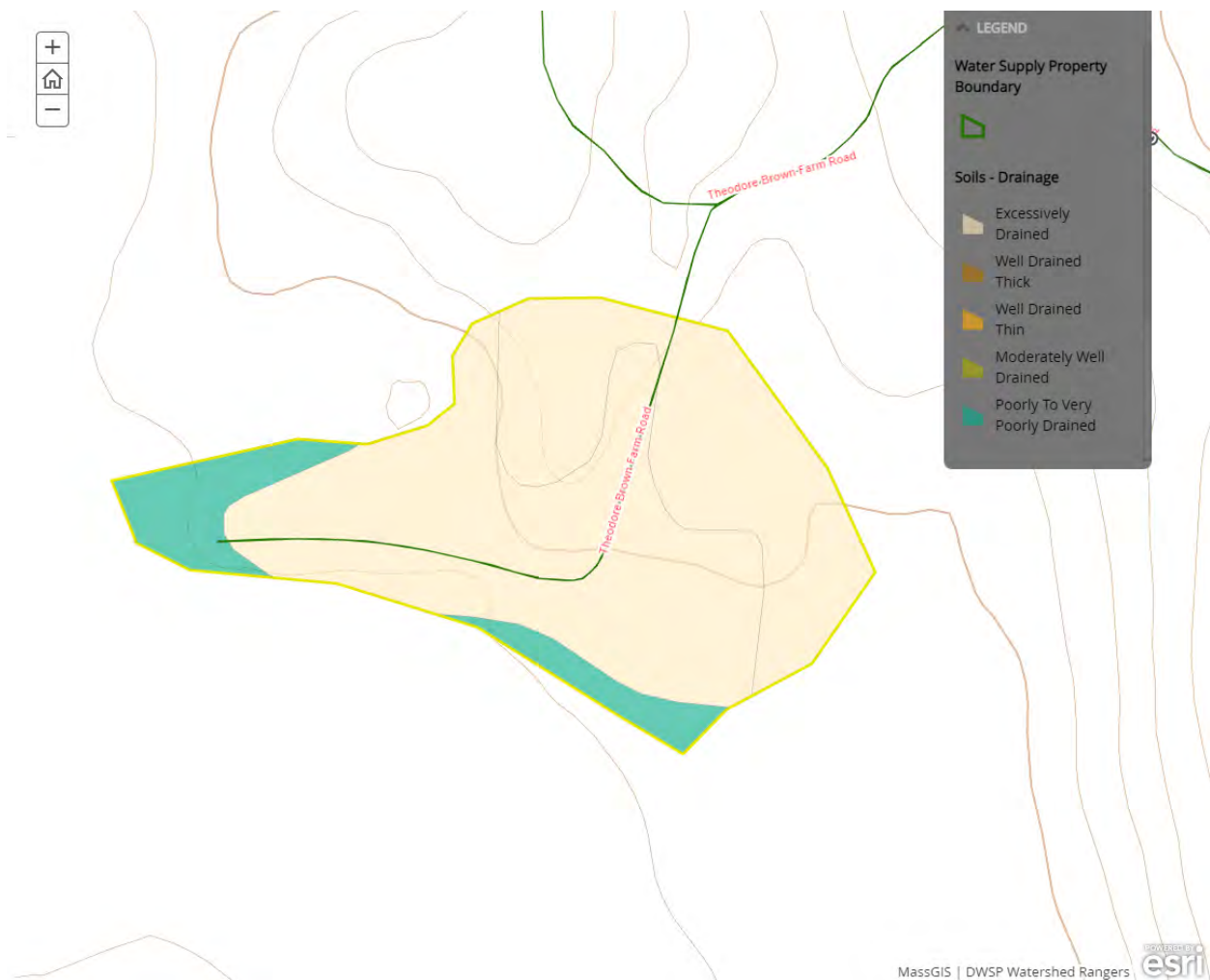
## Soils

Drainage Class	%
Excessively Drained	89
Well Drained Thin	0
Well Drained Thick	0
Moderately Well Drained	0
Poorly to Very Poorly Drained	11

253C - Hinckley loamy sand, 8 to 15 percent slopes, excessively drained - 4.3 acres

253B - Hinckley loamy sand, 3 to 8 percent slopes, excessively drained - 2.8 acres

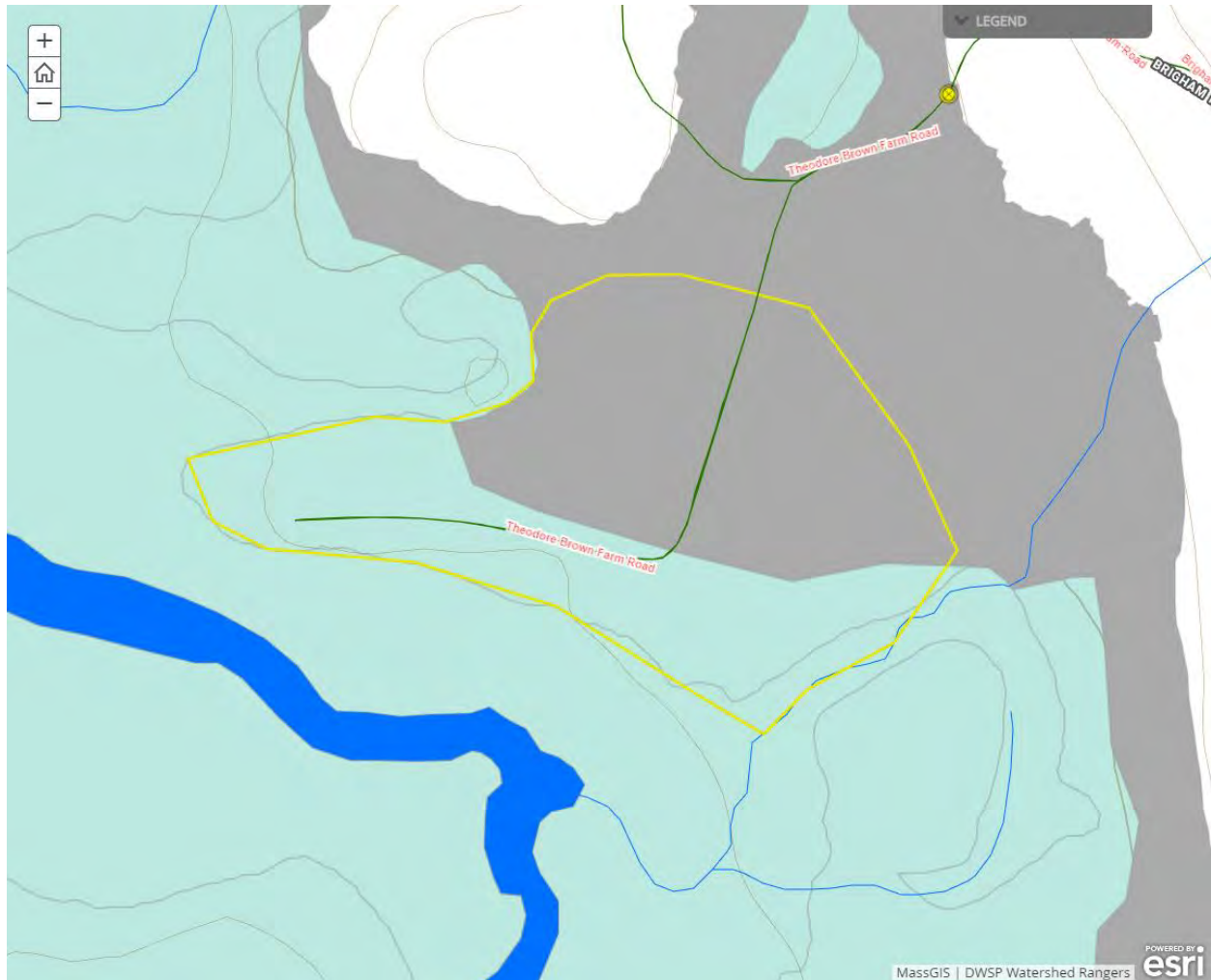
59A - Bucksport and Wonsqueak mucks, 0 to 3 percent slopes, poorly to very poorly drained - 1.0 acres in flood zone.



## Wetlands

- Wetlands present? - **Yes**
- Streams present? - **No**
- Vernal pools present? - **Yes**
- 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**

The wetland overlap shown on the map shows the typical and maximum extent of the upland area periodically inundated for flood control by the Army Corps of Engineers at Barre Falls Dam.



## Silviculture

Acres in Intermediate cuts: **0**

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

Acres in Regeneration cuts: **8**

Average regen opening size: **8**

Maximum regen opening size: **8**



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

The stand is two aged with well established regeneration consisting of saplings and small poles, except in the flood zone where regeneration is sparse. Regeneration consists of white pine, red oak, white oak, red maple, black birch, eastern hemlock, white birch, American beech, and black cherry.

**General comments on silviculture proposed:**

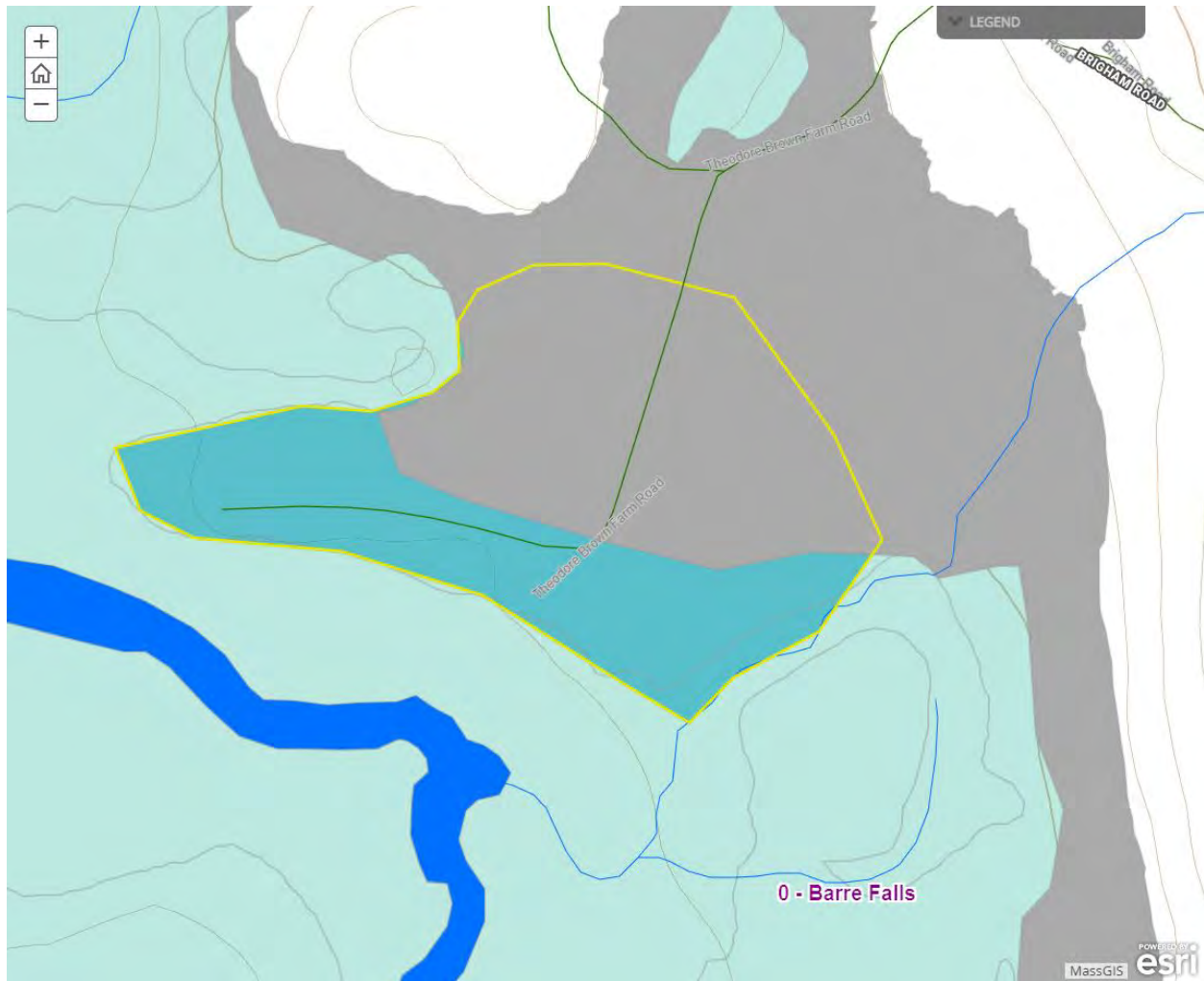
All overstory red pine stems will be removed, except possibly in the flood zone. Healthy overstory stems of other species will be retained for structure and diversity, though they are very sparse throughout most of the stand and less than 5 square feet of basal area per acre. The regeneration will be protected as much as possible.



## 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
8042 (Barre Falls)	4849	72	1140	8

8042 - Barre Falls - There are 15 acres in proposal WR22-22-4 and 48 acres in proposal WR21-21-3 in this subwatershed.



## Harvesting Limitations

Forwarder required: **No**

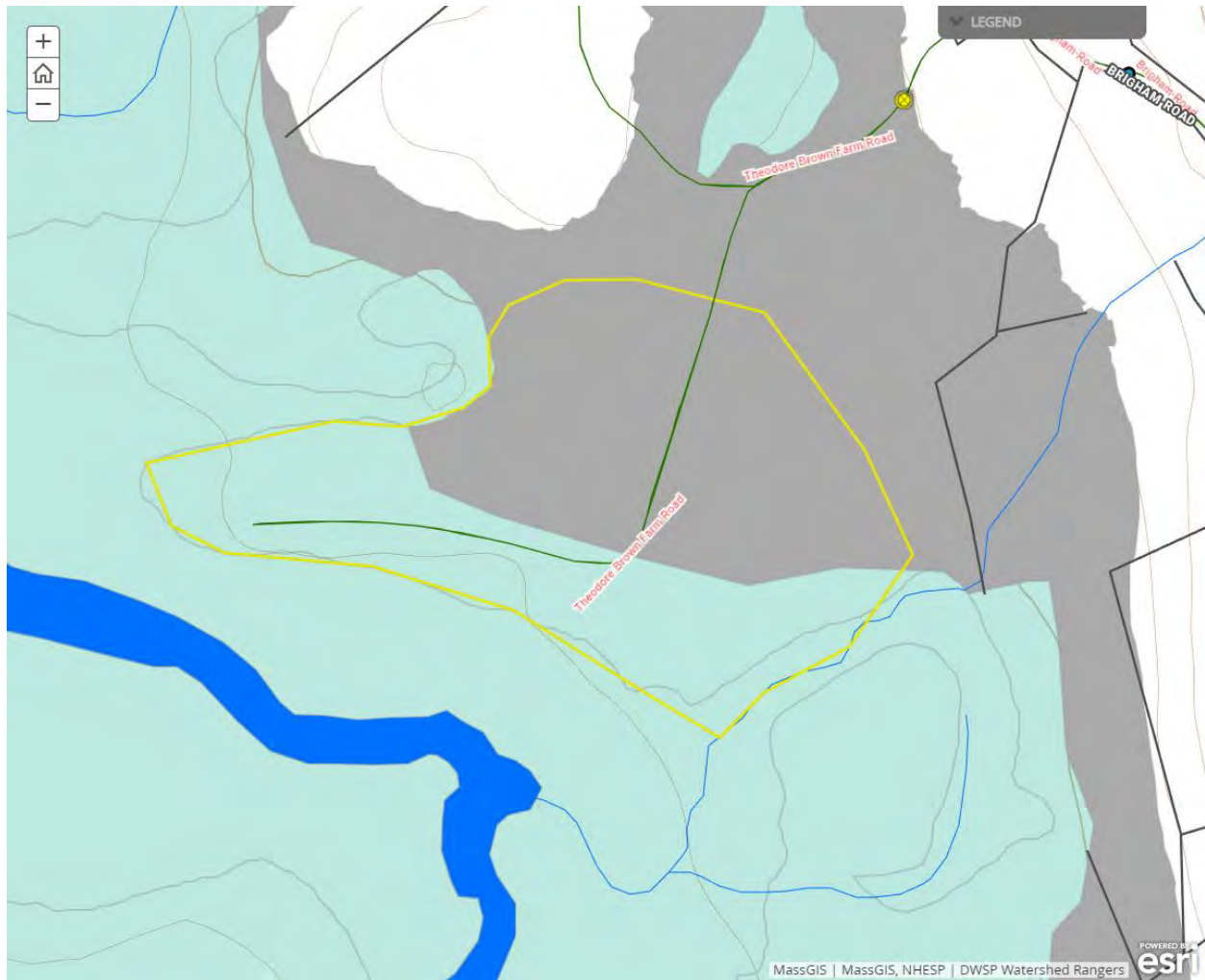
Feller/processor required: **No**

Steep slopes present: **No**

### Comments on harvesting limitations:

No specific equipment requirements.

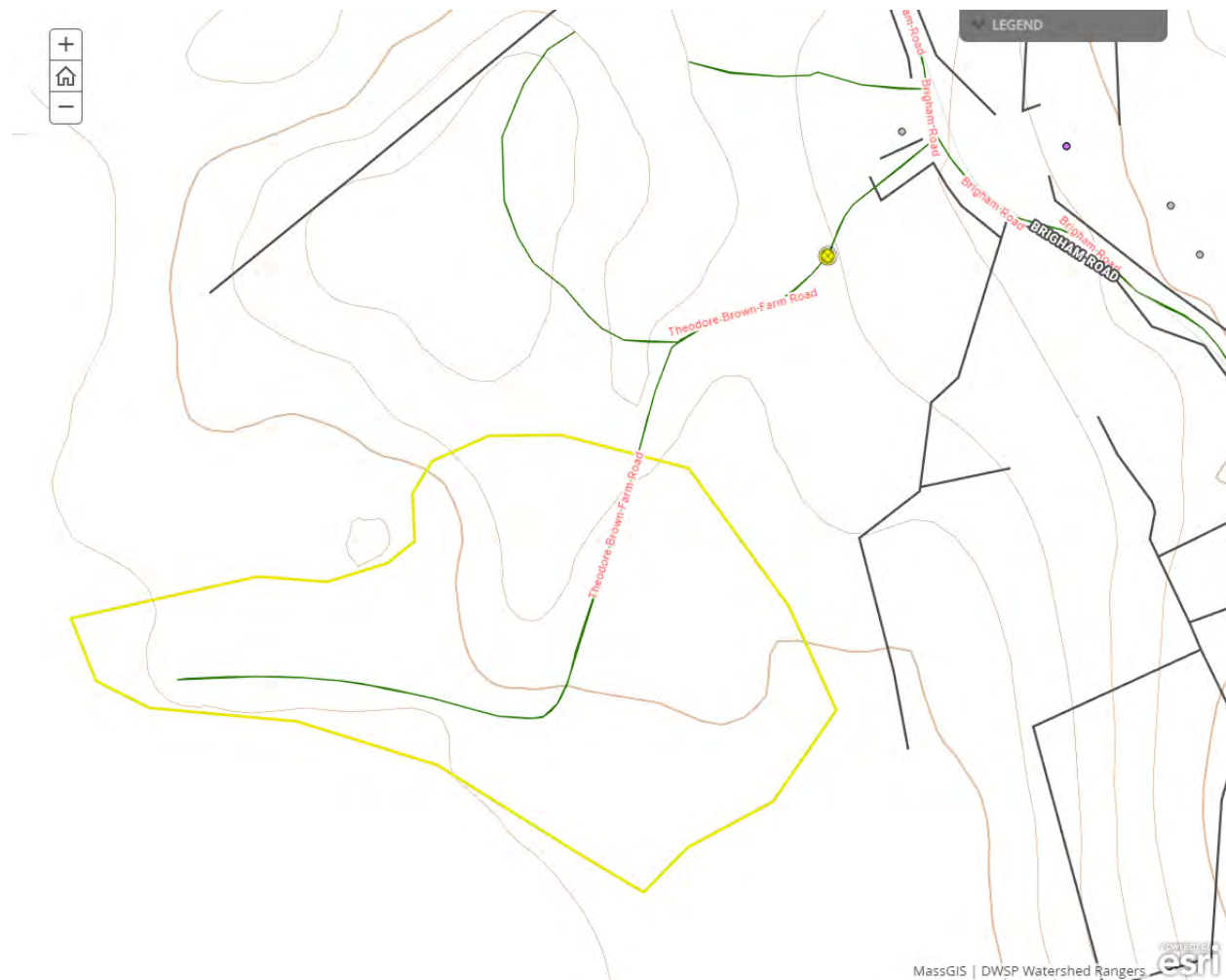




## Cultural Resources

### Comments on Cultural Resources:

A cellar hole and stonewall located on Brigham Road will not be impacted.



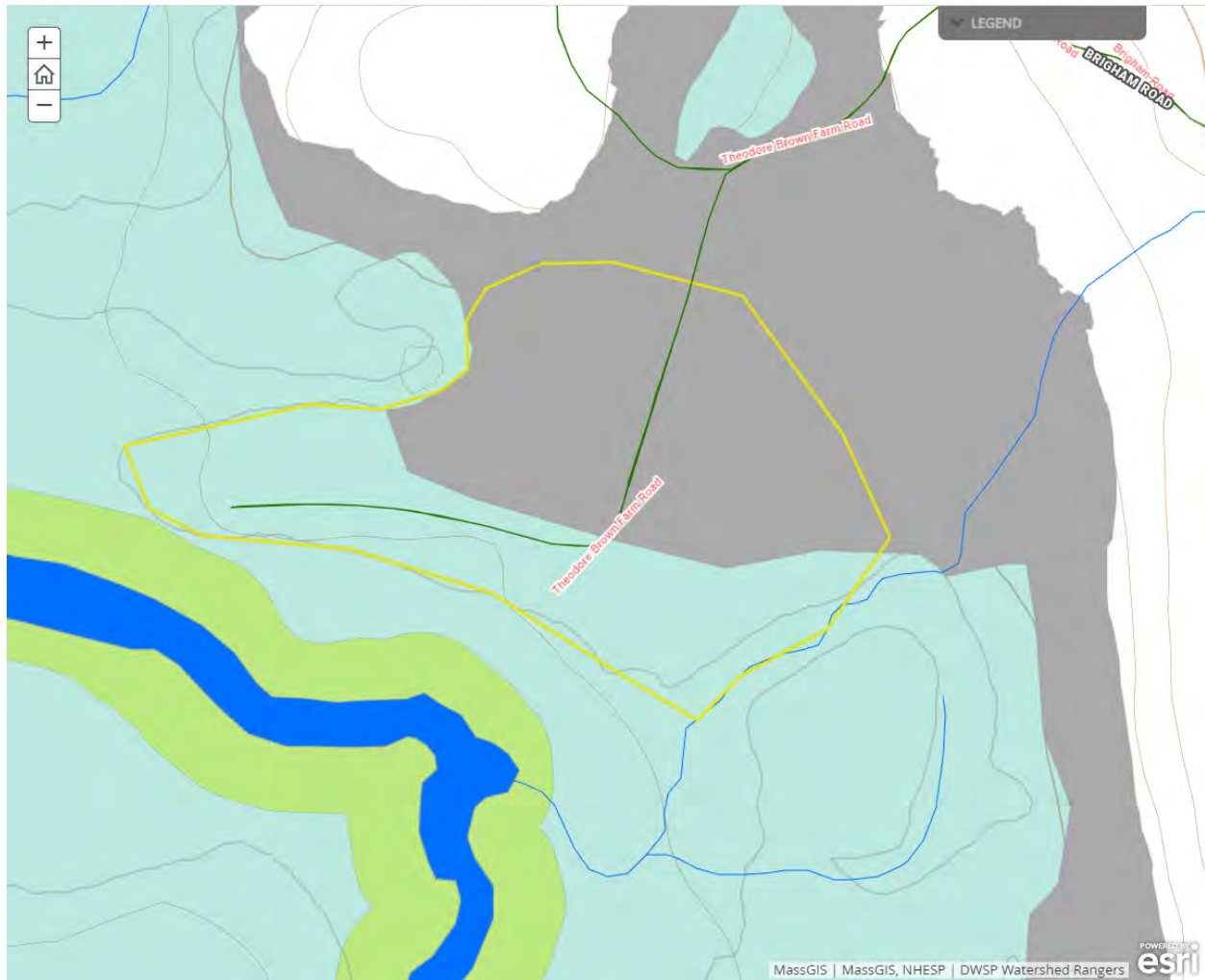
## Wildlife Resources & Rare and Endangered Species

### General Wildlife Comments:

Moose and deer presence noted. Beaver activity present, not particularly fresh.

### Comments on Rare Species/Habitats:

No rare plants or priority habitats here.

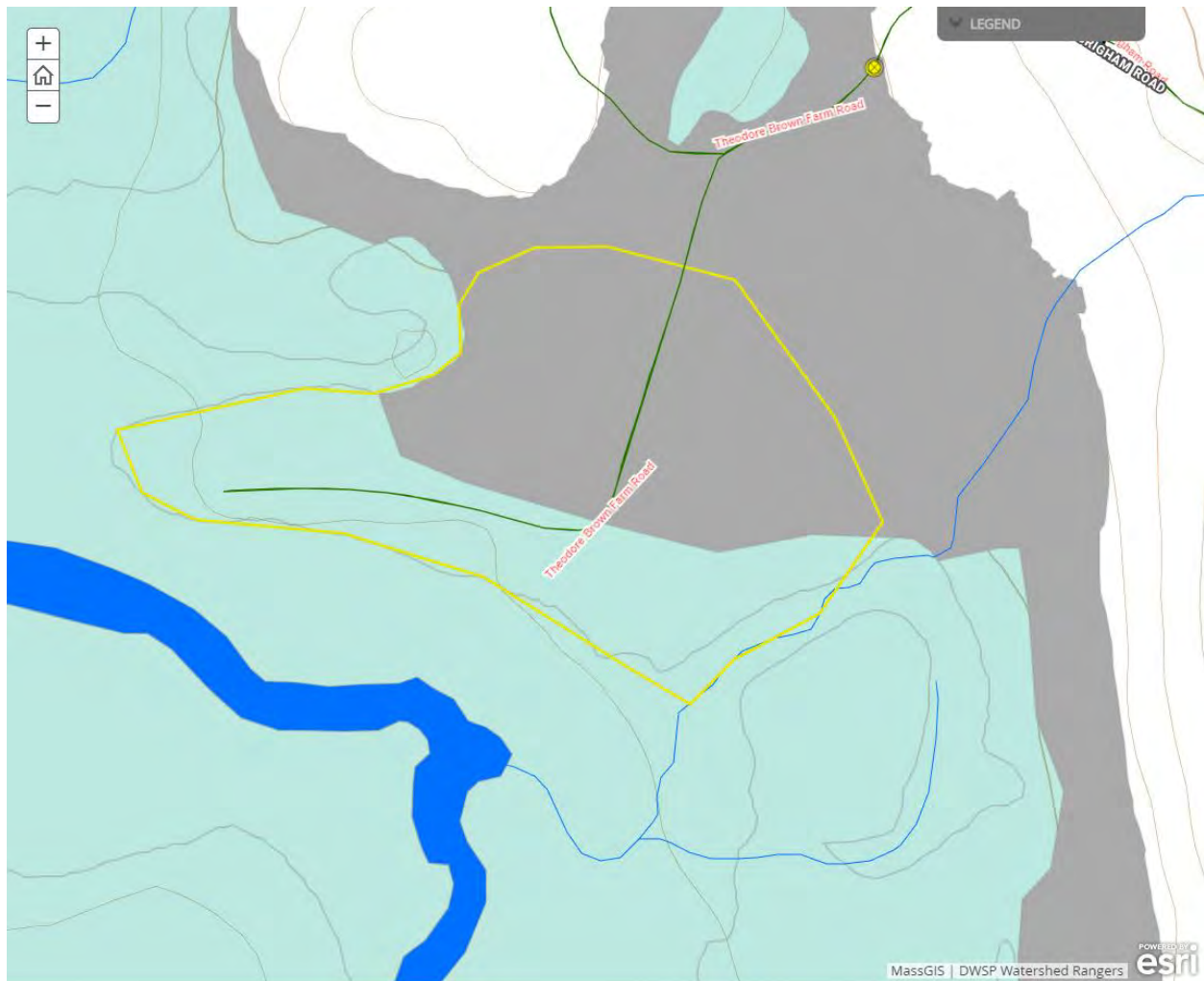


## Environmental Quality Engineering

### Comments on EQ Issues:

No crossings are planned that would require EQ monitoring.





## Forest Access Engineering

**Gravel needed:** No

**Landing work needed:** No

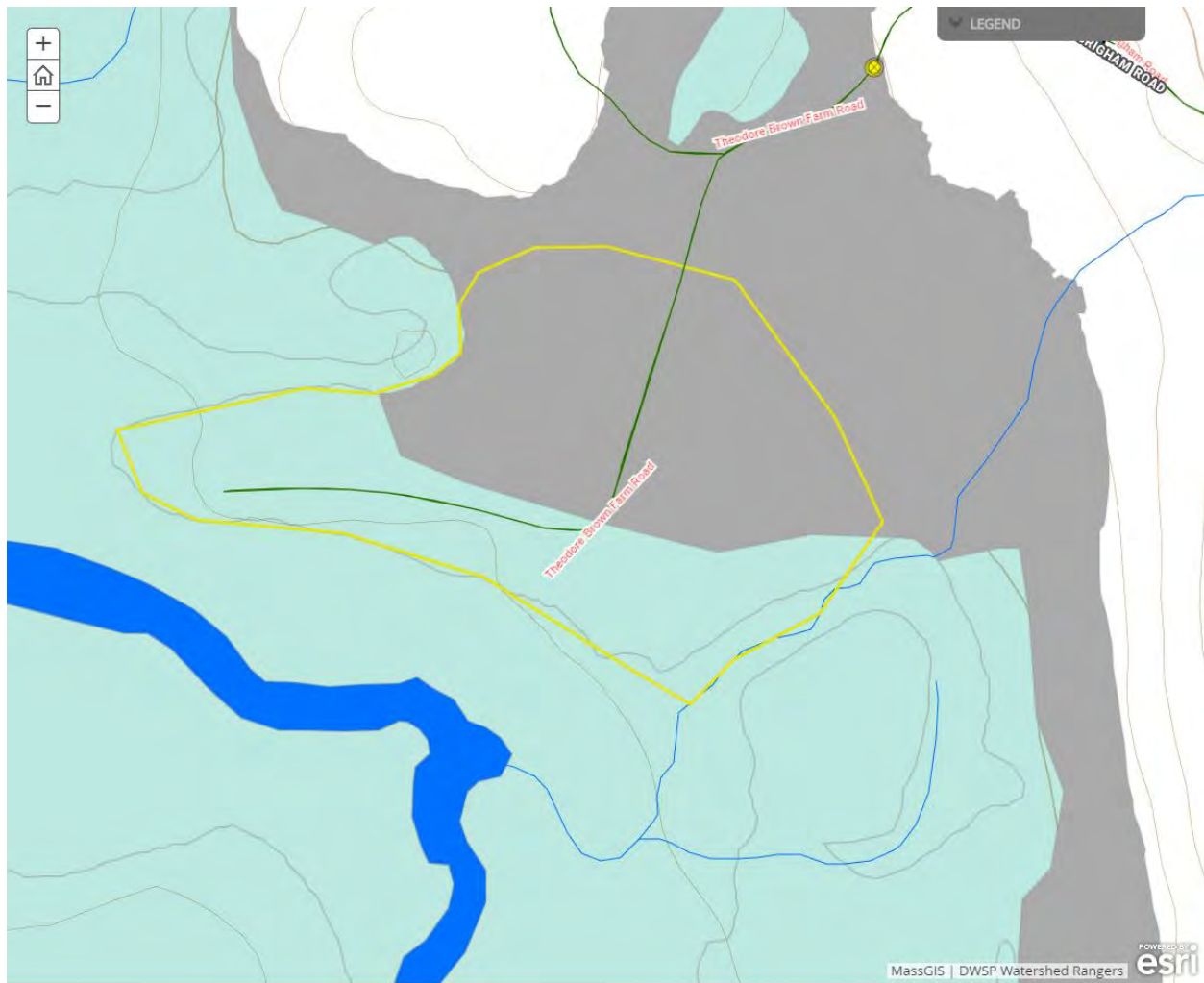
**Culverts needed:** No

**Work needed on permanent bridges:** No

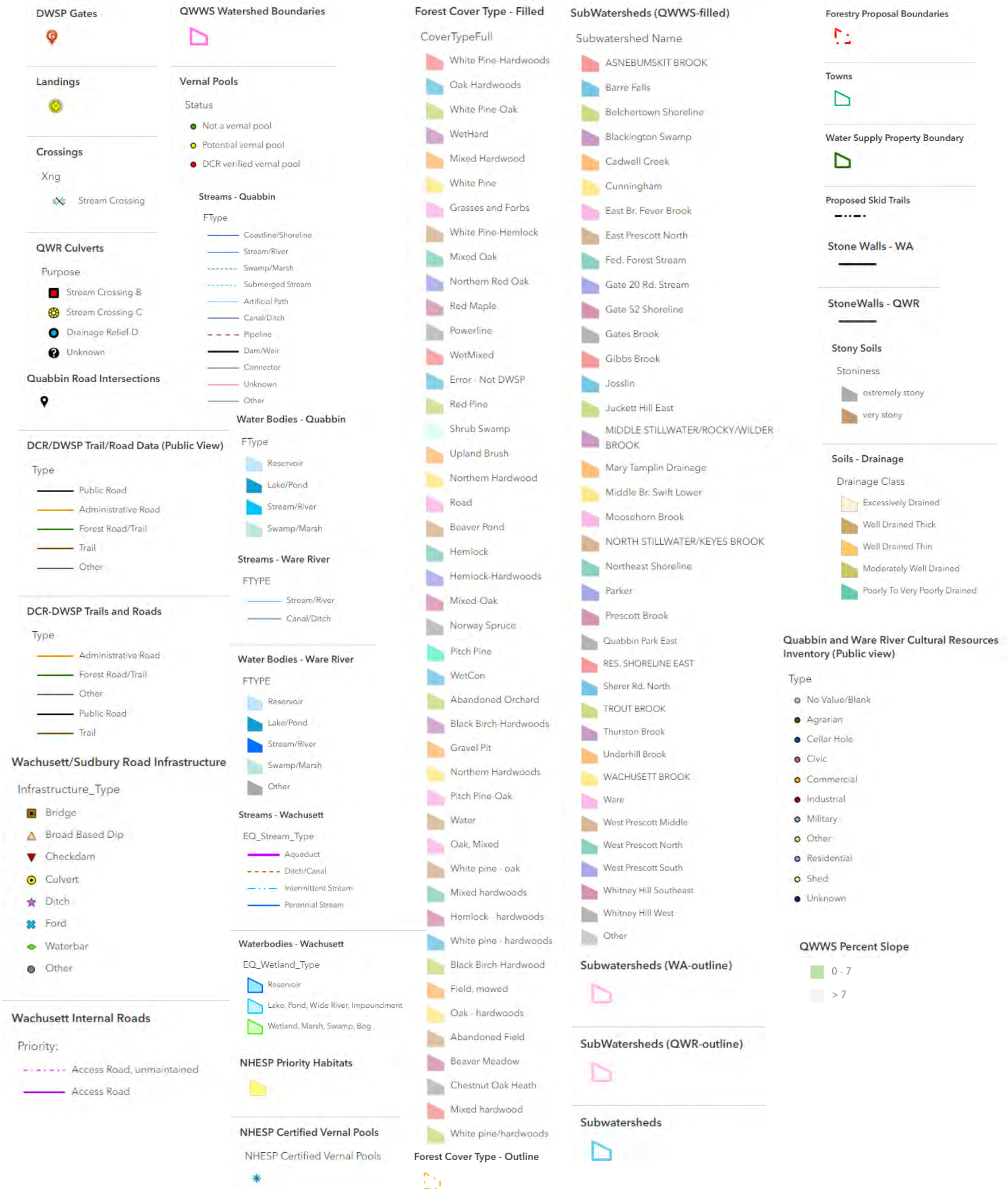
**Beaver issue:** No

**Further comment on access needs:**

No work should be necessary for access.



## DWSP FY 2022 Forestry Proposals – Master Legend for story maps





# **Ware River Harvest Proposal WR-22-22-4**

## **Proposal Goals**

The goal for this proposal is to make the forest more diverse and resilient. It will reduce the amount of mature, old field white pine and replace it with patches of young forest of diverse species.

## **Proposal Location**

This proposal is in the town of Barre. It is located on the east side of Coldbrook Road, just south of Barre Falls Dam. It is bordered to the east by Stevens Brook, the Ware River and associated wetlands.

**Total Acres: 18**



	<b>Overstory Type(s)</b>	<b>Acres</b>
<b>Dominant</b>	White pine - hardwoods	18
<b>Secondary</b>		

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

<b>Secondary</b>	
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**Description of forest composition/condition:**

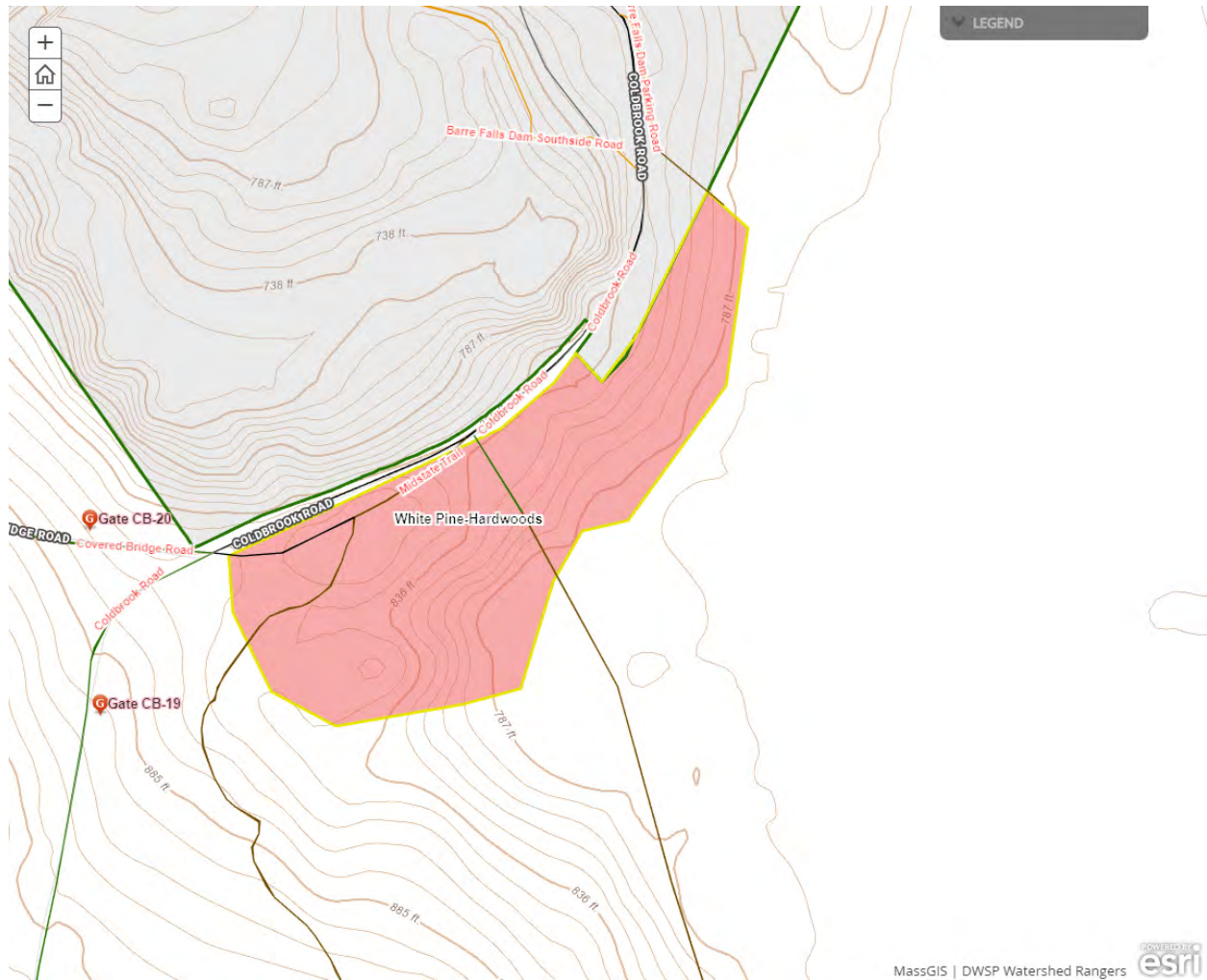
No harvest recorded in the database. The 1938 aerial photos clearly show that this area was very open at that time. The western and eastern portions were open field/pasture, while the central portion was pasture with scattered trees.

This lot is dominated by large, low quality, old field white pine. Black cherry, red maple, red oak, sugar maple, white ash, aspen, and American elm are also found in the overstory. There is approximately 175 square feet of basal area per acre, with less than 10 square feet in acceptable growing stock. Regeneration is present in most areas with red maple, black birch, eastern hemlock, red oak, white pine, sugar maple, white ash, yellow birch, and American beech seedlings/saplings.

**Assessment of Terrestrial Invasive Species:**

Invasive shrubs are very well established on this lot, particularly adjacent to the old road and foundations in the central part of the lot along Coldbrook Road. Asiatic bittersweet, glossy buckthorn, Japanese barberry, and burning bush were all observed.



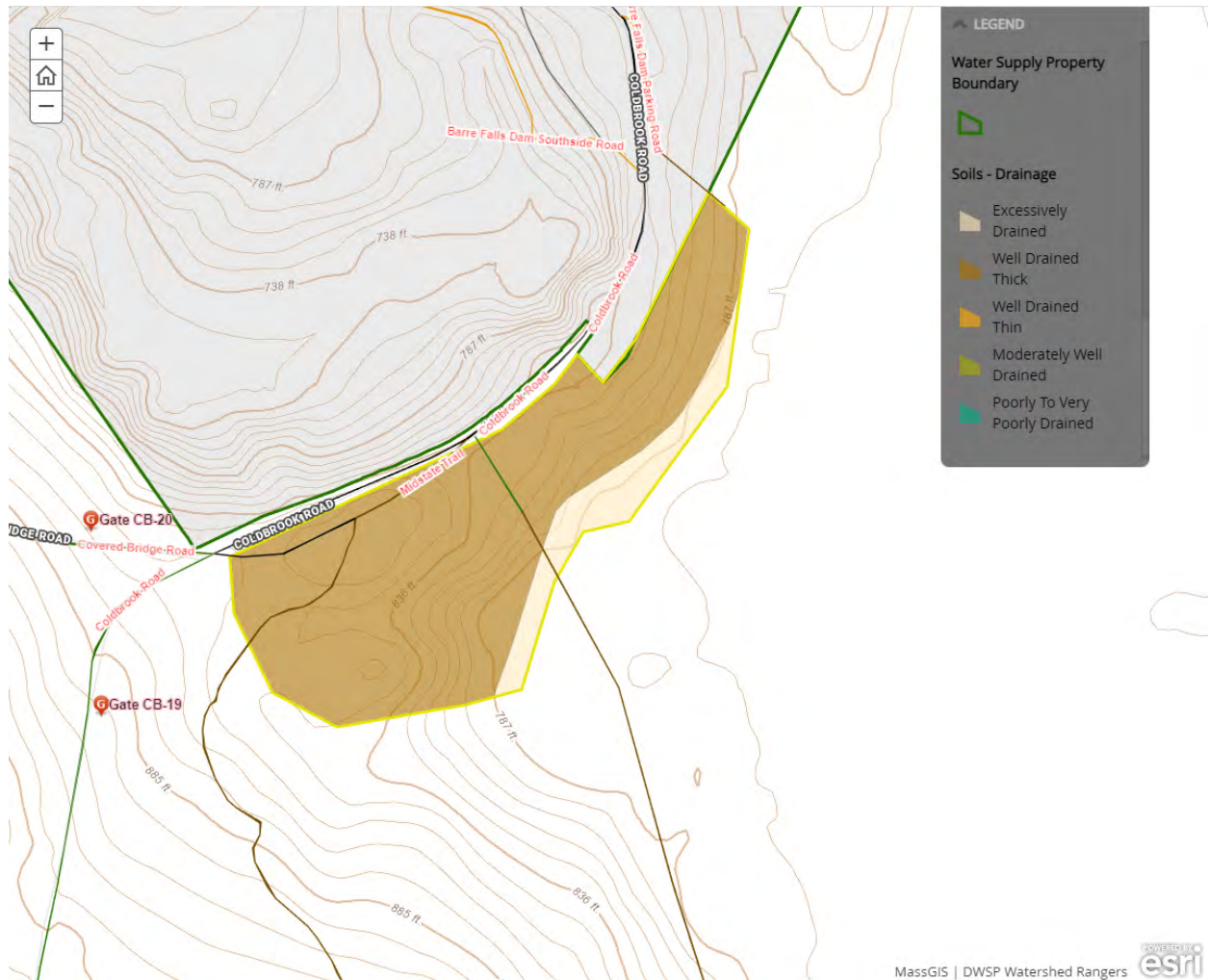


## Soils

Drainage Class	%
Excessively Drained	12
Well Drained Thin	0
Well Drained Thick	88
Moderately Well Drained	0
Poorly to Very Poorly Drained	0

902E - Charlton-Paxton association, 15 to 45 percent slopes, extremely stony, well drained thick - 15.8 acres

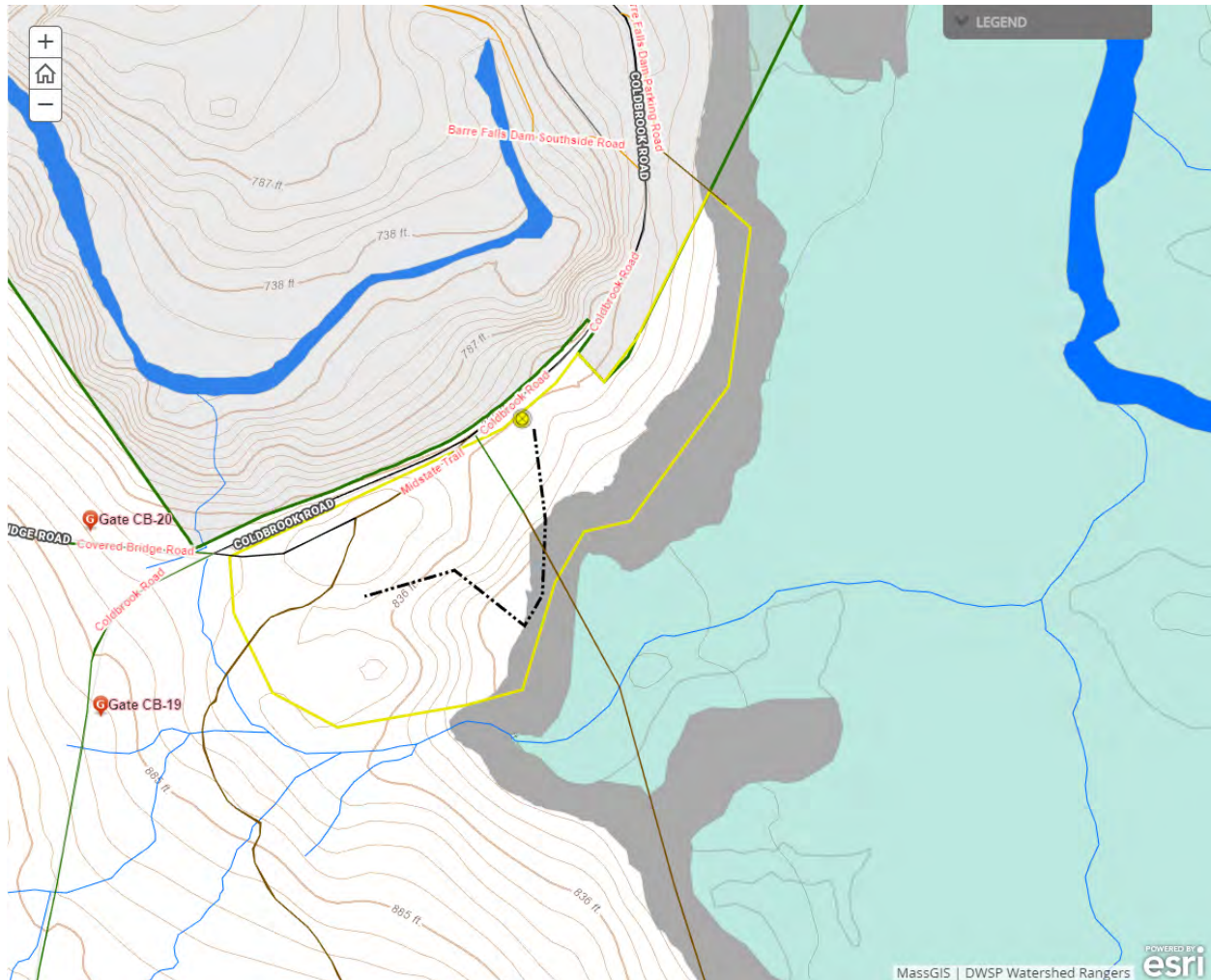
253B - Hinckley loamy sand, 3 to 8 percent slopes, excessively drained - 2.2 acres



## 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**

No stream crossings required. The wetland overlap shown on the map shows the typical (green) and maximum (gray) extent of the upland area periodically inundated for flood control by the Army Corps of Engineers at Barre Falls Dam.



## Silviculture

Acres in Intermediate cuts: **0**

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

Acres in Regeneration cuts: **9**

Average regen opening size: **3**

Maximum regen opening size: **5**



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

Regeneration is present in most areas with red maple, black birch, eastern hemlock, red oak, white pine, sugar maple, white ash, yellow birch, and American beech seedlings/saplings.

**General comments on silviculture proposed:**

One opening between 2 and 5 acres will be established in the southern part of the lot, targeting the lowest quality white pine. Another 4 acres of openings will be established in groups between 1 and 2 acres. At least 5 square feet of basal area per acre of the best formed, most vigorous stems of all species will be retained in all openings for structure and seed. Some tending/improvement cutting will be done along skid trails.

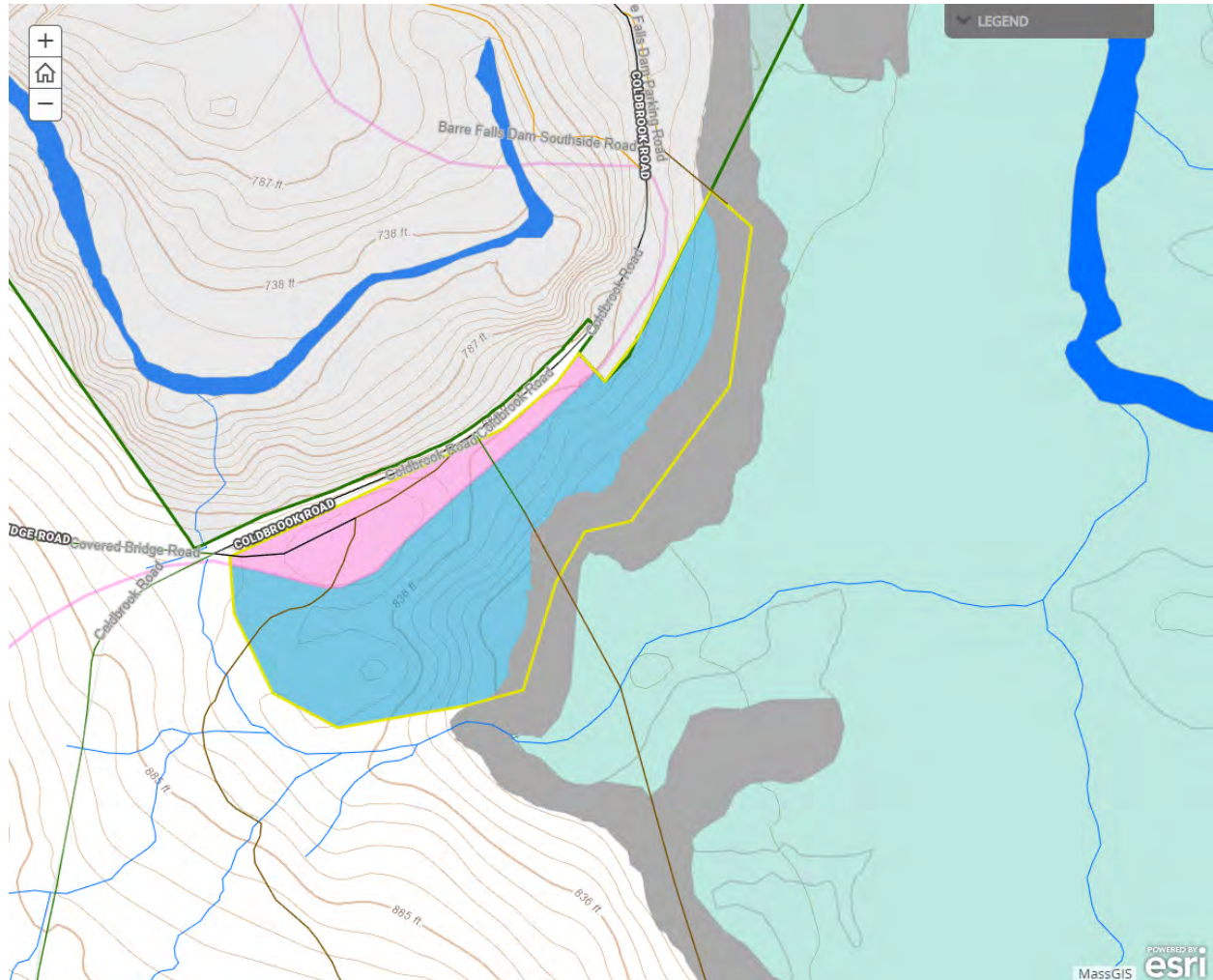


## Subwatershed Analysis

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
8042 (Barre Falls)	4849	72	1140	15
8063 (Ware River)	3072	59	709	3

8042 - Barre Falls - There are 8 acres in proposal WR22-22-3 and 48 acres in proposal WR21-21-3 and in this subwatershed.

8063 - Ware - 6.5 acres in lot 4401 were harvested this winter with another 4 acres left to be harvested this summer. Lot 4404, 33.2 acres, has been sold but not yet cut. There are 58 acres in proposal WR22-2-1, 79 acres in proposal, and 48 acres in proposal WR-19-20-3 in this subwatershed.



## Harvesting Limitations

Forwarder required: **No**

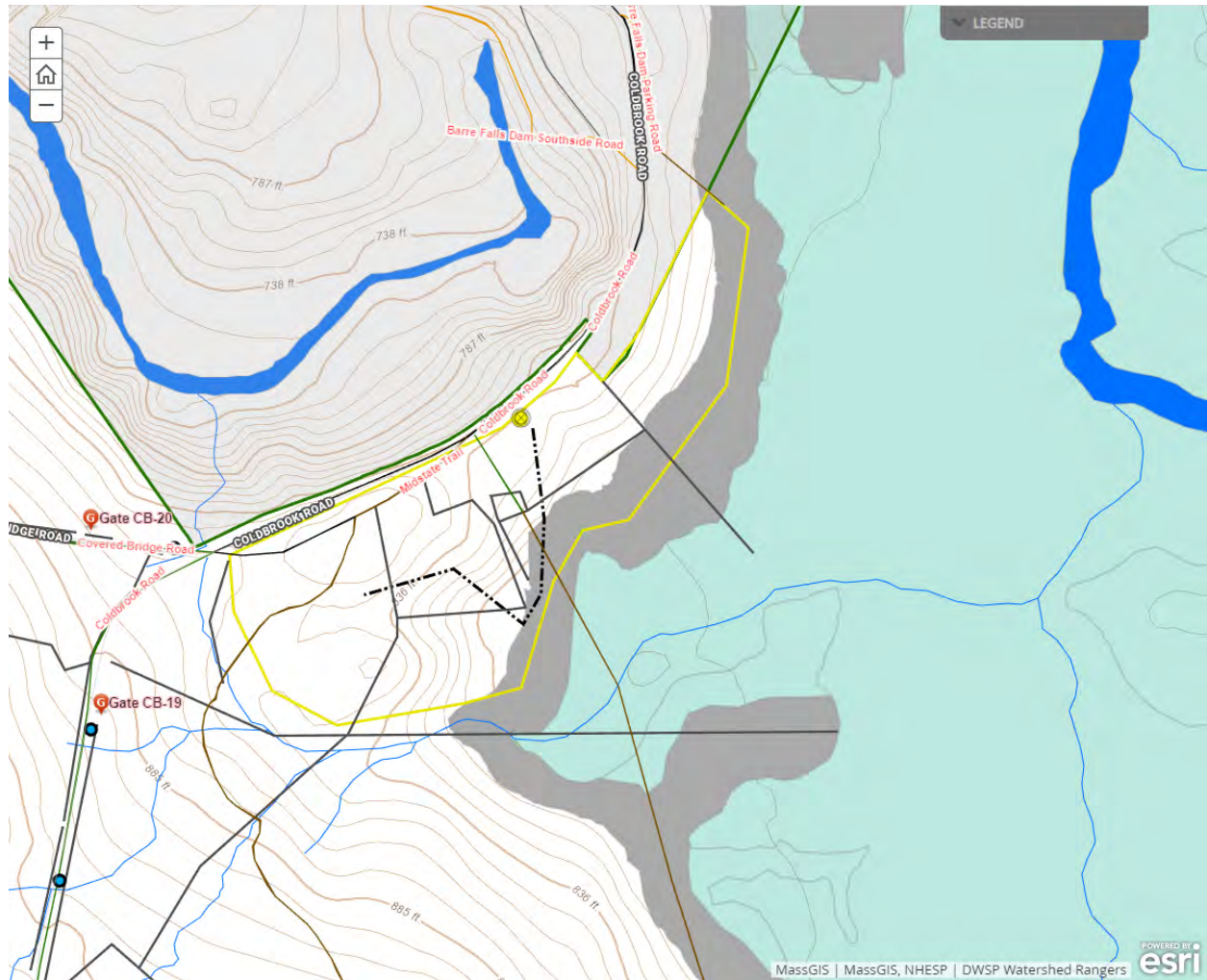
Feller/processor required: **No**

Steep slopes present: **No**



### Comments on harvesting limitations:

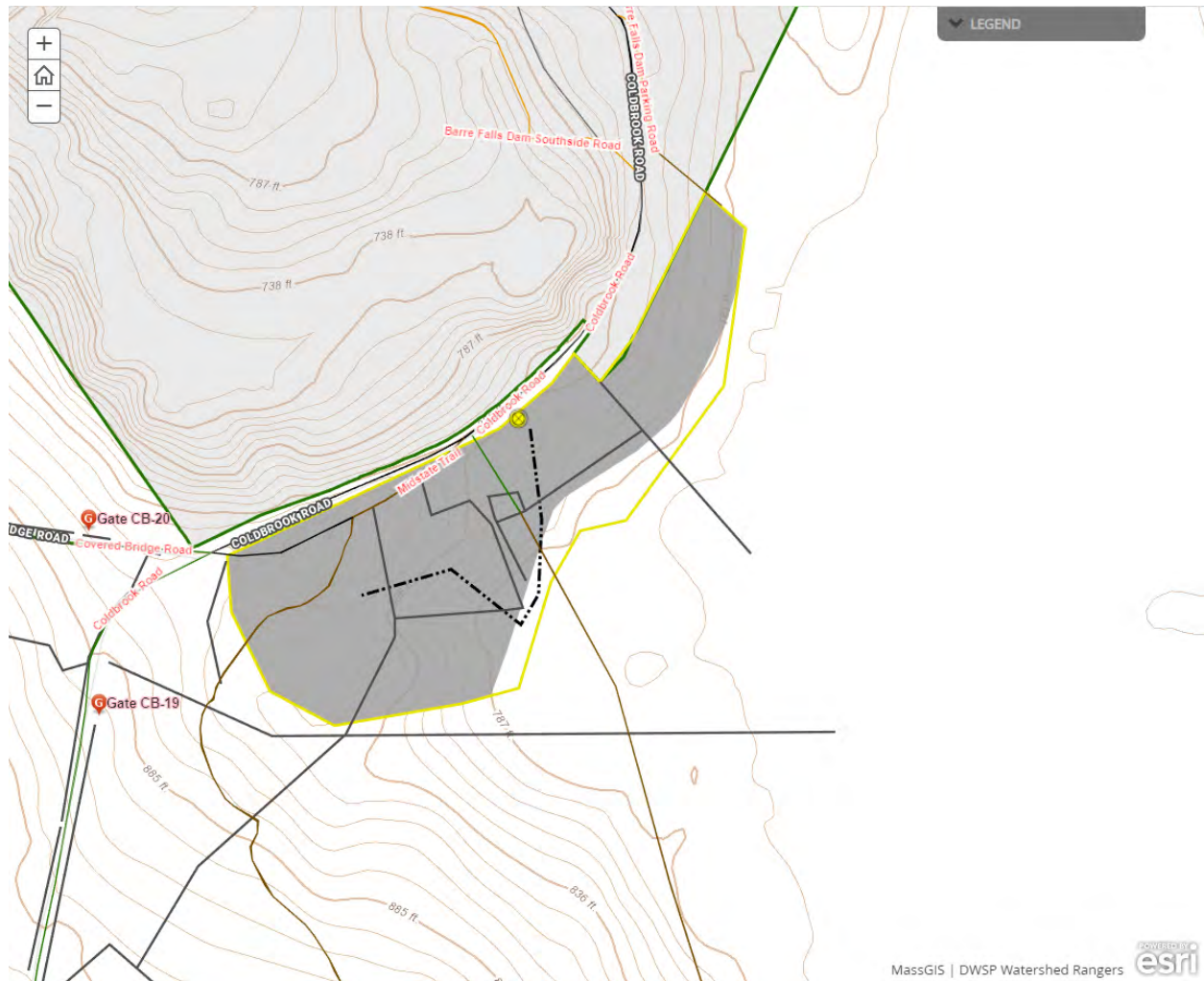
No specific equipment requirements.



## Cultural Resources

### Comments on Cultural Resources:

Several cellar holes are present at the intersection of an old road and Coldbrook Road in the center of this lot, where the mid-state trail trailhead is located. Stone walls are present throughout the lot and will have to be crossed in order to access the southern section of the lot. The northern portion of the lot abuts Parker Cemetery, which is owned by the town of Barre. The cemetery will be well buffered.



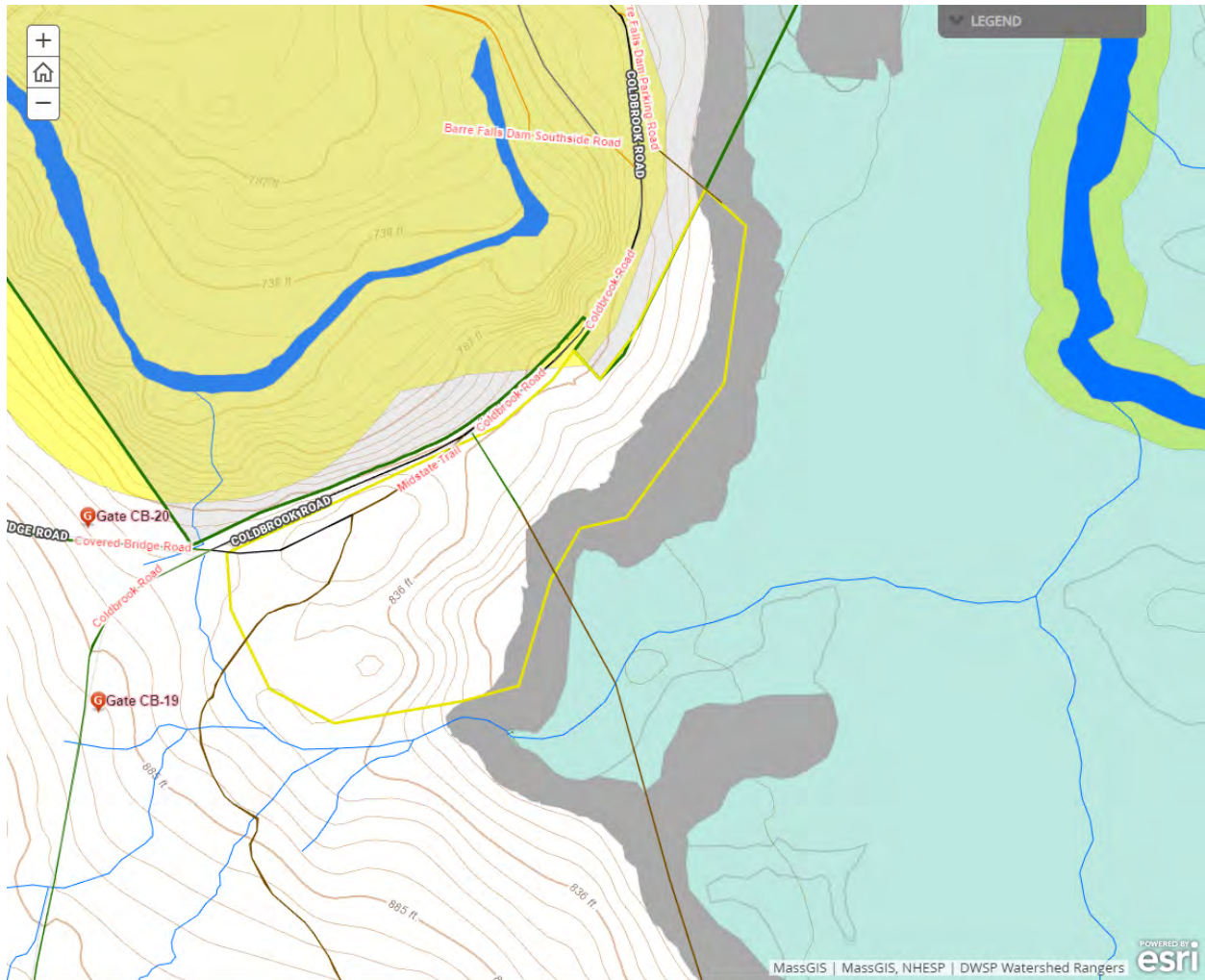
## Wildlife Resources & Rare and Endangered Species

### General Wildlife Comments:

Moose and deer presence noted.

### Comments on Rare Species/Habitats:

A NHESP bubble from Barre Falls crosses Coldbrook Road and touches the boundary of this lot near Parker Cemetery. NHESP has determined that certain state-listed sensitive species or habitats may exist within the lot proposal area. To protect them from unnecessary disturbance, detailed information regarding affecting 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 activity.

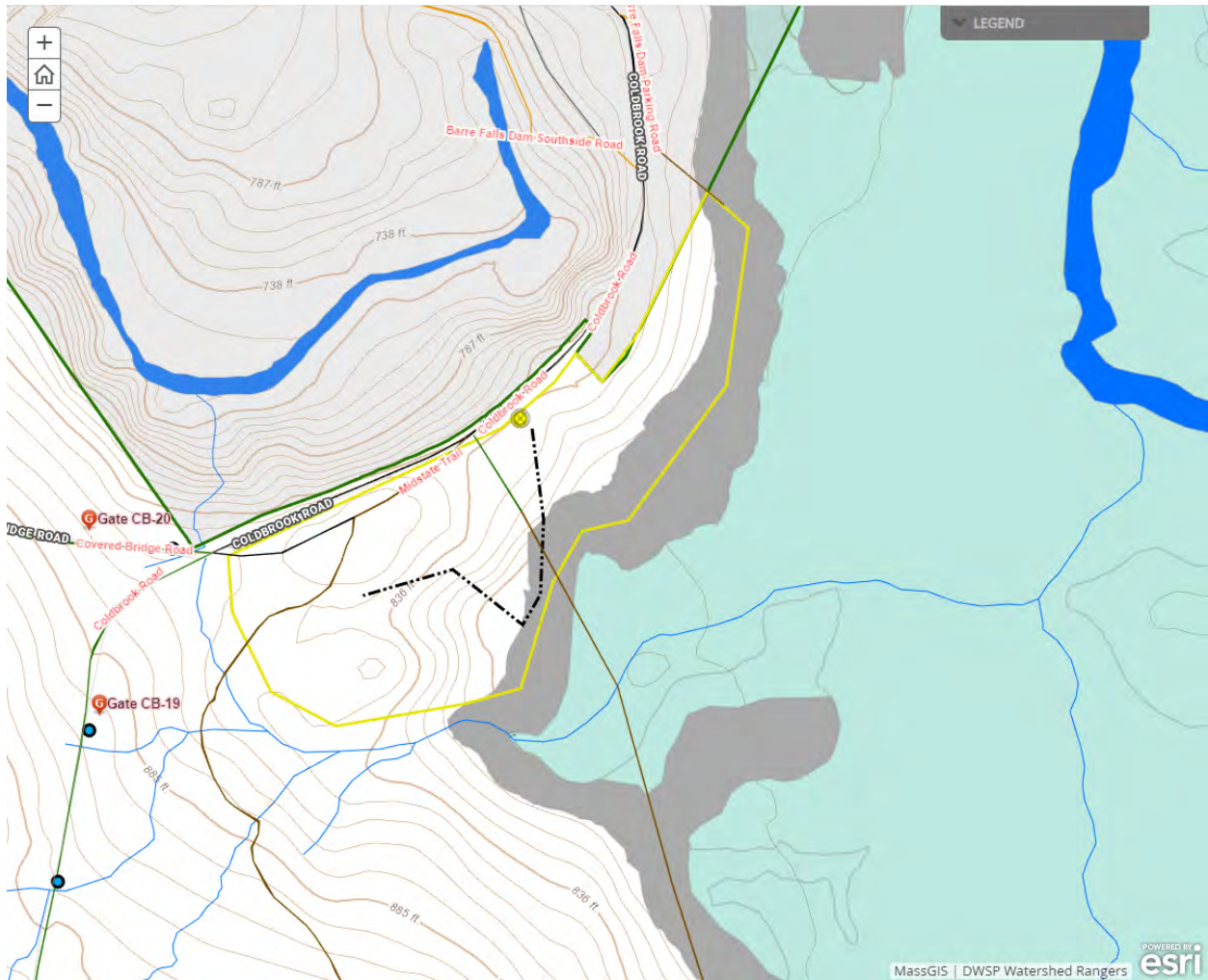


## Environmental Quality Engineering

### Comments on EQ Issues:

No crossings are planned that would require EQ monitoring.





## Forest Access Engineering

**Gravel needed:** No

**Landing work needed:** No

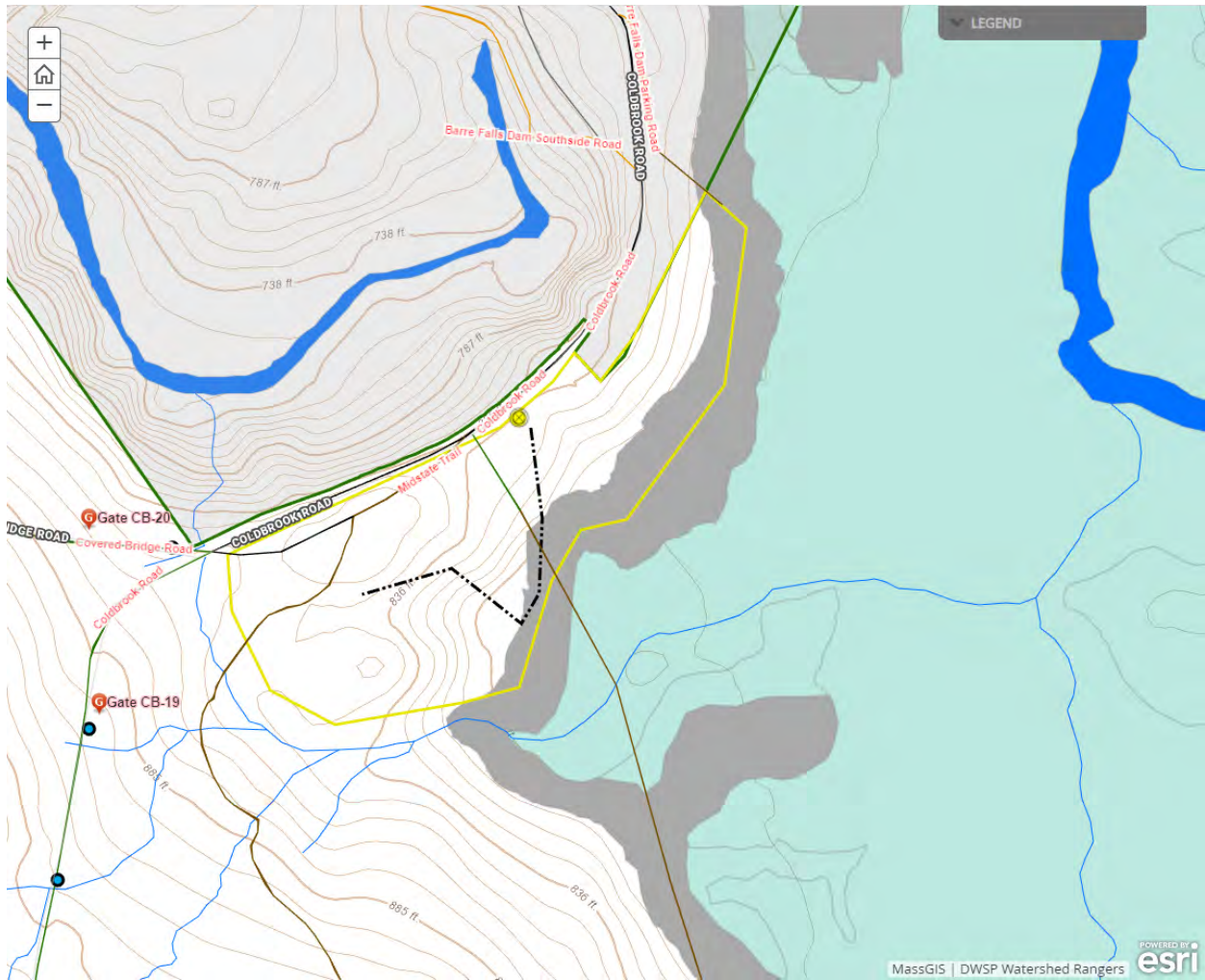
**Culverts needed:** No

**Work needed on permanent bridges:** No

**Beaver issue:** No

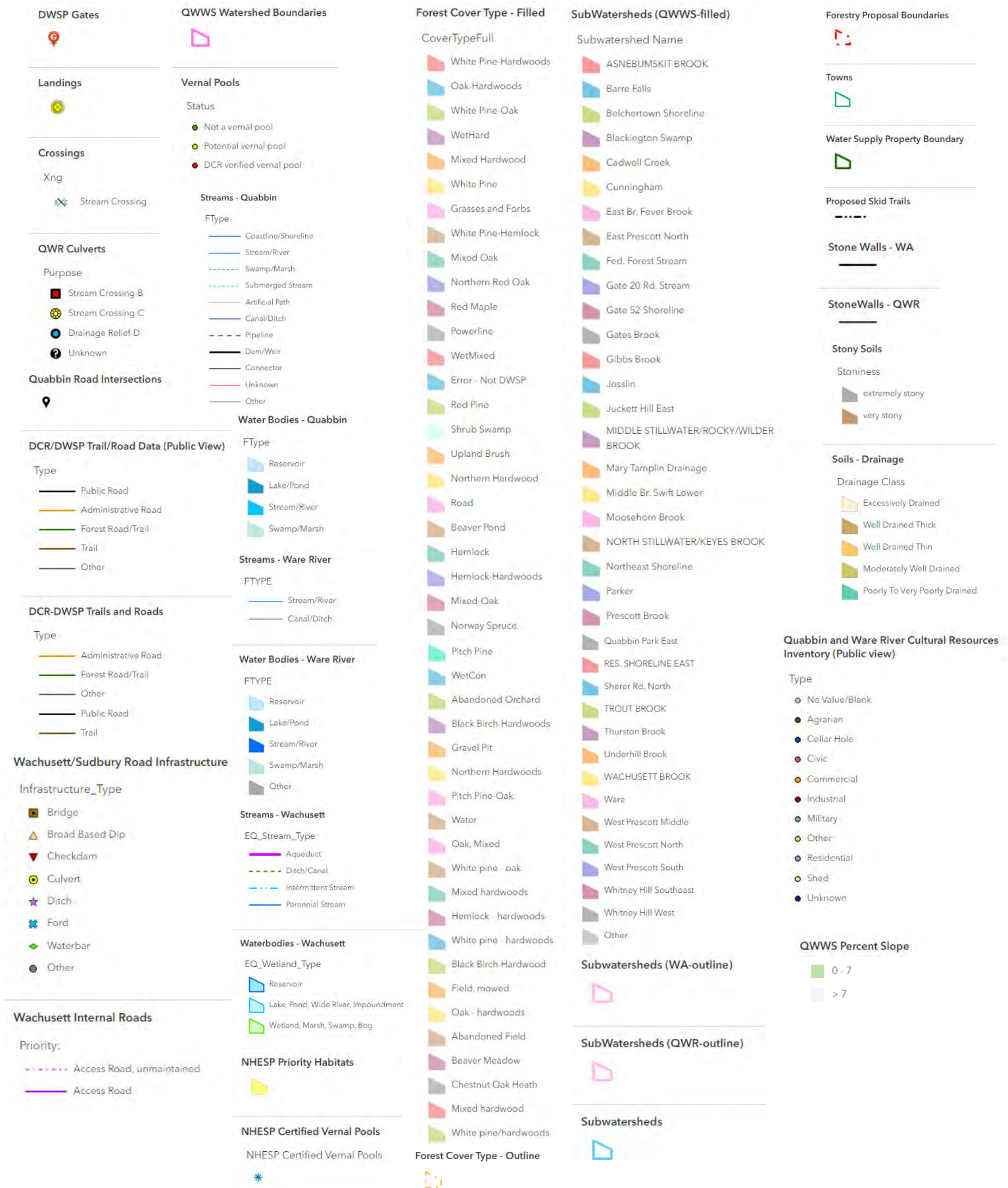
**Further comment on access needs:**

No work should be necessary for access.





## DWSP FY 2022 Forestry Proposals – Master Legend for story maps





# **Ware River Harvest Proposal WR-22-42-5**

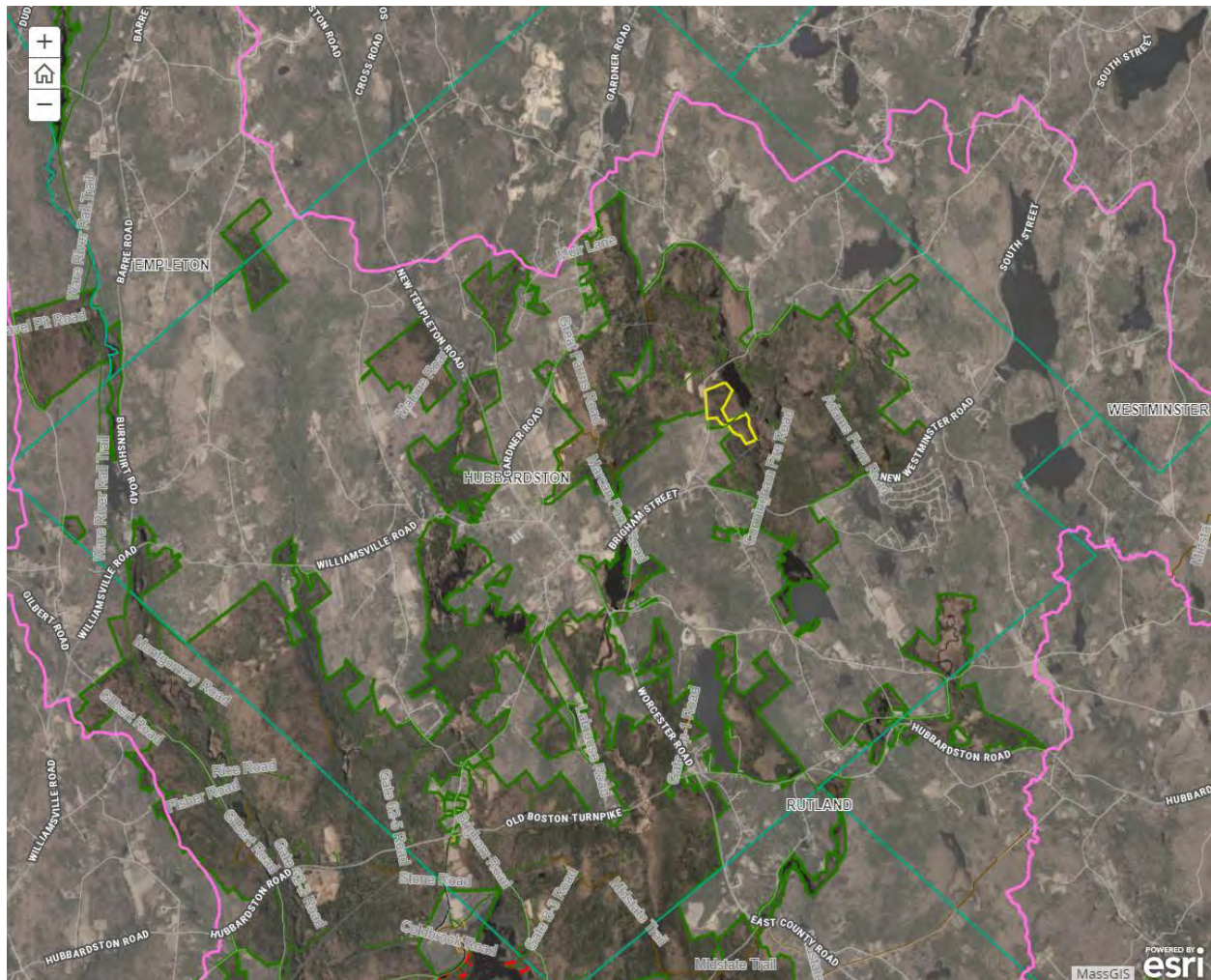
## **Proposal Goals**

The goal for this proposal is to make the forest more diverse and resilient. It will reduce the amount of mature, old field white pine and replace it with patches of young forest of diverse species.

## **Proposal Location**

This proposal is located in the town of Hubbardston. It is east of Old Westminster Road and west of Cunningham Pond.

**Total Acres: 52**



## General Description

	Overstory Type(s)	Acres
<b>Dominant</b>	White pine - hardwoods	37
<b>Secondary</b>	Oak - hardwoods	14

## Secondary

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

Secondary	
-----------	--

**Description of forest composition/condition:**

Harvest lot 249 was a 10 acre group shelterwood harvest in the northern section of the lot that was completed in 1997. The 1938 aerial photos show that the central part of the lot, along Old Westminster Road was open field at that time. The northern and southern section appear to be young forest/reverted field at that time.

White pine/hardwood - There are three distinct white pine hardwood stands on this lot. The first is approximately 16 acres in the northern portion of the lot. A group shelterwood completed in 1997 has left openings that are well stocked with a good mix of hardwood poles interspersed with areas of mature, sawlog size, low quality white pine. In the patches of overstory white pine, there is approximately 150 square feet of basal area per acre, only 30 square feet of which is in acceptable growing stock. Red maple, black cherry, and red oak stems are also present in the overstory. Regeneration is abundant and is comprised of pole red oak, red maple, American beech, black cherry, and black birch.

The second distinct stand is a 8 acre stand of low quality, old field white pine and hardwood in the central part of the lot, east of a pole hardwood stand adjacent to Old Westminster Road. This stand is an even age stand that is dominated by small sawlog size, low quality white pine that is approximately 50 to 60 feet tall. Red maple, red oak, black cherry, white ash, and white birch are also found in the overstory. Some of the red oak is good quality. The quality of the other hardwoods is poor. There is approximately 155 square feet of basal area per acre with only 18 square feet in acceptable growing stock. Regeneration is abundant in parts of the stand and absent in other areas where the overstory is thicker. Regeneration consists of red maple, red oak, black cherry, white ash, eastern hemlock, American beech, black, yellow, and white birch, aspen, and sugar maple.

The third white pine/hardwood stand is a 13 acre stand in the southeast portion of the lot. This stand is dominated by mature, sawlog size white pine. Red maple, black cherry, red and black oak, and Norway spruce are also found in the overstory. The northern section of the stand is heavier to white pine and is better quality, although some red rot was observed. Many of the white pine crowns look very thin and mortality is present. The southern end of the stand is lower quality and more diverse with a small section with some planted spruce and a strip of hardwood that has overstory white ash, sugar maple, and paper birch. There is approximately 150 square feet of basal area per acre with 30 square feet in acceptable growing stock. Regeneration consists of white pine and eastern hemlock poles, as well as red maple, red oak, American beech, sugar

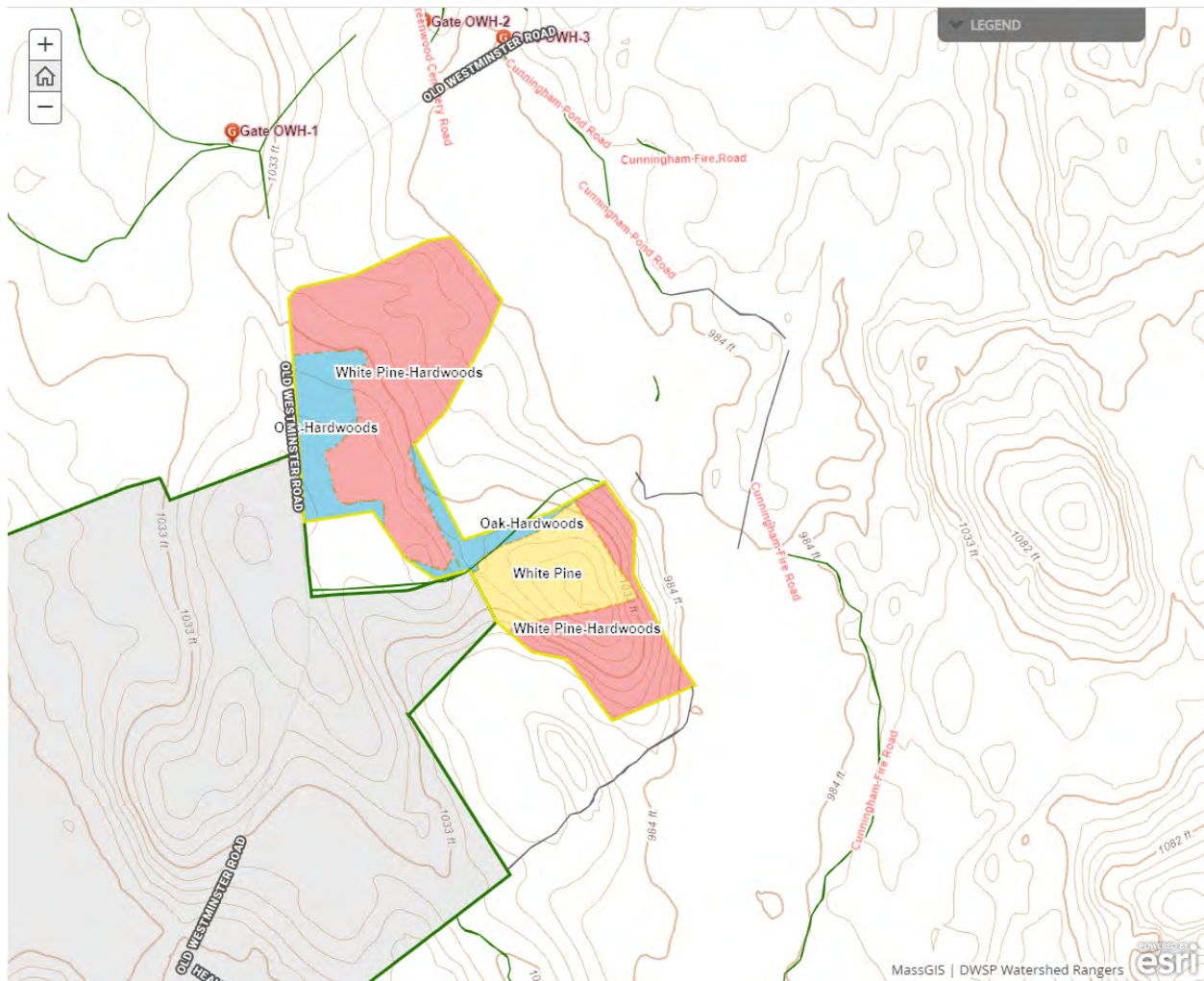


maple, and Norway spruce seedlings. Mountain laurel is present but light in the southwestern portion of the stand.

Oak/hardwood - There are three distinct oak/hardwood stands on this lot. The first is a 6 acre stand in the old field section adjacent to Old Westminster Road. Good quality red and black oak poles dominate this stand, with red maple, aspen, black cherry, and white ash poles also present. No silvicultural treatments will be proposed for this stand, other than the landing will need to be located adjacent to Old Westminster Road. There is also an oak hardwood stand located east of the central portion of this lot. A small portion of that stand will need to be crossed near the property boundary in order to access the southern portion of this lot. The third oak hardwood stand is approximately 6 acres located in the southwest corner of the lot. This stand is dominated by mature, sawlog size red and black oak. Red maple, black cherry, low quality white pine, and white birch are also present in the overstory. The stand is well stocked with approximately 120 square feet of basal area per acre in the overstory. The overall oak quality is poor to medium with only 40 square feet of basal area per acre in acceptable growing stock. The stand is even aged with no evidence of recent harvests. Regeneration is abundant with white pine, eastern hemlock, American beech, and red maple seedlings. Mountain laurel is present and is thicker adjacent to the stream to the west of the stand.

#### **Assessment of Terrestrial Invasive Species:**

Glossy buckthorn was observed on the lot.



## Soils

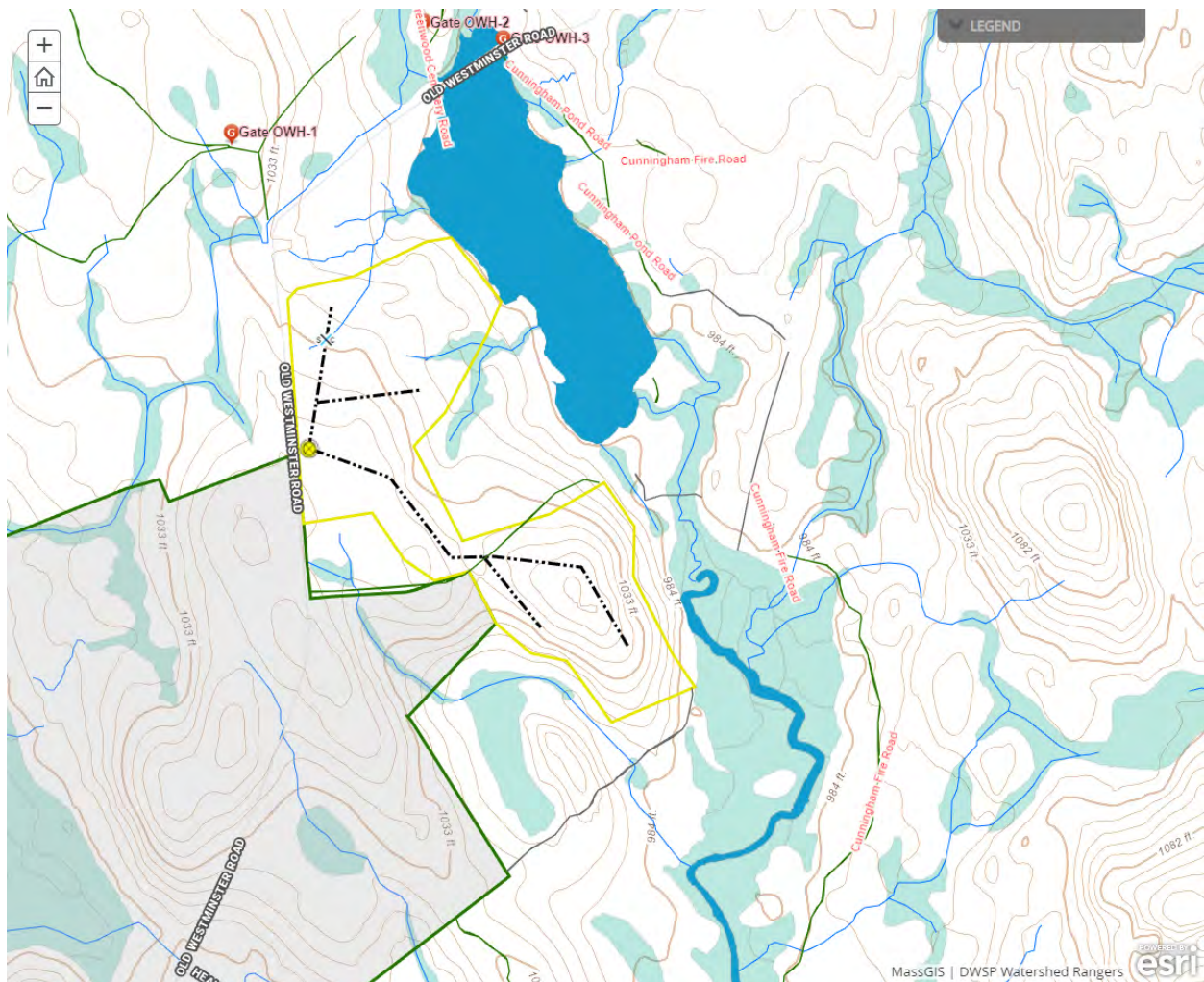
Drainage Class	%
Excessively Drained	0
Well Drained Thin	0
Well Drained Thick	20
Moderately Well Drained	77
Poorly to Very Poorly Drained	3





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

Tiny, intermittent channel in the northern section will require crossing.



## Silviculture

Acres in Intermediate cuts: **0**

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

Acres in Regeneration cuts: **22**

Average regen opening size: **3**

Maximum regen opening size: **5**

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

Regeneration is generally abundant through out the lot. The regeneration is pole size in the northern section of the lot where the group selection harvest was conducted and is dominated by red oak poles. The regeneration in the rest of the stand is mostly seedling/sapling size and is comprised of red oak, red maple, white pine, eastern hemlock, American beech, black cherry, white ash, sugar maple, aspen, Norway spruce, and black, yellow and white birch.

### **General comments on silviculture proposed:**

White pine/hardwood - In the northern stand where the previous group selection harvest was completed, an additional 1 or 2 groups of 1 to 2 acres should be established with the goal of expanding the existing groups and releasing the pole oak regeneration. This section appears to be a bit wet, which will also dictate where new groups can be established. A stream is mapped in this area, though it appeared not to be mapped correctly. In the low quality old field pine stand in the central part of the lot one opening of 5 acres and one opening of up to 2 acres will be established. In the 13 acre stand in the southern portion of the lot one opening of up to 5 acres and 1 or 2 openings of up to 2 acres will be established, targeting the lowest quality, least vigorous white pine stems. At least 5 square feet of basal area per acre of the best formed, most vigorous stems of all species will be retained in all groups.

Oak/hardwood - No silvicultural treatments will be proposed for the 6 acre stand adjacent to Old Westminster Road, other than the landing will need to be located in the stand. No silvicultural treatments are proposed for the small portion of the oak hardwood stand in the eastern central part of the lot, other than a skid trail to access the southern portion of the lot. In the 6 acre stand in the southern portion of the lot, 1 group of up to 2 acres will be established targeting the poorest quality oak stems.



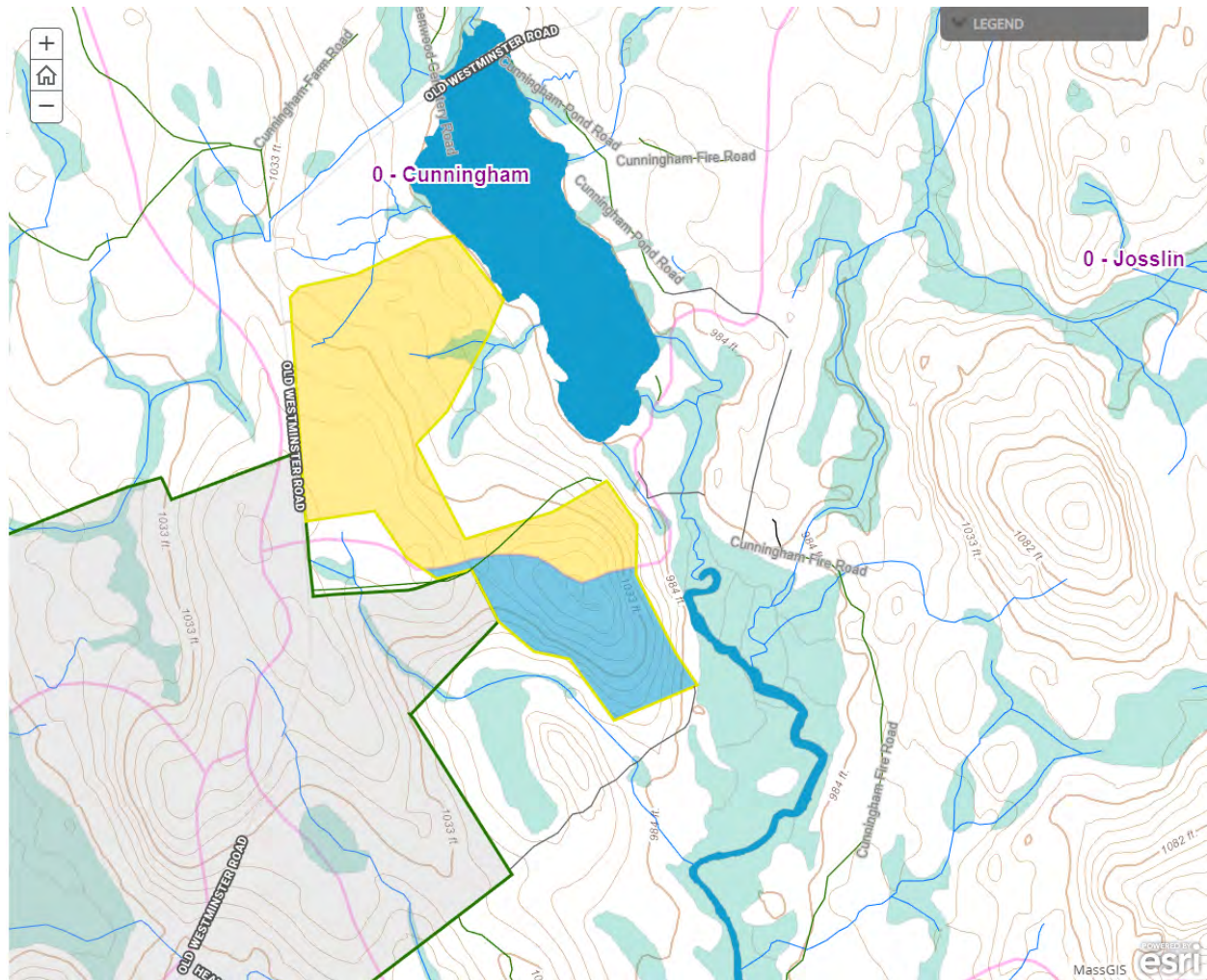
## Subwatershed Analysis

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
8025 (Cunningham Pond)	827	0	207	38
8027 (Josslin Brook)	1162	0	291	14



8025 - Cunningham - No other proposals.

8027 - Josslin - There are 48 acres in proposal WR-21-21-3 in this subwatershed



## Harvesting Limitations

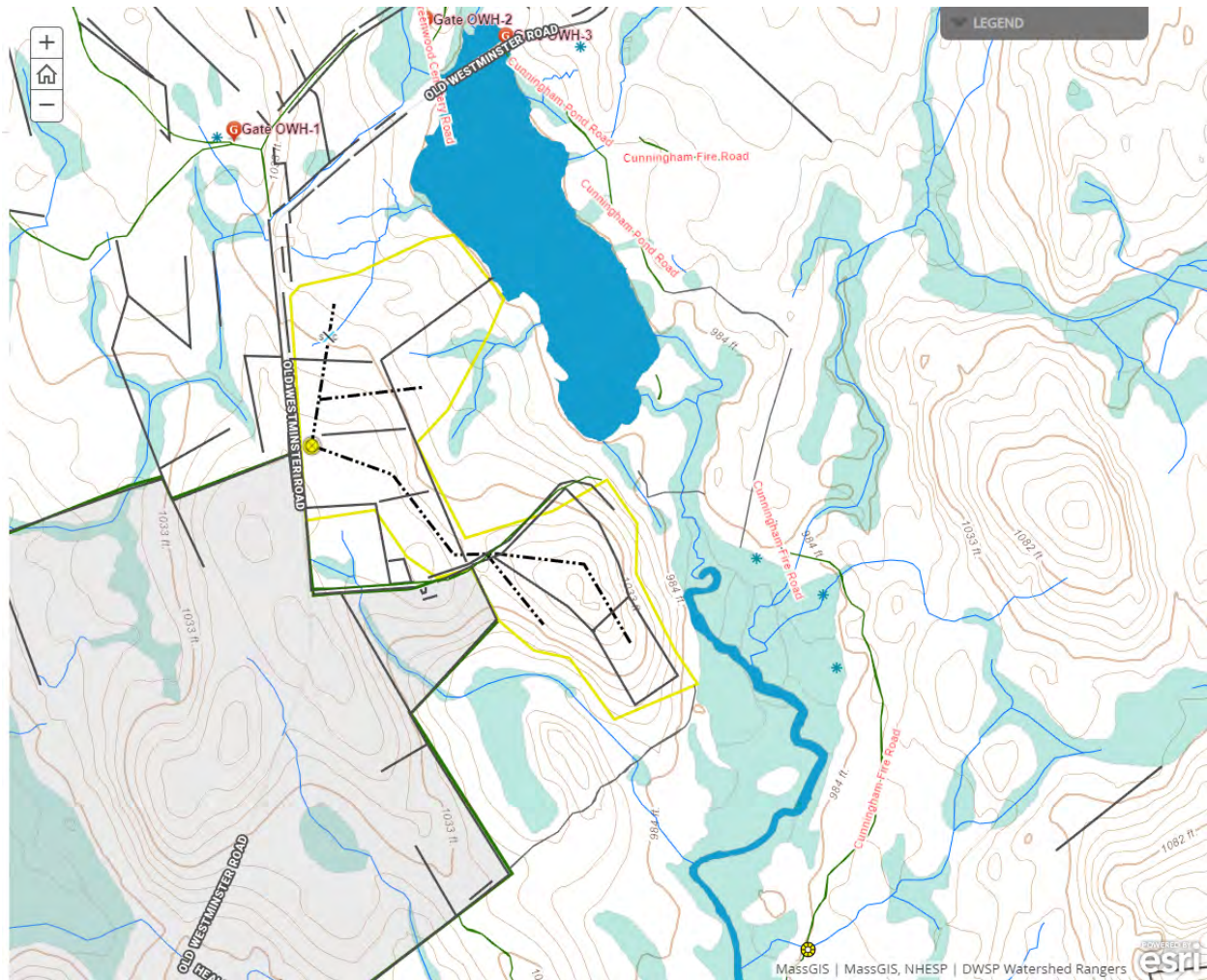
Forwarder required: **No**

Feller/processor required: **No**

Steep slopes present: **No**

**Comments on harvesting limitations:**

No specific equipment requirements.

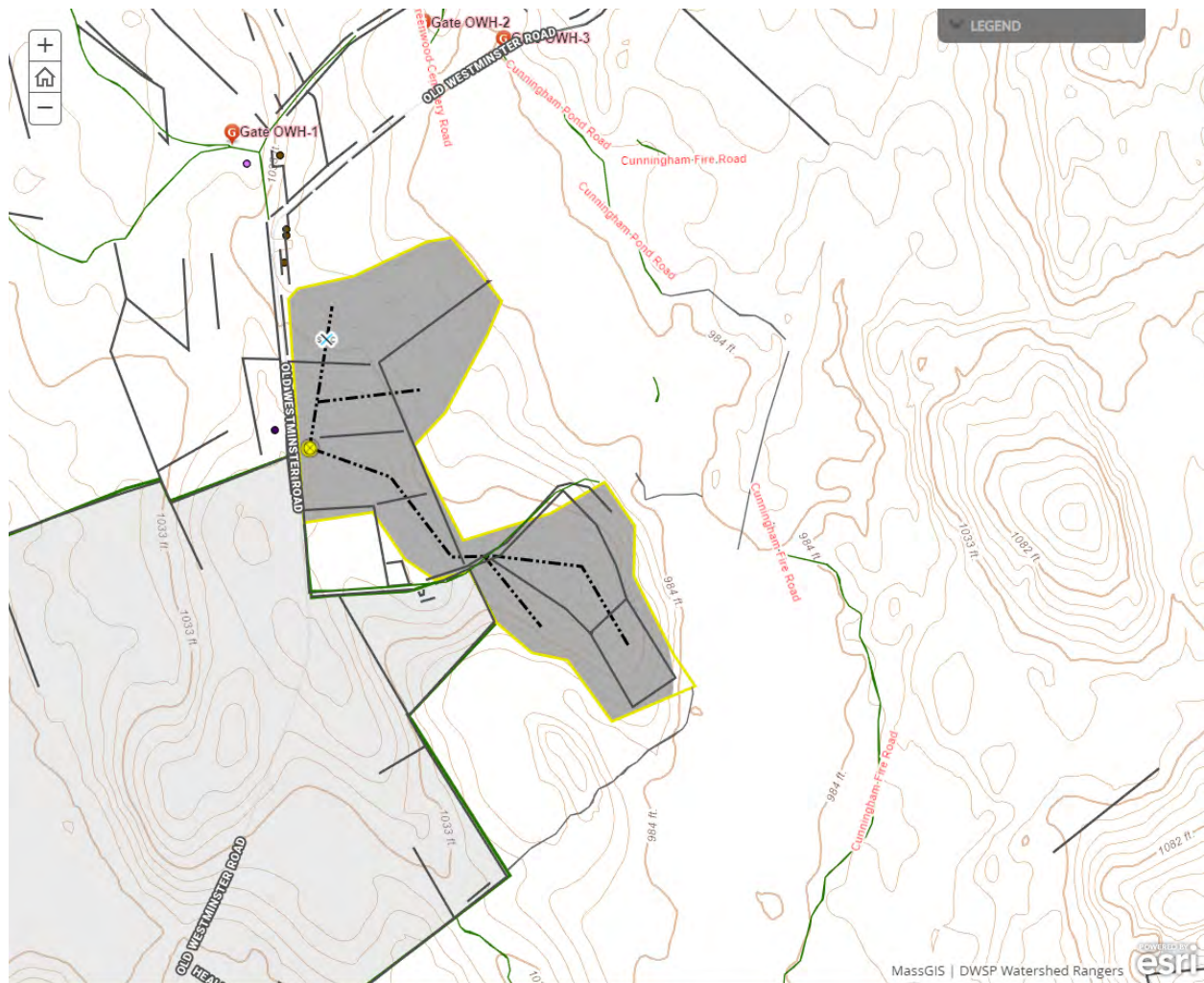


## Cultural Resources

### Comments on Cultural Resources:

A cellar hole is located along the old road that hits Old Westminster Road at the southern property boundary. It will be well buffered. There are stone walls present throughout the lot that will have to be crossed to access the lot.





## Wildlife Resources & Rare and Endangered Species

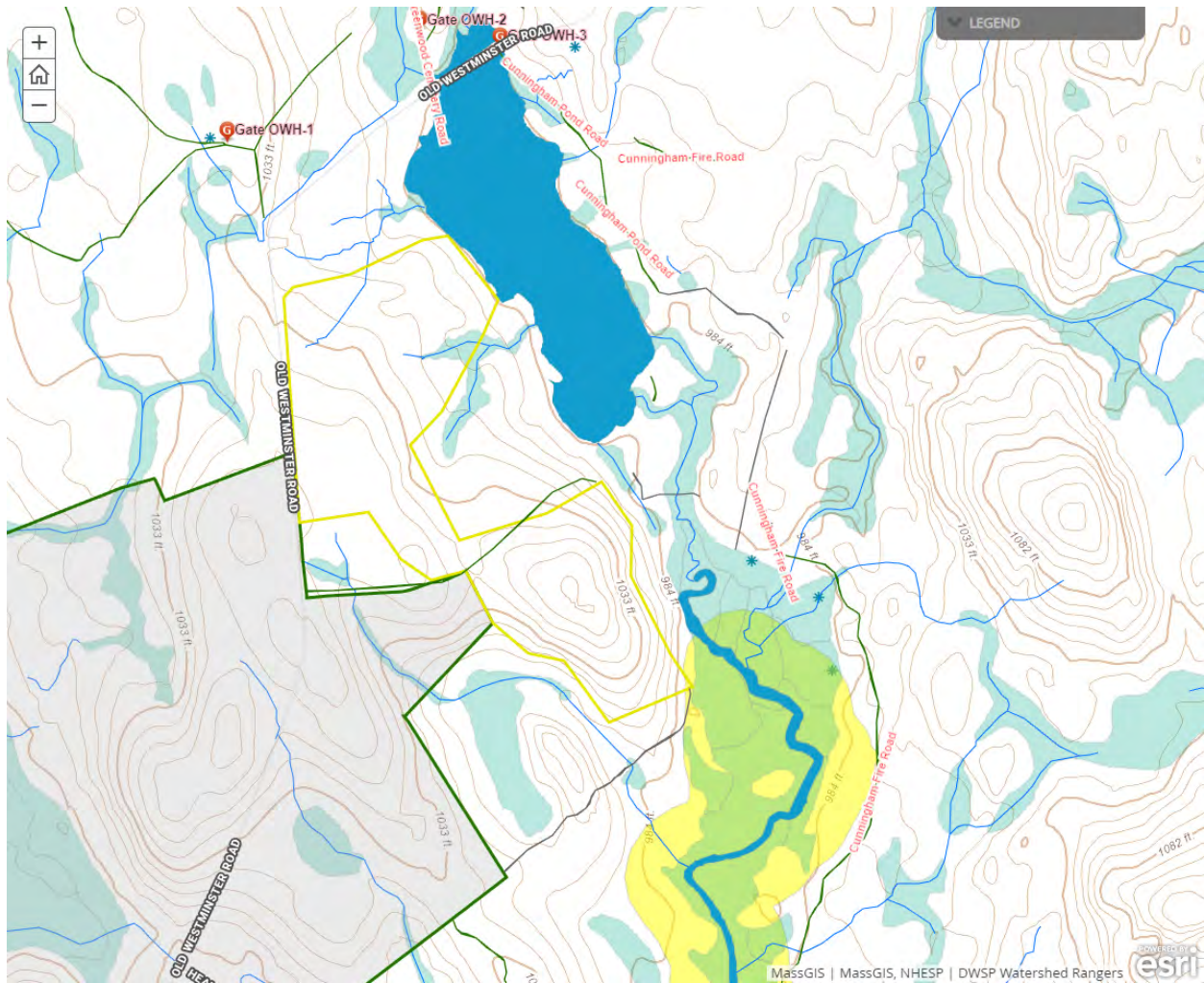
### General Wildlife Comments:

Moose/deer browse was heavy in the southern white pine stand.

### Comments on Rare Species/Habitats:

The very southeastern tip of the lot touched a NHESP bubble along Josslin Brook. No harvesting expected within this area.

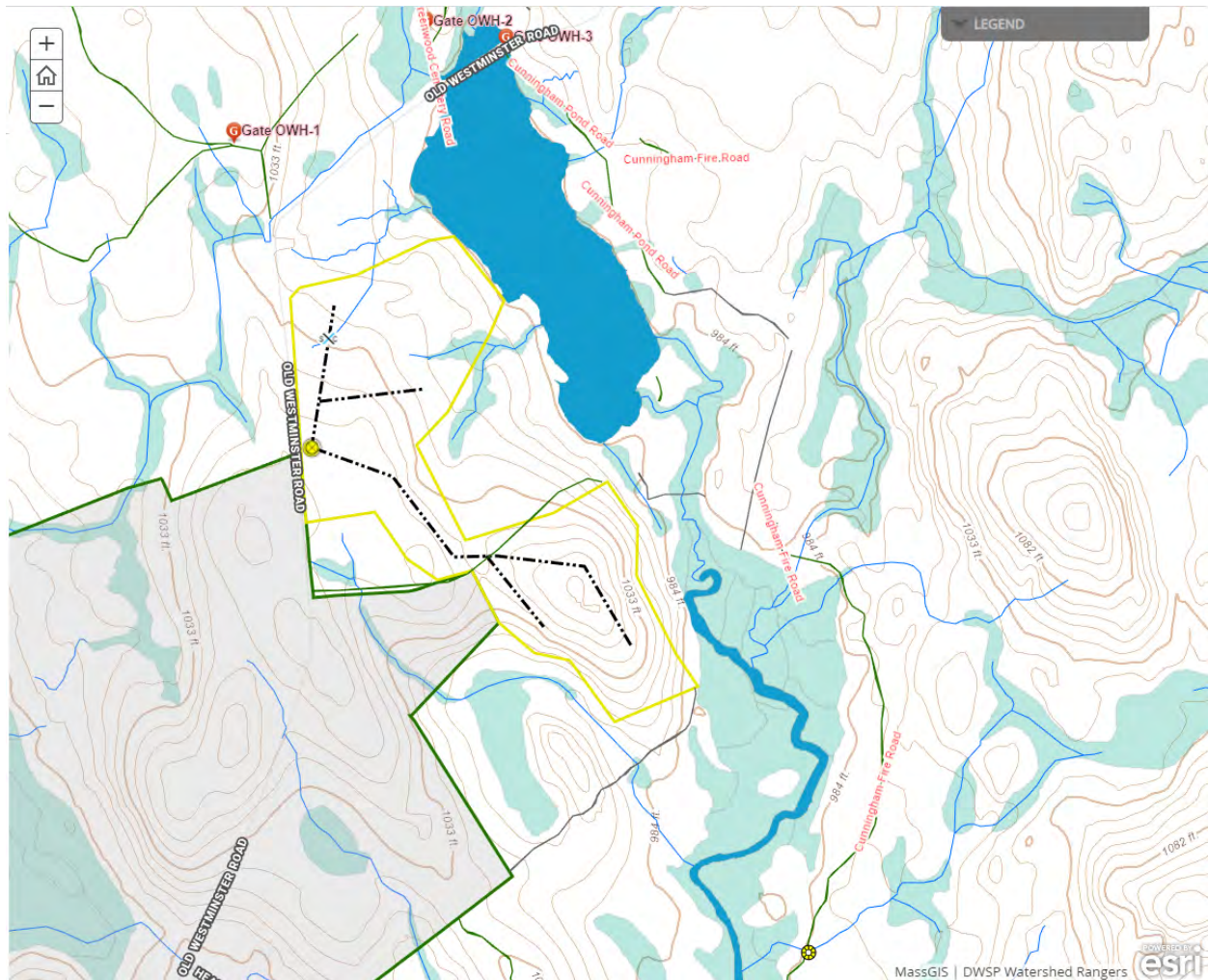




## Environmental Quality Engineering

### Comments on EQ Issues:

No crossings are planned that would require EQ monitoring. The one stream crossing is over a very small intermittent that will likely be dry most of the year, but will be protected appropriately if flowing while the lot is harvested.



## Forest Access Engineering

**Gravel needed:** No

**Landing work needed:** No

**Culverts needed:** No

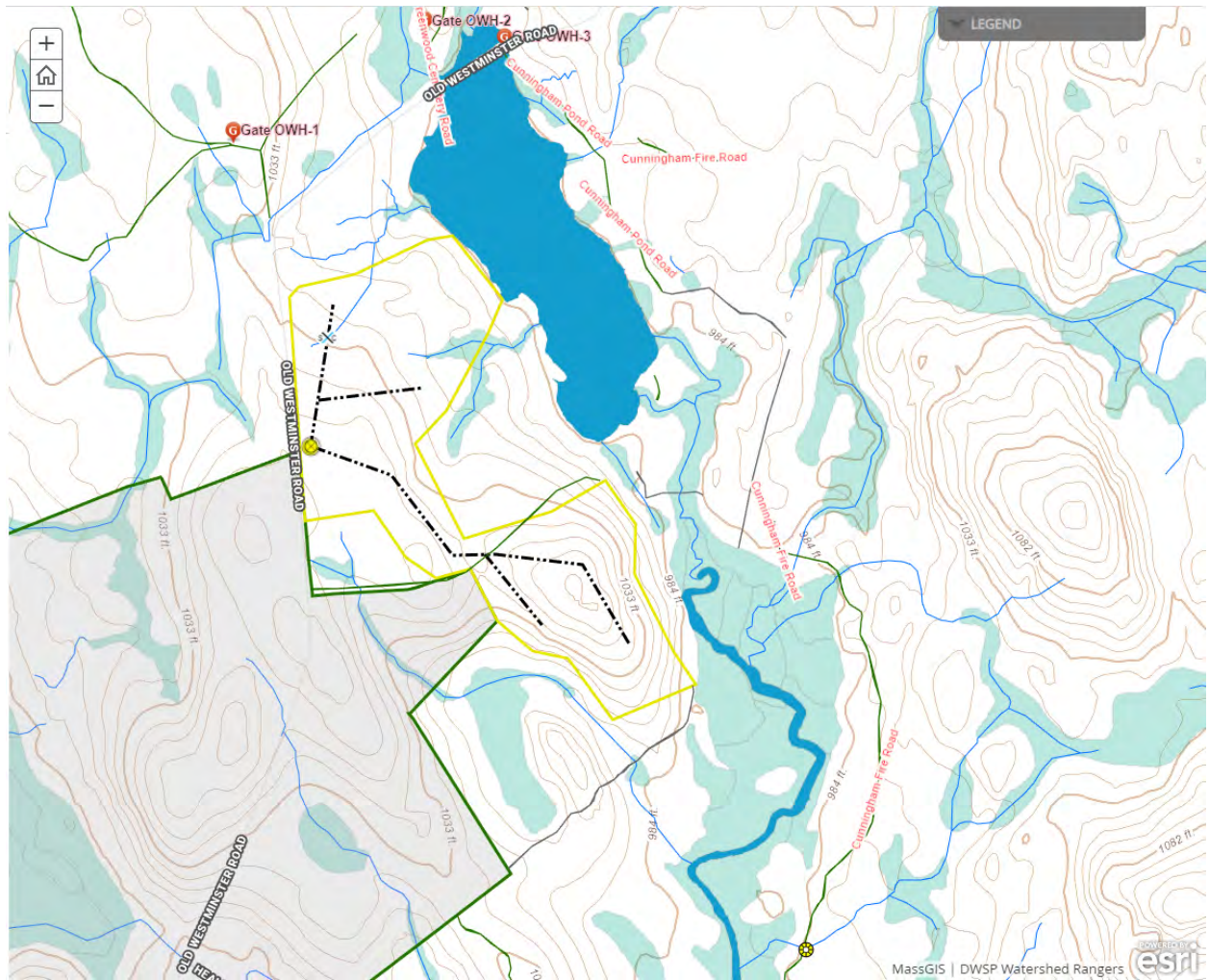
**Work needed on permanent bridges:** No

**Beaver issue:** No

**Further comment on access needs:**

No work should be necessary for access.







## DWSP FY 2022 Forestry Proposals – Master Legend for story maps

