

[Division of Water Supply Protection](#)

DCR Division of Water Supply Protection: FY2021 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 2021 proposals. This year there are four at Quabbin, four at Ware River, and seven at Wachusett. 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

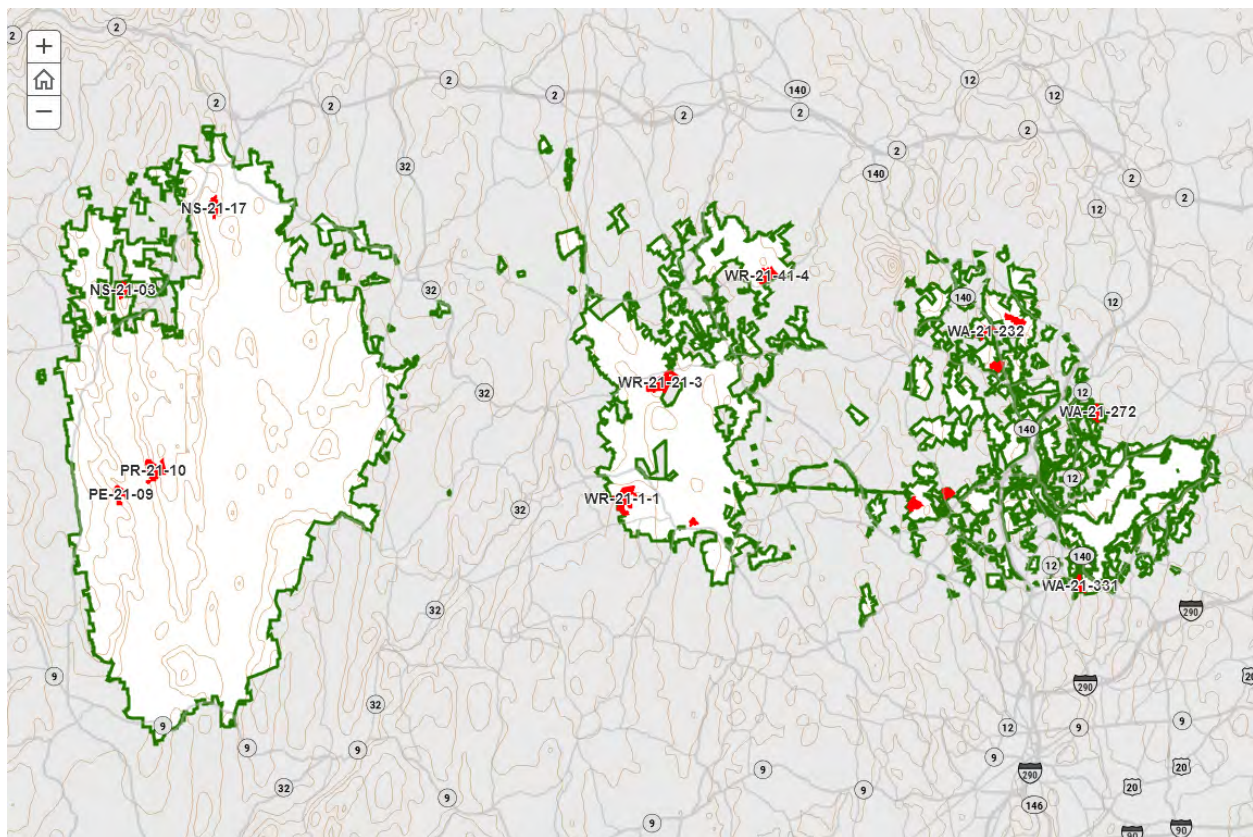
251 Causeway St.

Boston, MA 02114

Due to current COVID-19 health and safety precautions, these proposals were not presented at typical public meetings at Quabbin, Ware River, or Wachusett. A link to this interactive web map application was distributed to all advisory boards and committees on November 6, 2020, and letters were sent to individual Select Boards of affected towns.

Public Comments will be accepted until the close of business on Friday, December 11, 2020.

If you have any questions, please contact Natural Resources Specialist Brian Keegan at brian.keegan@mass.gov 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.

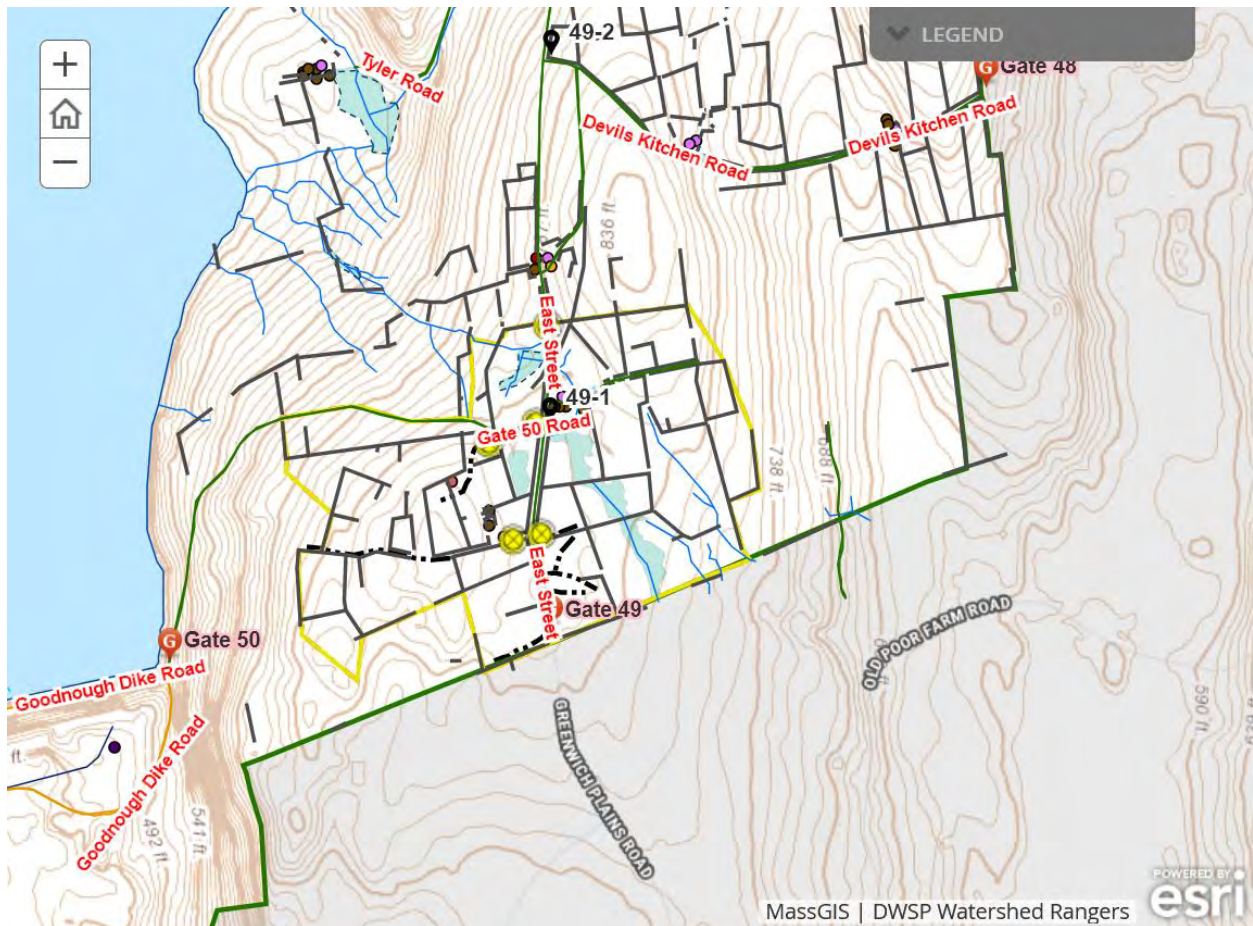
For full details on DWSP watershed land management please see the:

[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.

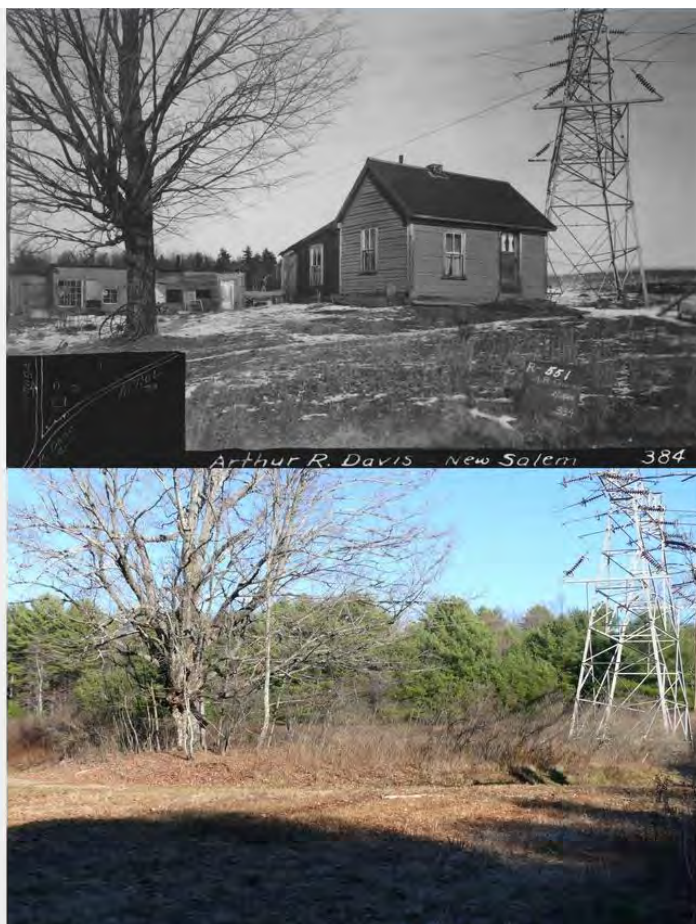


Cultural Resource Protection and DWSP Forestry Activities

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.



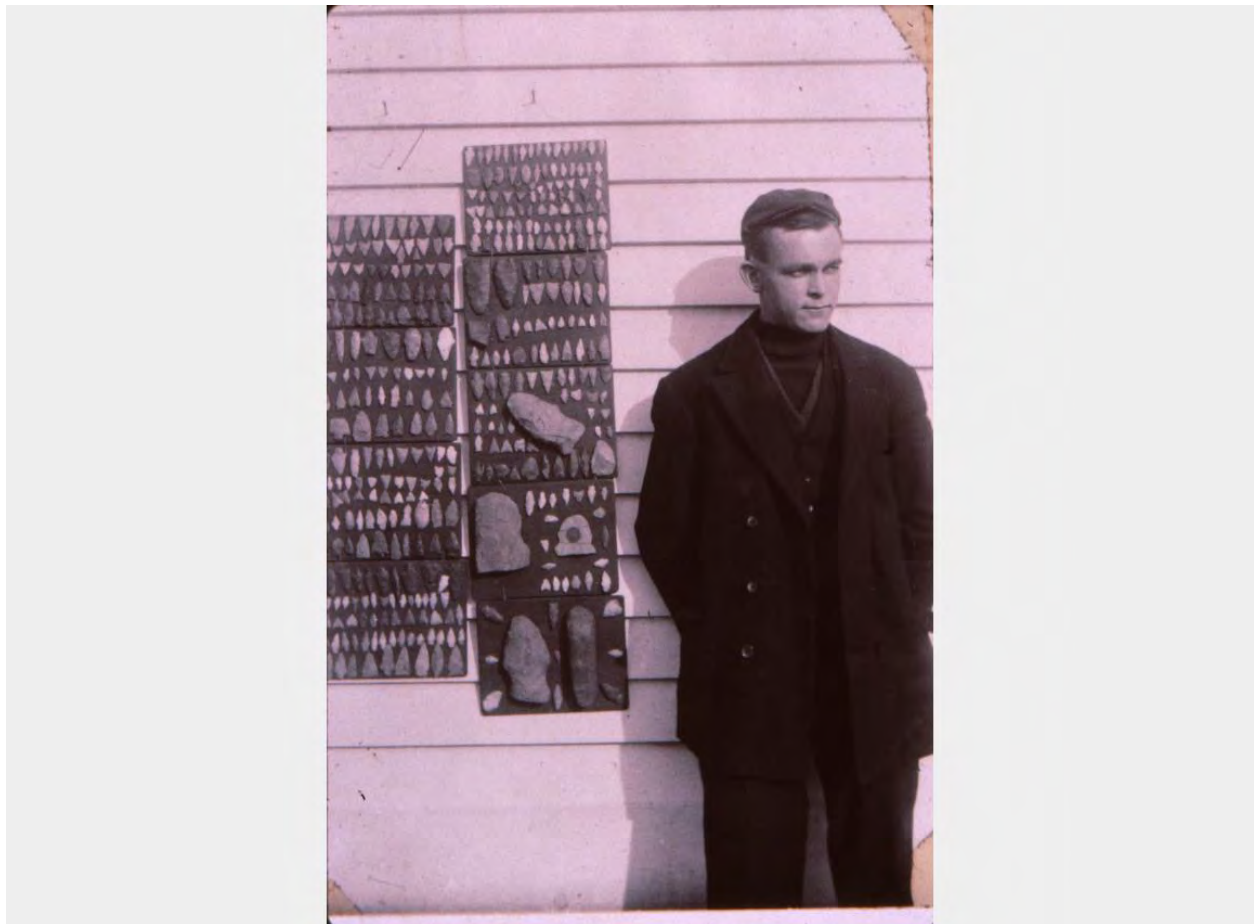
Arthur R. Davis New Salem 384

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.



Quabbin Harvest Proposal NS-21-03

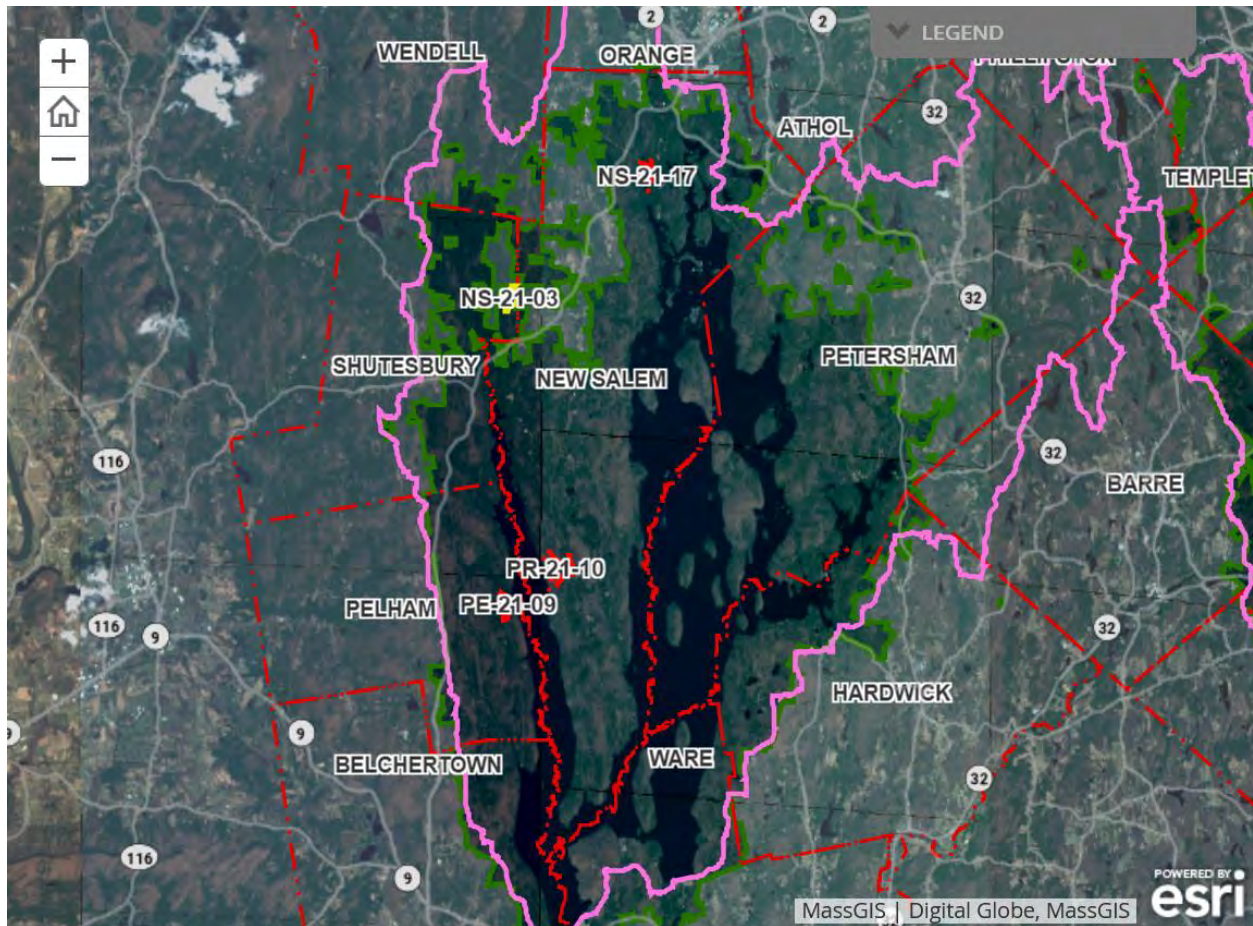
Proposal Goals

The proposed area has a mostly single aged canopy with regeneration hampered by pervasive mountain laurel. The goal of the proposed harvest will be to increase age diversity by treating mountain laurel and increasing light availability to provide opportunities for new regeneration, and release existing regeneration.

Proposal Location

The proposal is bounded to the north by North Macedonia Road. The remaining boundaries are delineated by change in type and steep slopes.

Total Acres: 73



	Overstory Type(s)	Acres
Dominant	White pine/hardwood	51
Secondary	Oak/hardwood	21
Other	White pine/hemlock	1

	Understory Type(s)
Dominant	Mountain laurel prevalent
Secondary	Tree seedlings/saplings dominate the site

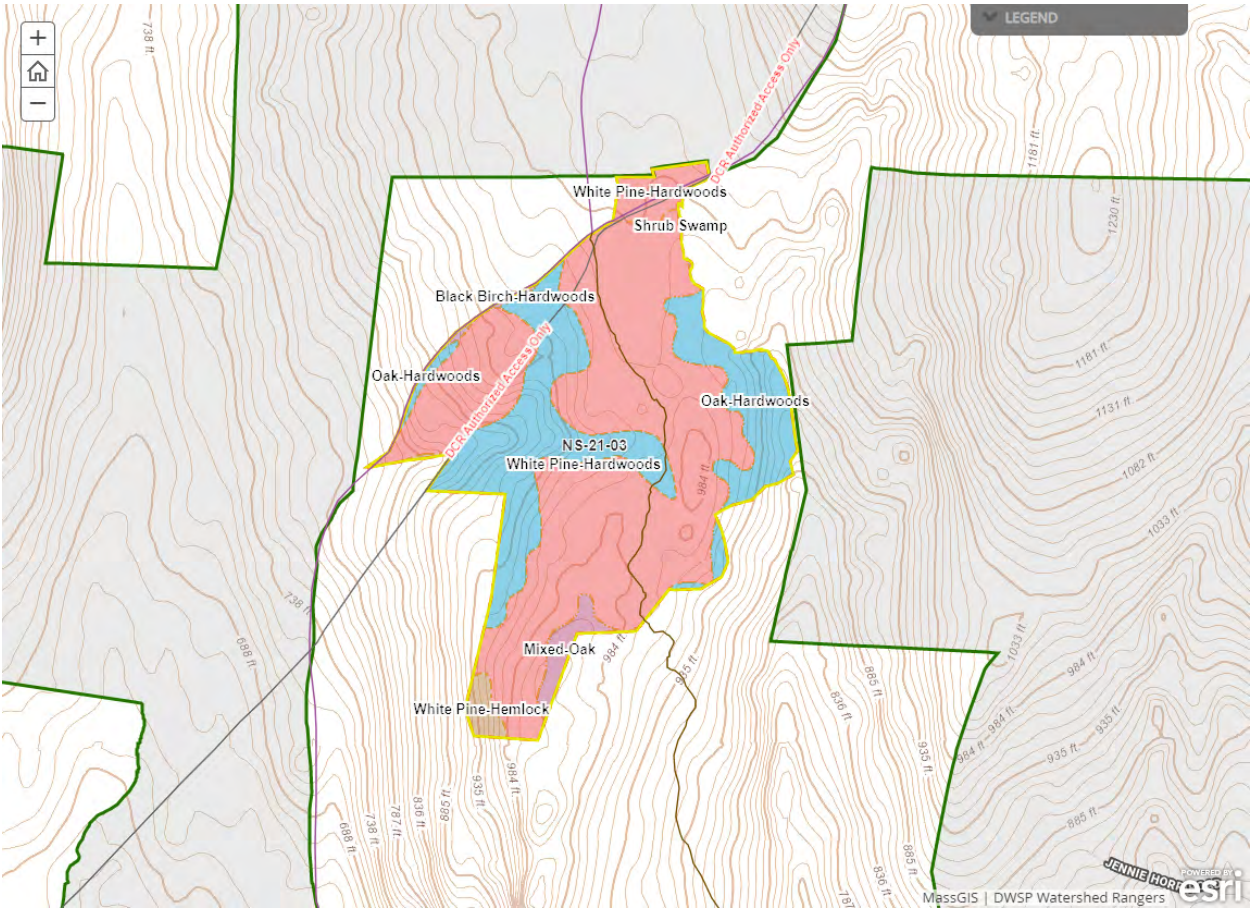
Description of forest composition/condition:

The lot is primarily white pine/hardwood to oak hardwood. The average basal area of the proposed harvest area is 118 (\pm 6.3) ft²/acre with a single age normally distributed size class averaging 17" dbh. The proposed area is dominated by white pine of moderate quality averaging 19.2" diameter, followed by red oak averaging 17.5" diameter. Minor overstory species include red maple, black birch, black and white oak. There are 4-10 ft tall mountain laurel thickets present throughout the white pine/hardwood and oak/hardwood stands, often reaching greater than 70% of ground cover in half of sampled white pine/hardwood or oak/hardwood plots and inhibiting any regeneration. Hemlock stands are present in the southwestern corner of the proposal along west to northwestern aspect slopes. Hemlock here looks relatively healthy with full tall crowns, and some of the red oak present appears to be developing tertiary bark. There is some small gap filling from black birch which is now old enough that the stand should be considered at least two aged.

An old cart road runs north to south through the proposal and hosts a trail in current use by the public. Operations will avoid running down the cart road and will protect and cross perpendicular to the path or the cart road. During operations the trail will be closed to the public.

Assessment of Terrestrial Invasive Species:

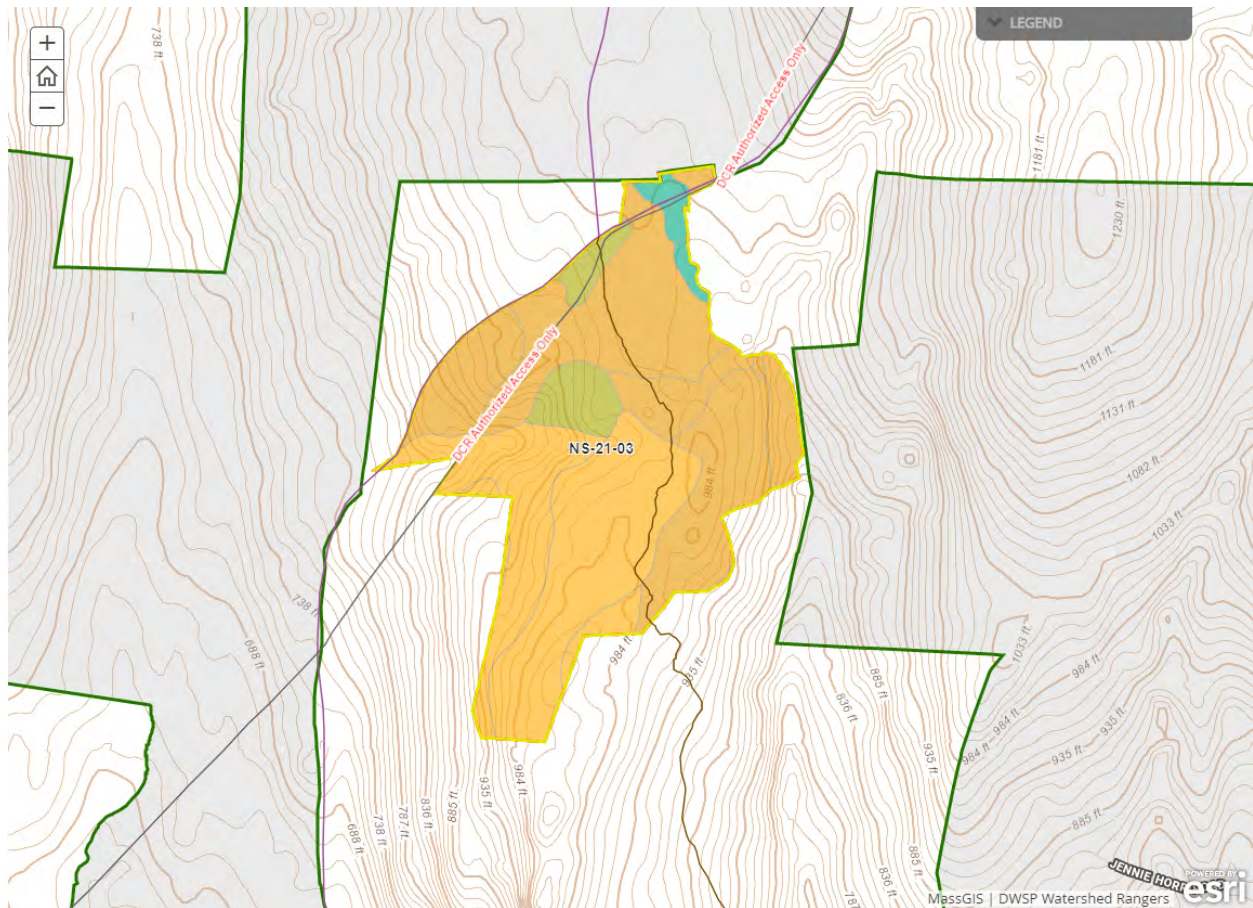
Invasive species were not observed during a prism cruise of the proposed area. However there is a known infestation of invasive stilt grass (*Microstegium vimineum*) at the proposed landing site and all along Macedonia Road. Harvest of this proposal will only proceed upon successful control of the stilt grass and the approval of NR to proceed.



Soils

Drainage Class	%
Excessively Drained	0
Well Drained Thin	41
Well Drained Thick	50
Moderately Well Drained	6
Poorly to Very Poorly Drained	3

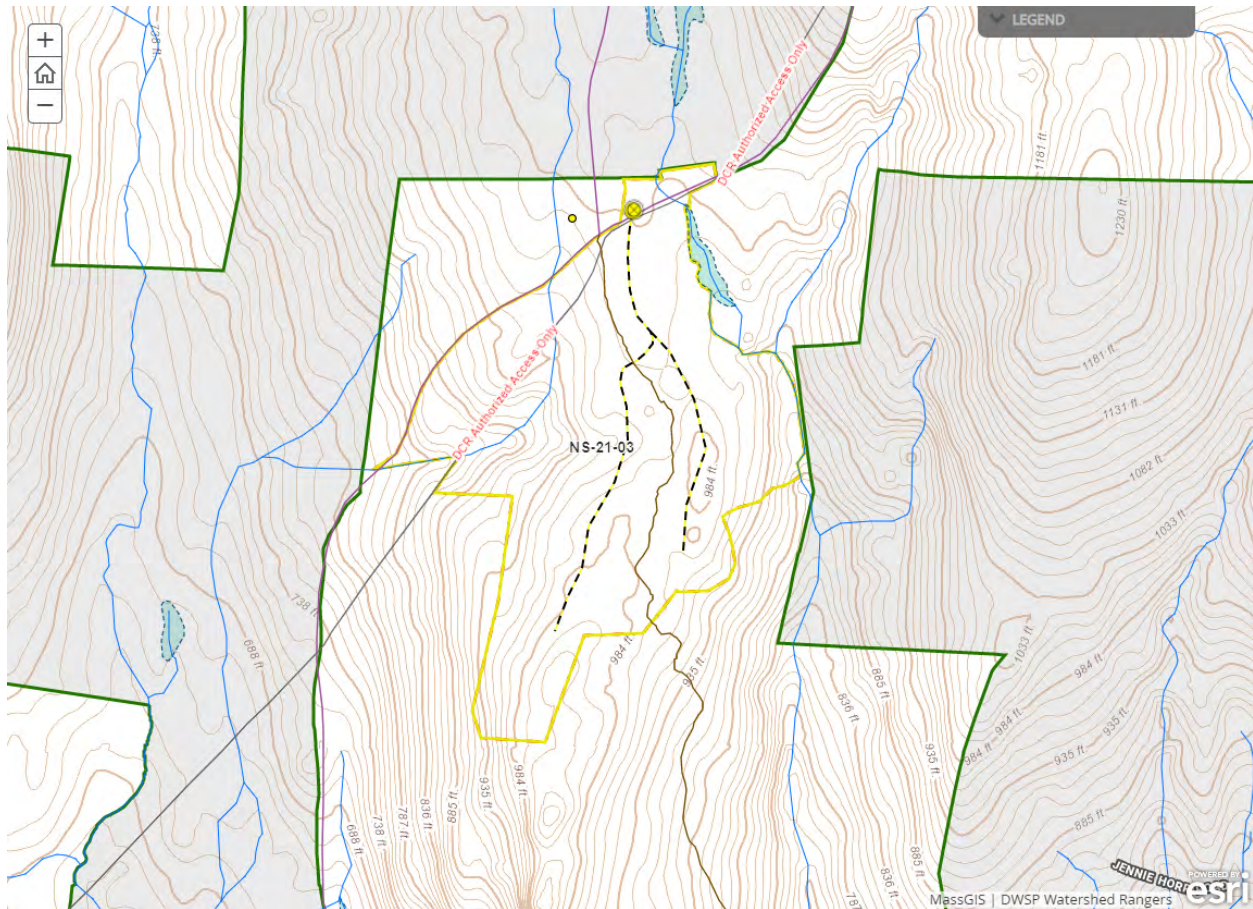
More than half of the lot is on Montauk fine sandy loam, with Chatfield-Hollis complex making up another third. Scituate fine sandy loam, Swansea peat and Ridgebury gravelly fine sandy loam are minor components.



Wetlands

- Wetlands present? - **Yes**
- Streams present? - **Yes**
- 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** ([Riparian Zone Mgt](#))
- Is logging in wetlands planned? - **No**

The lot borders a wetland to the northeast which is not proposed for management at this time. All crossings are culverted in Macedonia Road. One potential vernal pool near the landing location will be treated as a verified pool and given appropriate buffers.



Silviculture

Acres in Intermediate cuts: **15**

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

Acres in Regeneration cuts: **25**

Average regen opening size: **0.5**

Maximum regen opening size: **1**

Description of advance regeneration in proposal area:

Advanced regeneration under the previous shelterwood harvest is well established and is just below or reaching small pole size timber, with scattered patches of opportunistic small sapling

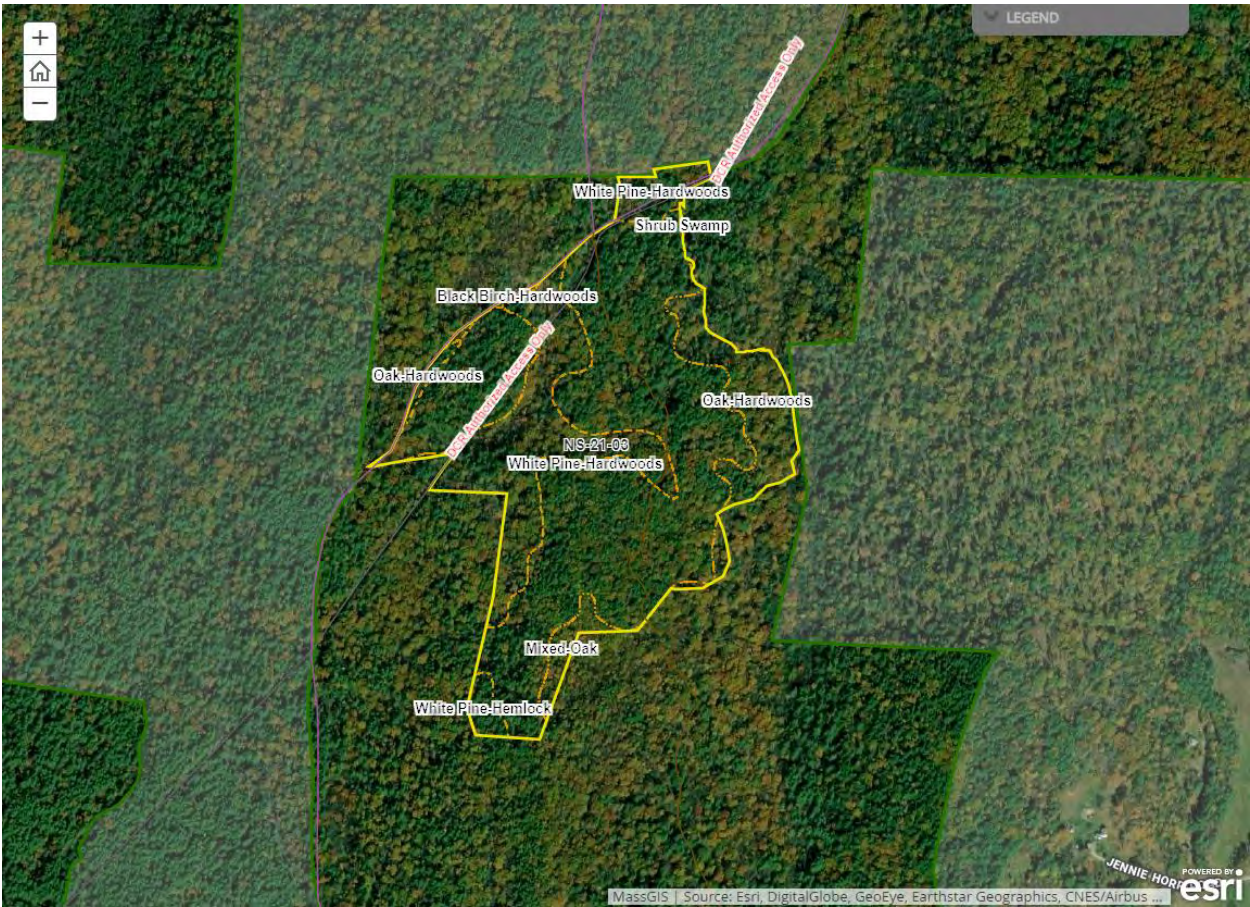
white pine and mixed hardwoods. Unfortunately there are also many large patches of mid-sized to tall mountain laurel monocultures preventing new regeneration from establishing. These mountain laurel patches are most prevalent to the southwest under white pine and white pine/hardwood cover. Areas with hemlock overstory are mostly without regeneration outside of some small gap regeneration.

General comments on silviculture proposed:

Most of the white pine/hardwood area will see a partial shelterwood removal (shelterwood with retention) cut lowering overstory basal area to 15-25 ft² / acre. The resulting stand will have a two aged structure instead of the even aged structure of a traditional shelterwood removal. Retention will favor healthy, well-formed white pine and northern red oak (which both have a higher site index in the Montauk soils). Retained trees will be spatially aggregated as much as possible to reduce windthrow and provide a range of light intensity in the understory allowing for a light habitat range of mid- to shade-intolerant species. Operators will be required to mechanically treat mountain laurel to below 20 % of ground cover where it is present. The goal will be to maximize the opportunity for faster growing shade-intolerant to mid-tolerant species to regenerate before the slower growing mountain laurel is able to sprout and reestablish understory dominance.

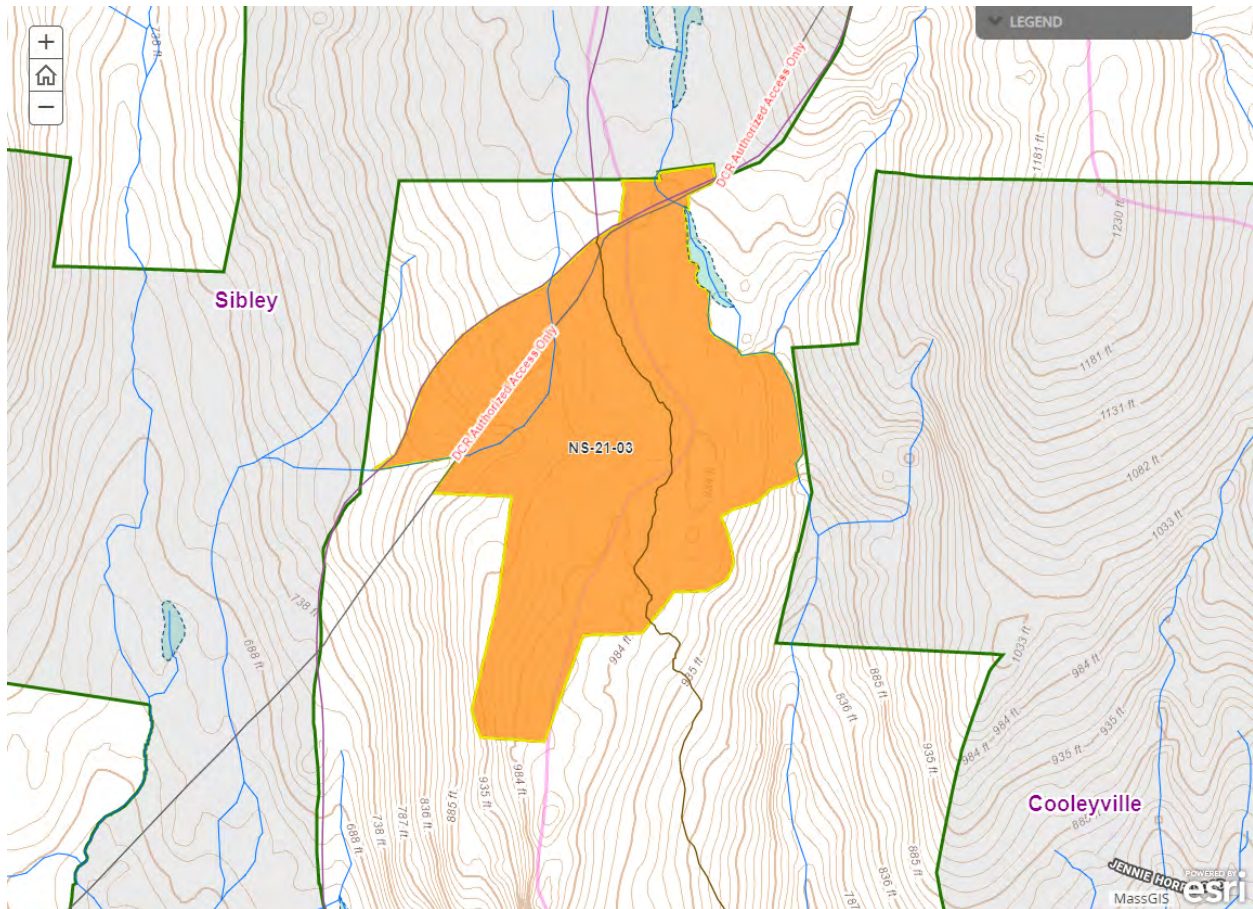
The oak/hardwood stands will be treated with small to intermediate (0.25-0.75 acre) sized regeneration openings, with thinning in the matrix. Openings will target preferred established regeneration. A few larger openings (maximum of 1 acre) will be used to target mountain laurel thickets with mechanical treatment similar to in the white pine/hardwood. Retention will favor white pine and northern red oak well suited to the site, and well formed individuals less represented on site.

Silviculture in the southwestern hemlock stand stand will focus on thinning and improvement harvest of unhealthy or poorly formed individuals. Given the recent trends regionally of decreasing hemlock woolly adelgid and the sheltered aspect and elevation, the stand will be treated as a hemlock stand refugium and efforts will be made to limit gap size and avoid altering stand composition.



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
66 (Sibley)	1028	0	251	45
84 (Cooleyville)	509	15	112	30



Harvesting Limitations

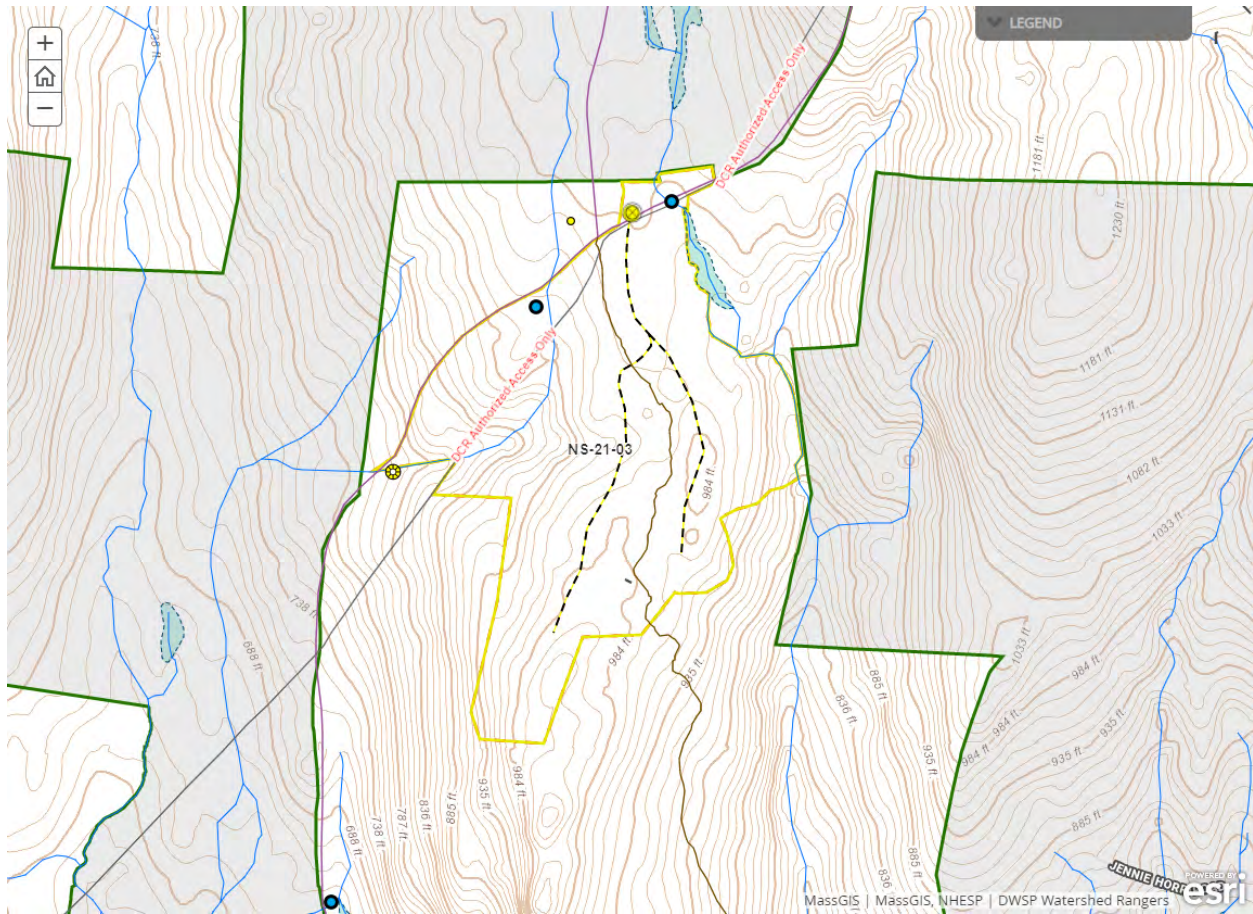
Forwarder required: **Yes**

Feller/processor required: **No**

Steep slopes present: **No**

Comments on harvesting limitations:

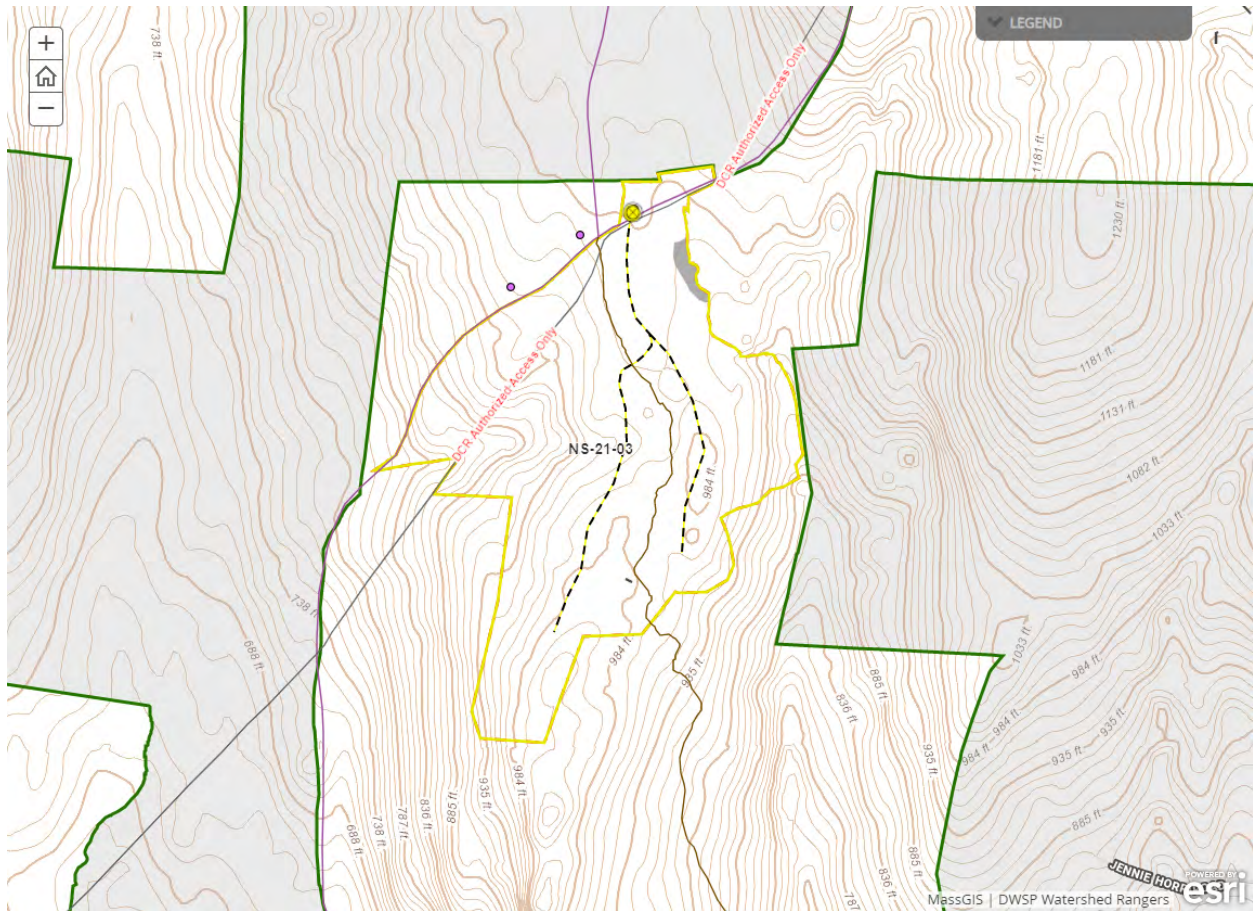
The presence of a public trail running north to south makes skidding a large portion of the lot undesirable, and a portion of the lot will need to be forwarded up a DCR road to a landing so a forwarder will be required. During harvest the trail will be closed and the operator will be required to armor the trail where crossed (poles or bridge panels).



Cultural Resources

Comments on Cultural Resources:

Stone walls are limited within the proposed area and will be avoided and/or protected as per current DWSP policy. If any currently unknown cultural resources are located during the course of preparing and harvesting this proposal DWSP will work with DCR archaeologists to identify and protect them.



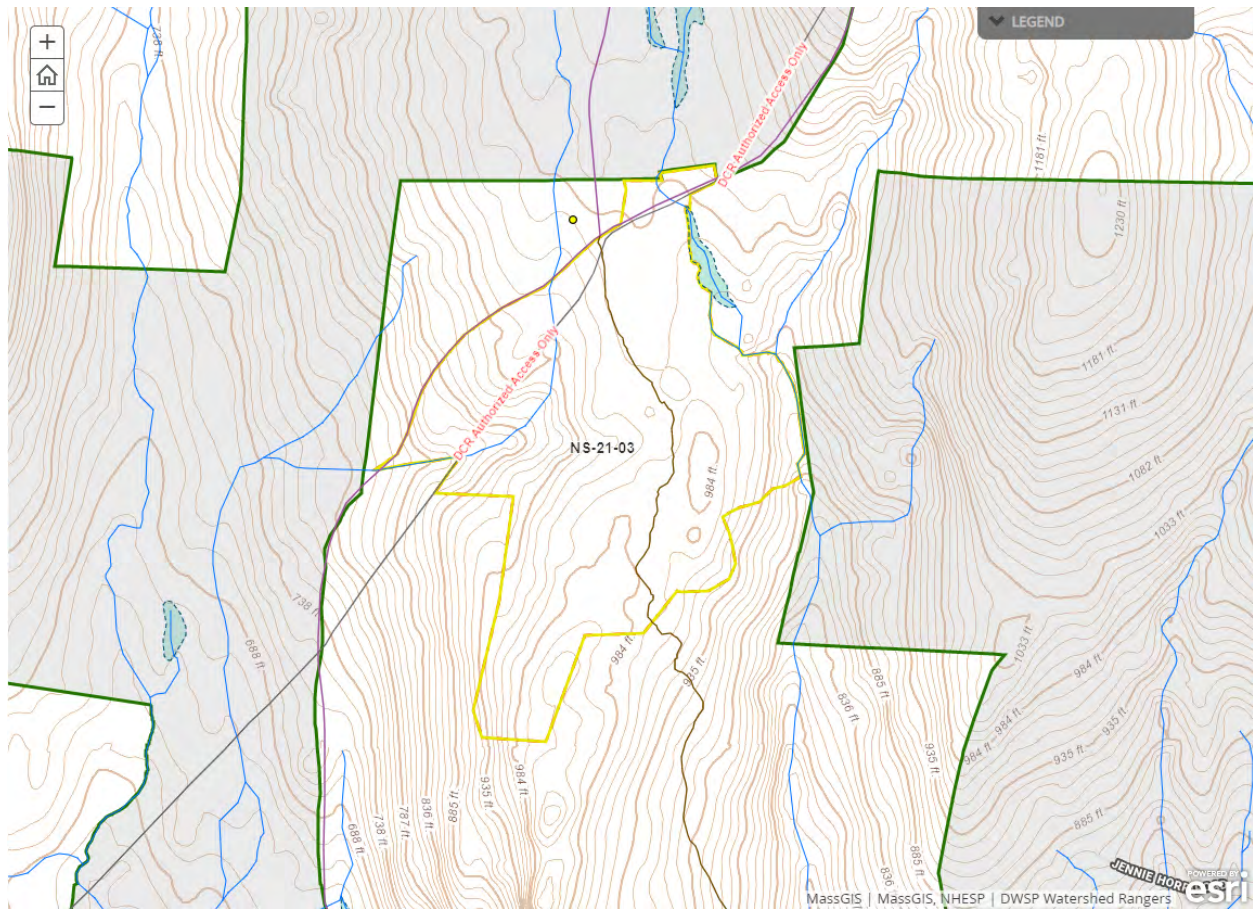
Wildlife Resources & Rare and Endangered Species

General Wildlife Comments:

Some sign of current browse pressure. Abundant mountain laurel indicates extensive past deer impacts.

Comments on Rare Species/Habitats:

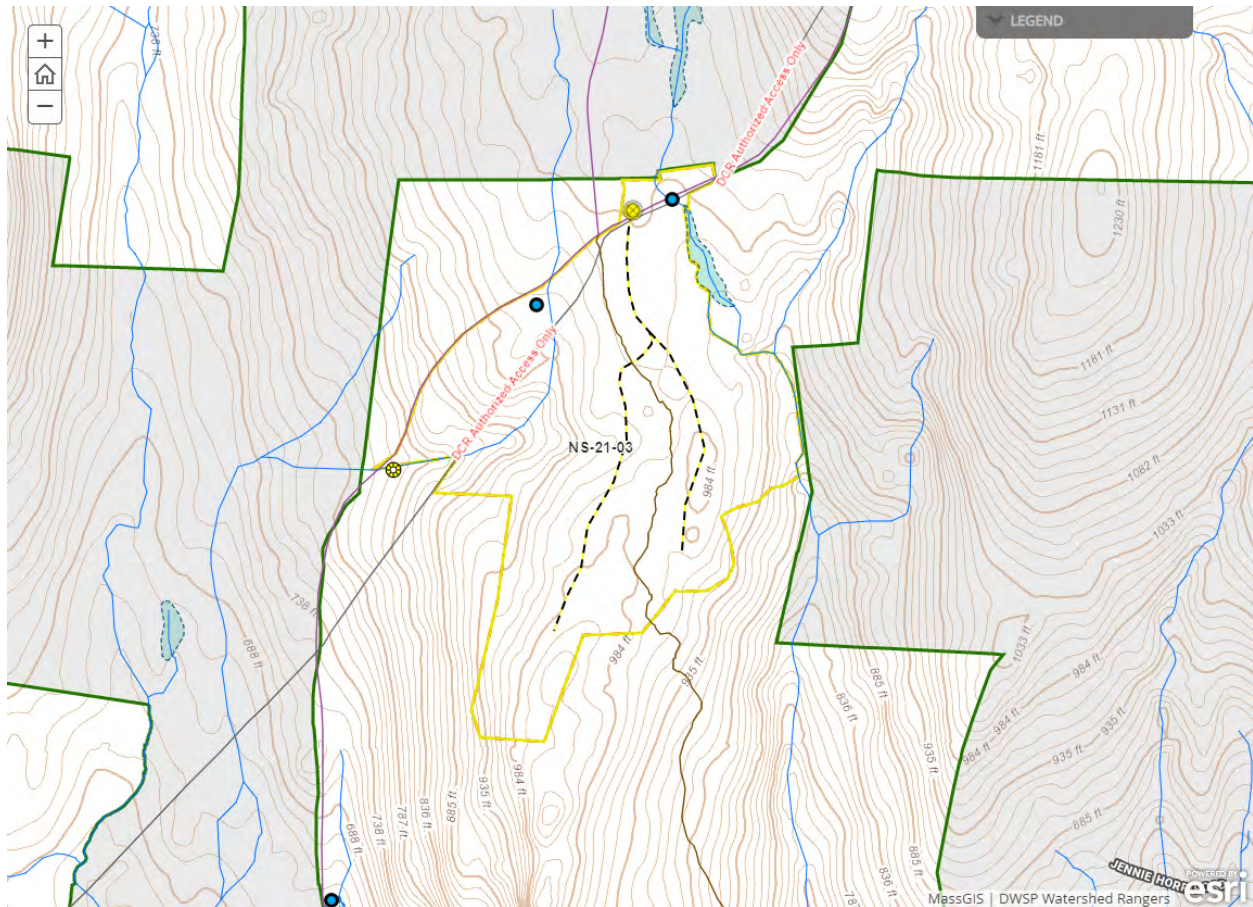
No rare species or habitats known near the proposal area.



Environmental Quality Engineering

Comments on EQ Issues:

No stream crossings are proposed.



Forest Access Engineering

Gravel needed: Yes

Landing work needed: No

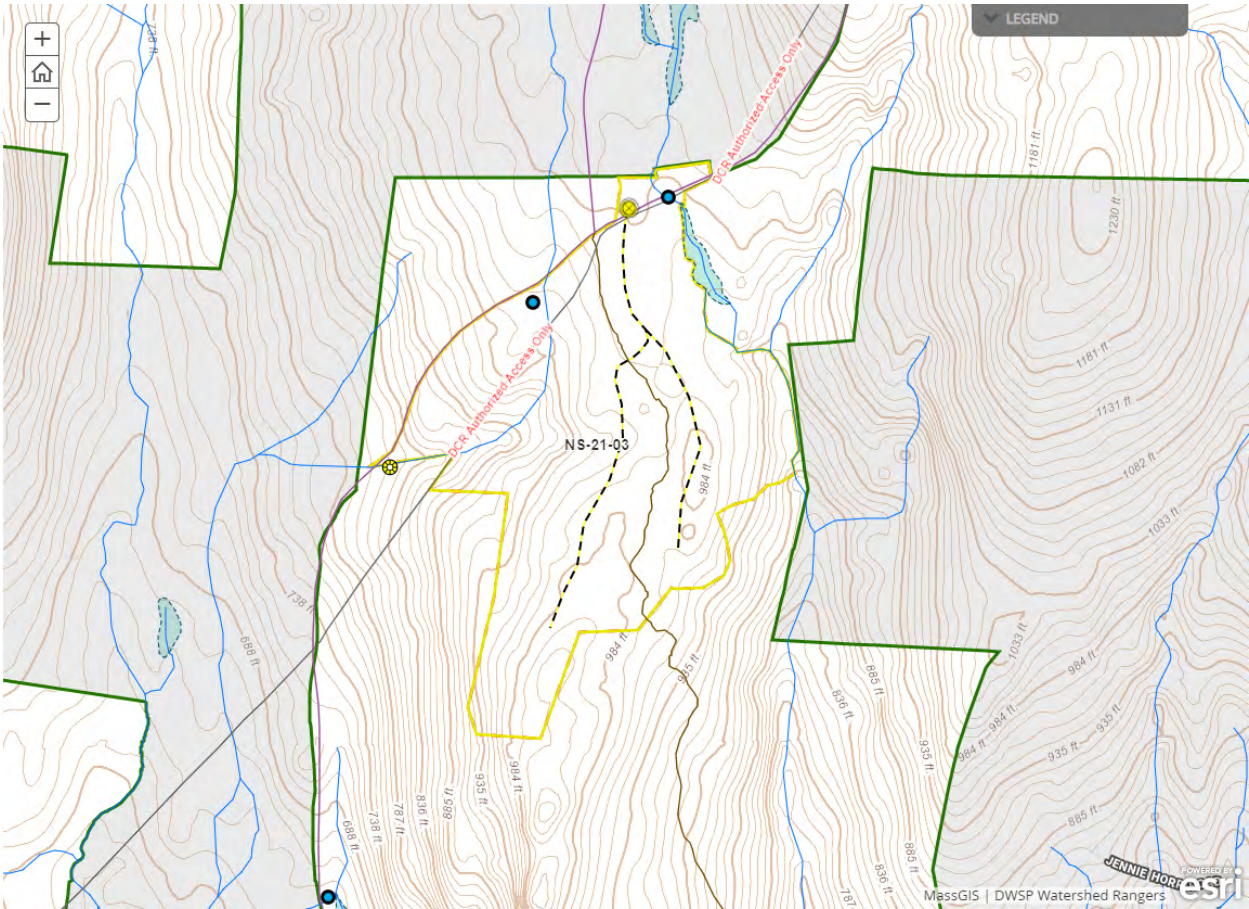
Culverts needed: Yes

Work needed on permanent bridges: No

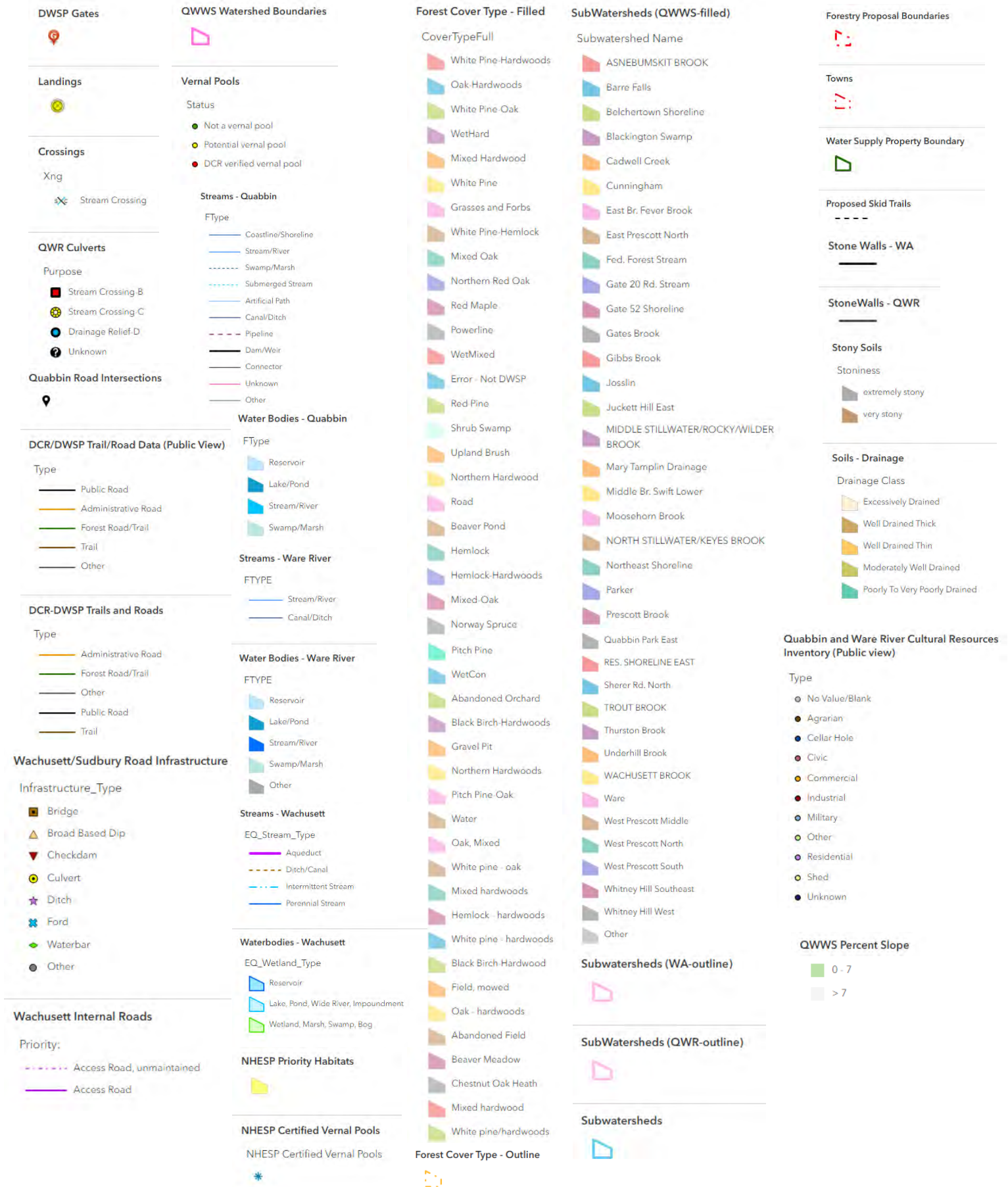
Beaver issue: No

Further comment on access needs:

North Macedonia Road is in need of surface repairs and culvert work between the gate and the landing. Some work may need to be done to clear off or expand the landing, but that may be able to be handled by the operator.



DWSP FY 2021 Forestry Proposals – Master Legend for story maps



Quabbin Harvest Proposal NS-21-17

Proposal Goals

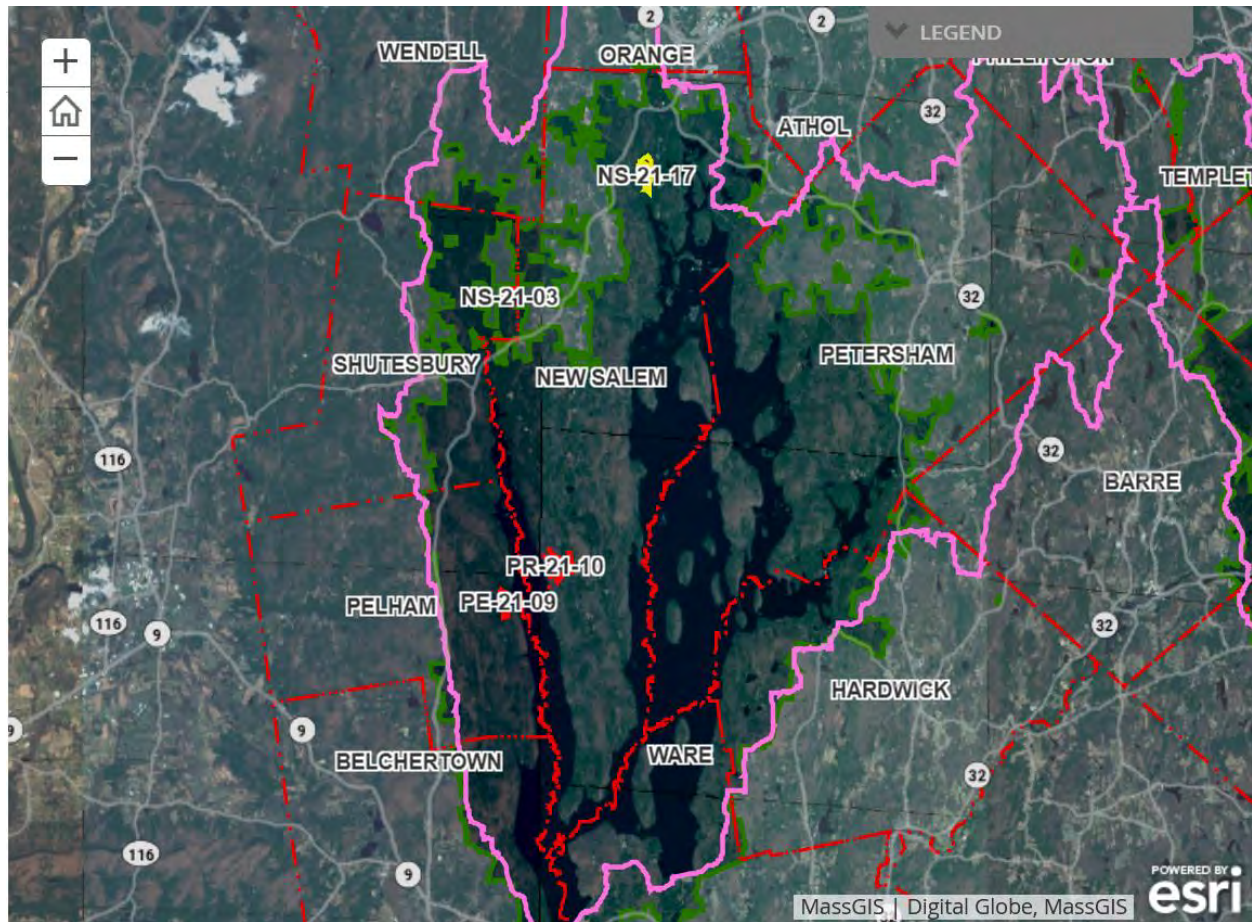
There are multiple goals for this proposal:

- Remove remaining red pine in advance of further mortality from red pine scale;
- Diversify age structure and maintain or increase species diversity by creating canopy openings to develop regeneration
- Conduct mid-rotation improvement thinning in pole pine stand established in earlier harvests

Proposal Location

High tension power line to the north; lower operable limit of a steep slope leading to the power line and Lot 3142 (completed in 2017) to the east; seasonal access road to the south; and a beaver pond, Manning Brook and associated wetlands to the west. A second access road runs through the lot at the north end, and an AT&T right of way crosses the lot about a third of the way south from the northern limits.

Total Acres: 77



General Description

	Overstory Type(s)	Acres
Dominant	White pine-oak/Oak-hardwoods	38
Secondary	White pine	28
Other	White pine/Hemlock/Hardwoods	11

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

Description of forest composition/condition:

Most of the proposed area is dominated by white pine sawtimber, mixed with hardwoods north of the AT&T right of way and red pine at the south end of the lot. Where white pine is dominant, differentiation has resulted in a range of crown classes, from vigorous co-dominants to declining suppressed trees. Form is also variable, ranging from poor to good. White pine weevil damage is present but not extreme. The red pine at the south end of the proposal has good form but is declining, presumably due to red pine scale.

Diverse hardwoods are present in the northern portion of the lot, including red, black, and white oak; red and sugar maple; black, yellow, and paper birch; white ash, black cherry, aspen, and beech. Oaks are typically sawlog-sized, with red oak more common and having better form than black or white oak. The other hardwoods are predominantly pole or small sawlog-sized, with red maple poles being particularly common. Beech, ash, cherry, and paper birch generally have poor to fair form and vigor; red maple and black and yellow birch have variable form but generally good vigor. Scattered hemlock poles are present throughout the north and central portions of the proposed area, with some hemlock sawlogs in the higher elevations near the power line.

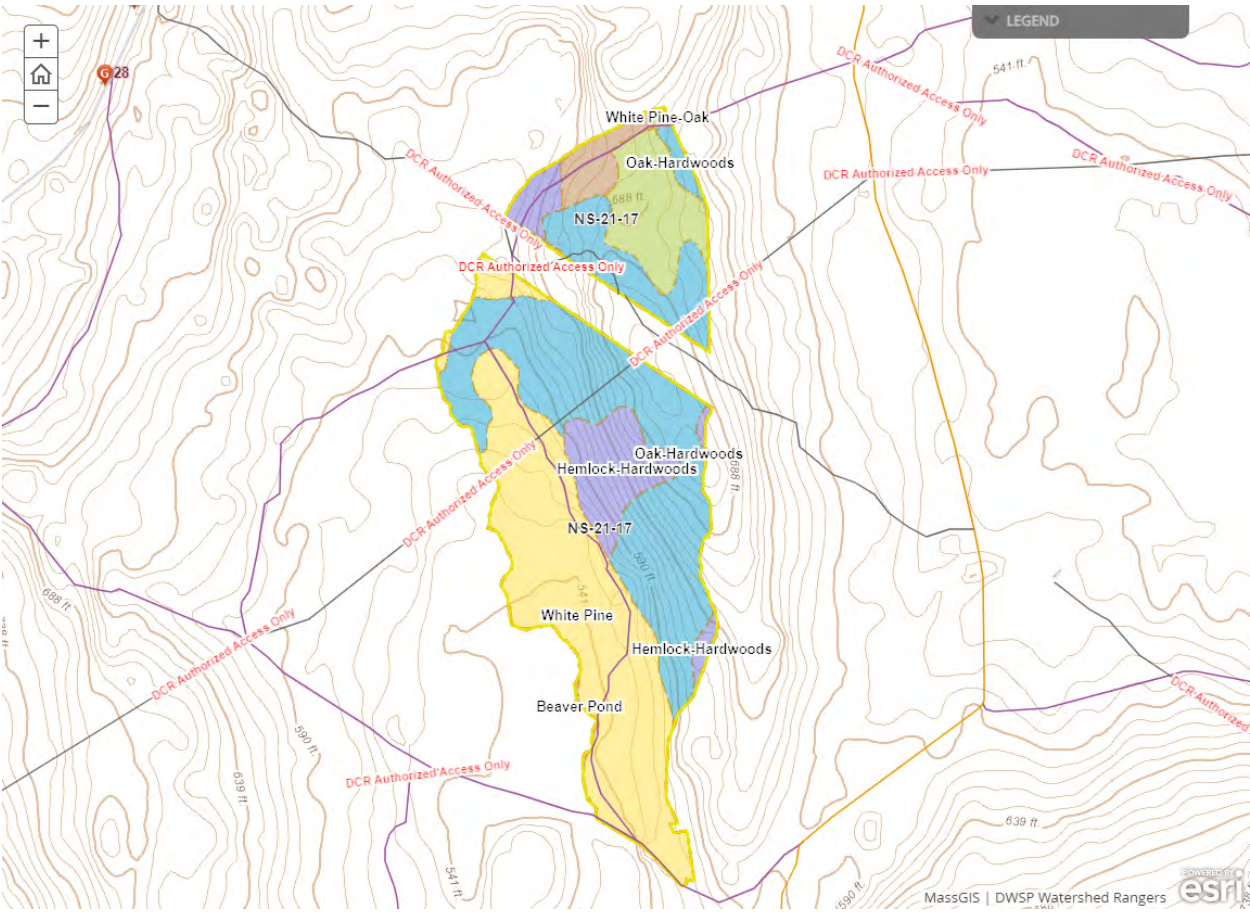
Advance regeneration is present throughout the lot and is dominated by white pine and black birch seedlings and saplings. Also present are hemlock, beech, red maple, and occasional oak seedlings and saplings. In some areas there is little regeneration of any species. In the southern portion of the proposed area there is a large patch of white pine saplings and poles with widely scattered white pine sawlogs of variable form. This appears to have been initiated by a seed tree cut about 40-50 years ago.

Species in the understory include mountain laurel, witch hazel, high bush blueberry, hay scented fern, wood fern, Christmas fern, clubmoss, dewberry, wintergreen and partridge berry. Mountain laurel occurs primarily in small patches near the north access road and along Manning Brook and associated wetlands, where harvesting will be limited. High bush blueberry, sensitive fern, cinnamon fern and gold thread are present where soils are poorly drained. Sweet fern and trailing arbutus, both indicators of heathlands, are present at the south end of the proposed area.

Prior harvests include a red pine thinning/improvement cut in 1983 (Lot 368), and shelterwood prep cuts in the area between the red pine and the northern access road in 1975 (Lots 116 and 117). The 1975 shelterwood prep cuts probably included the small seed tree cut described above.

Assessment of Terrestrial Invasive Species:

Japanese barberry and glossy buckthorn are present near the two roads, and there's a large patch of Japanese barberry outside the proposed area to the northwest. Ideally, invasives should be treated before or immediately after harvest, but if this is not possible, harvesting in areas with invasives will be avoided.



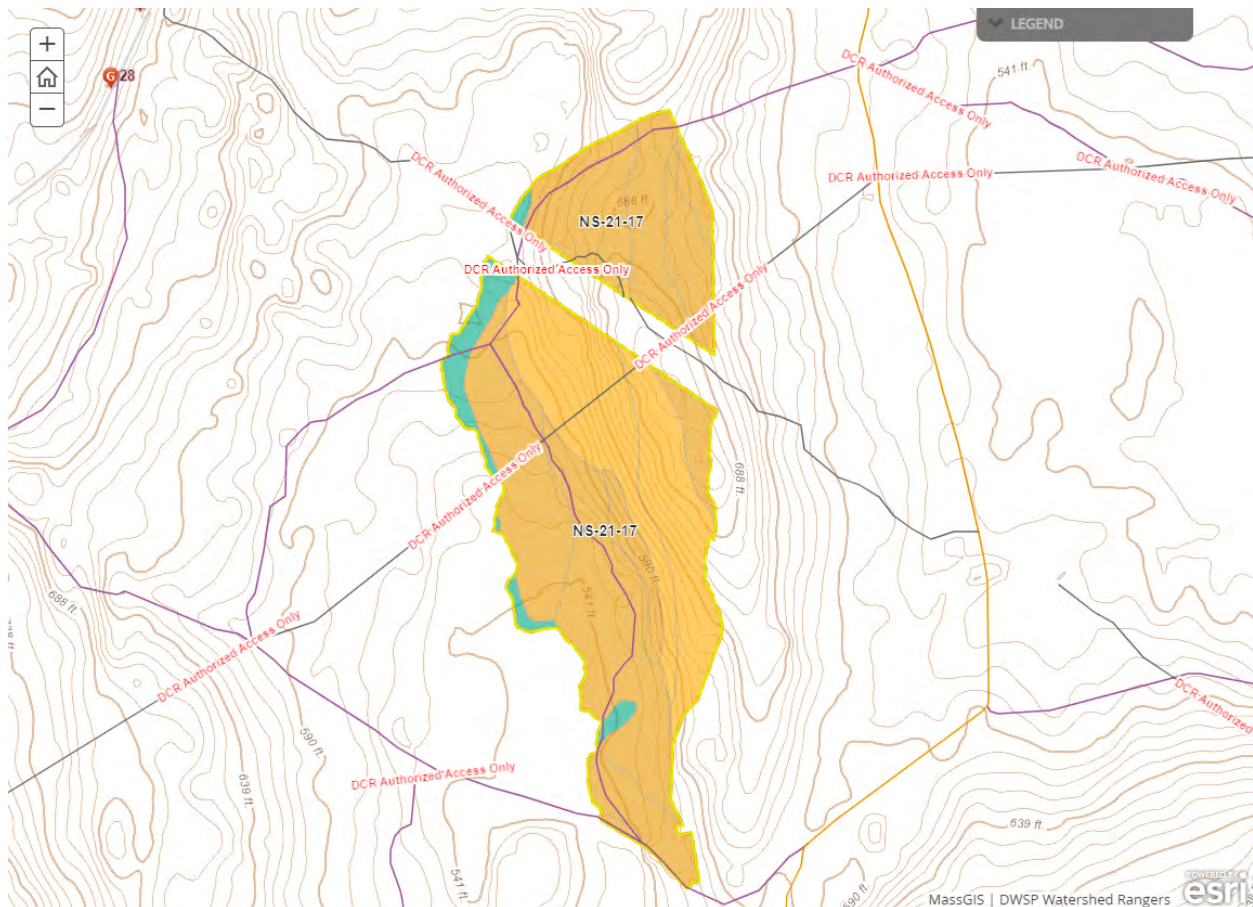
Soils

Drainage Class	%
Excessively Drained	0
Well Drained Thin	0
Well Drained Thick	91
Moderately Well Drained	0
Poorly to Very Poorly Drained	9

According to the Natural Resources Conservation Service, soil types include:

- 49.2% Canton-Chatfield-Hollis complex, rocky
- 14.3% Chatfield-Hollis complex, rocky
- 26.5% Montauk fine sandy loam, very stony
- 6.7% Walpole fine sandy loam, very stony
- 2.7% Walpole sandy loam
- 0.6% Agawam fine sandy loam

All are well drained except for Walpole fine sandy loam and sandy loam, which are wetland types that occur along the beaver pond, Manning Brook, and associated bordering vegetated wetlands. No equipment will be allowed on these poorly drained soils.

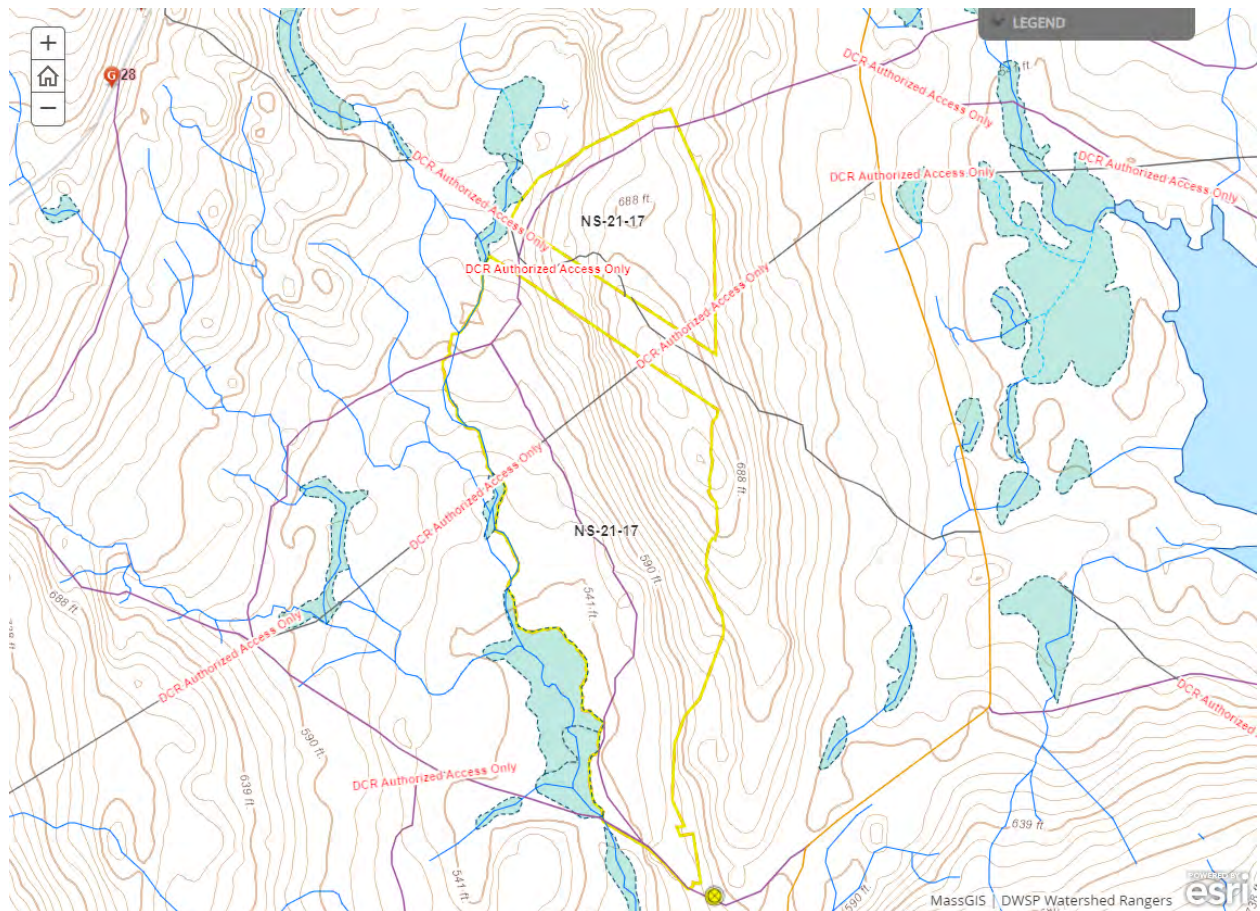


Wetlands

- 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** ([Riparian Zone Mgt](#))
- Is logging in wetlands planned? - **No**

A beaver pond, Manning Brook and associated wetlands form the west boundary of this lot. These features will be protected with variable width filter strips, in accordance with the Massachusetts Forest Cutting Practices Act (M.G.L. Chapter 132) and the 2017 DWSP Land Management Plan.

Beavers are active in this area, and may cause changes to the extent of wetlands. Wetland features throughout the lot will be delineated at the time of marking based on Massachusetts Wetland Protection Act criteria (M.G.L. Chapter 131).



Silviculture

Acres in Intermediate cuts: **8**

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

Acres in Regeneration cuts: **12**

Average regen opening size: **1**

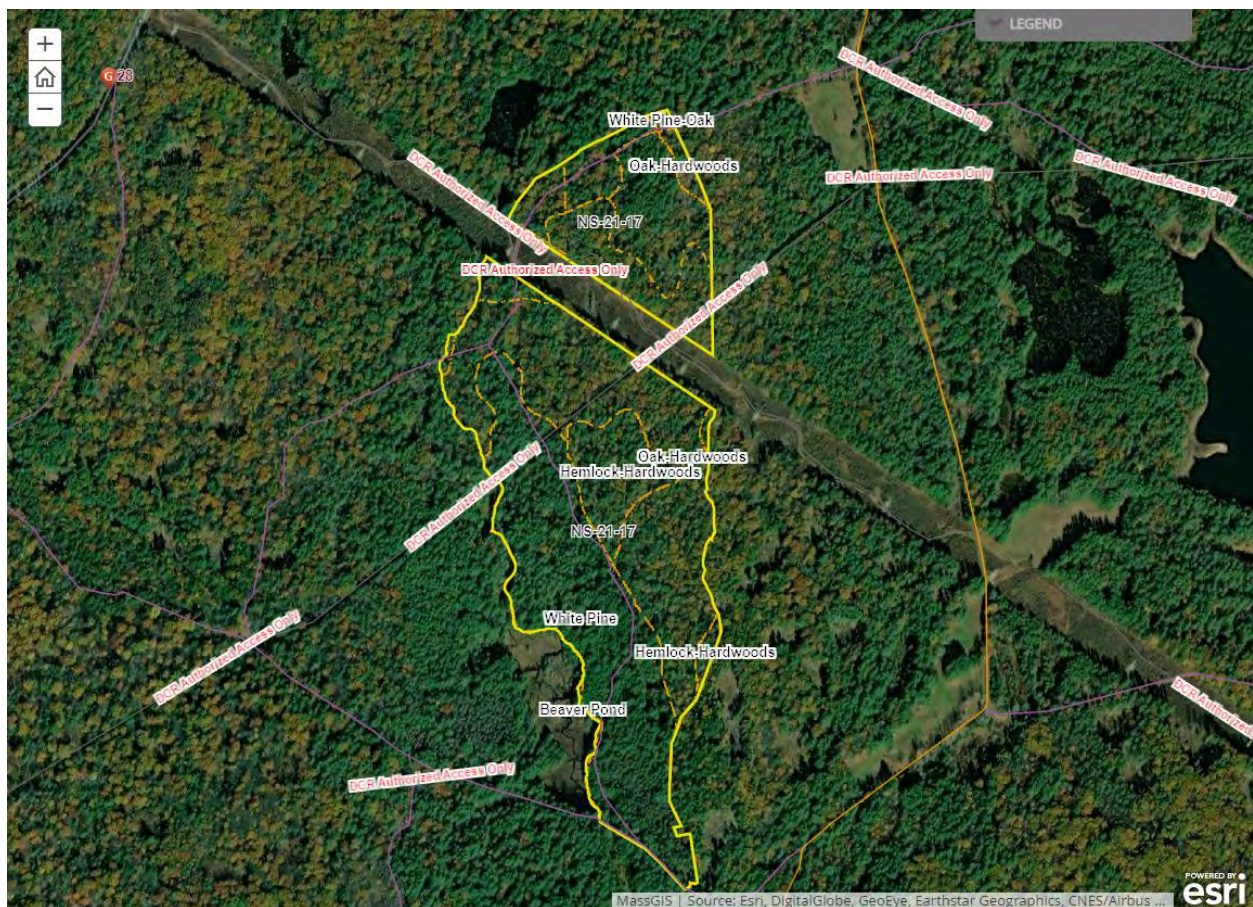
Maximum regen opening size: **4**

Description of advance regeneration in proposal area:

Advance regeneration is present throughout the lot and is dominated by white pine and black birch seedlings and saplings. Also present are hemlock, beech, red maple, and occasional oak seedlings and saplings. In some areas there is little regeneration of any species. In the southern portion of the proposed area there is a large patch of white pine saplings and poles with widely scattered white pine sawlogs of variable form. This appears to have been initiated by a seed tree cut about 40-50 years ago.

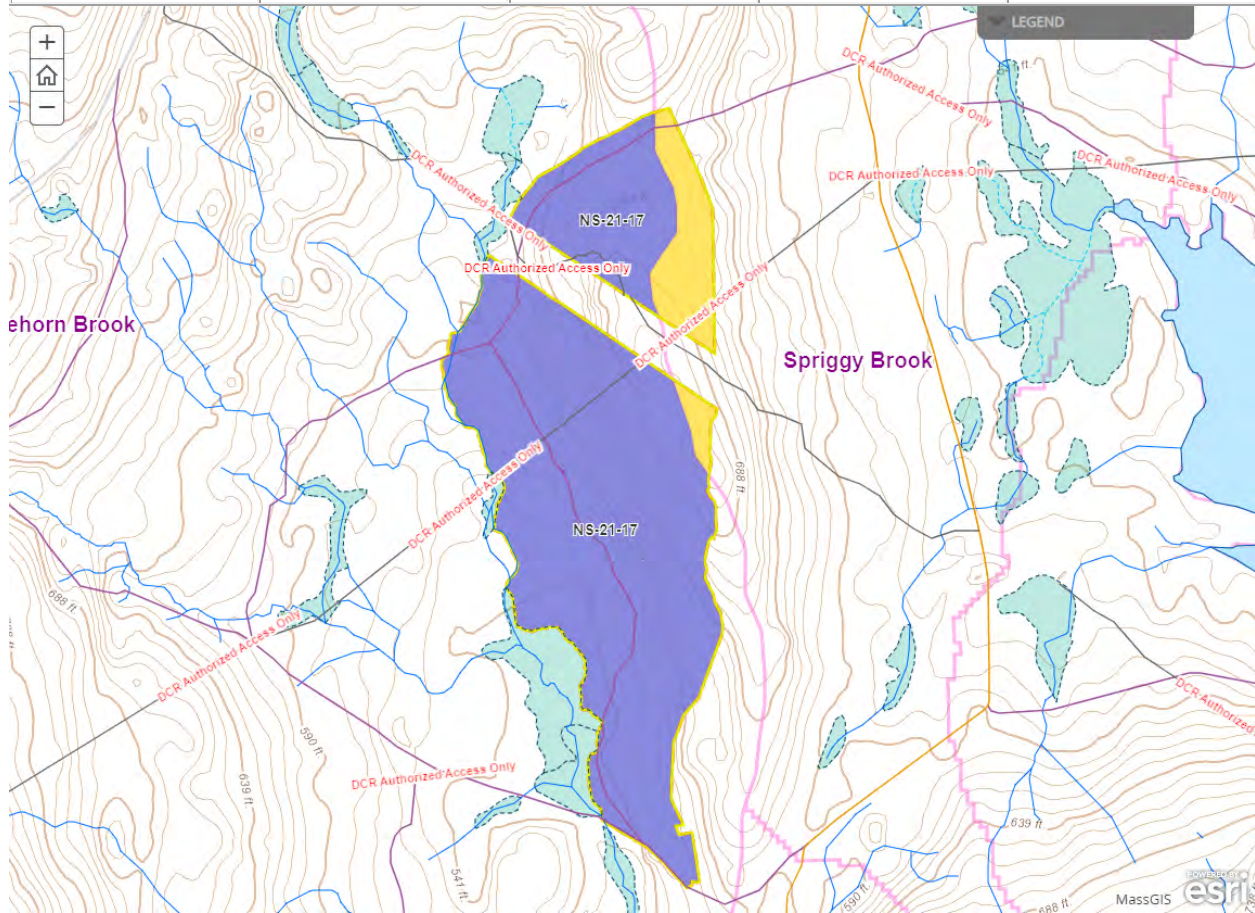
General comments on silviculture proposed:

Openings will be irregular in shape, and will be located where there are clusters of trees that are diseased, declining, or have poor stem structure, and where there is advance regeneration of high quality (healthy, well formed, and well suited to the site) that needs to be released. Five to ten square feet per acre of basal area of sawlog- and pole-sized trees will be retained in openings $> \frac{1}{2}$ acre. Virtually all living red pine will be removed, unless it's inaccessible such as due to filter strips. For all other species, the healthiest trees will be retained. The maximum size for most openings will be 2 acres, with one larger opening in the red pine at the southern end of the lot. Intermediate cutting will focus on areas where large openings are not possible due to filter strip regulations, and the white pine poles that were initiated by a seed tree cut around 1975.



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
75 (Moosehorn Brook)	1290	10	293	41
93 (Spriggy Brook)	262	7	59	7



Harvesting Limitations

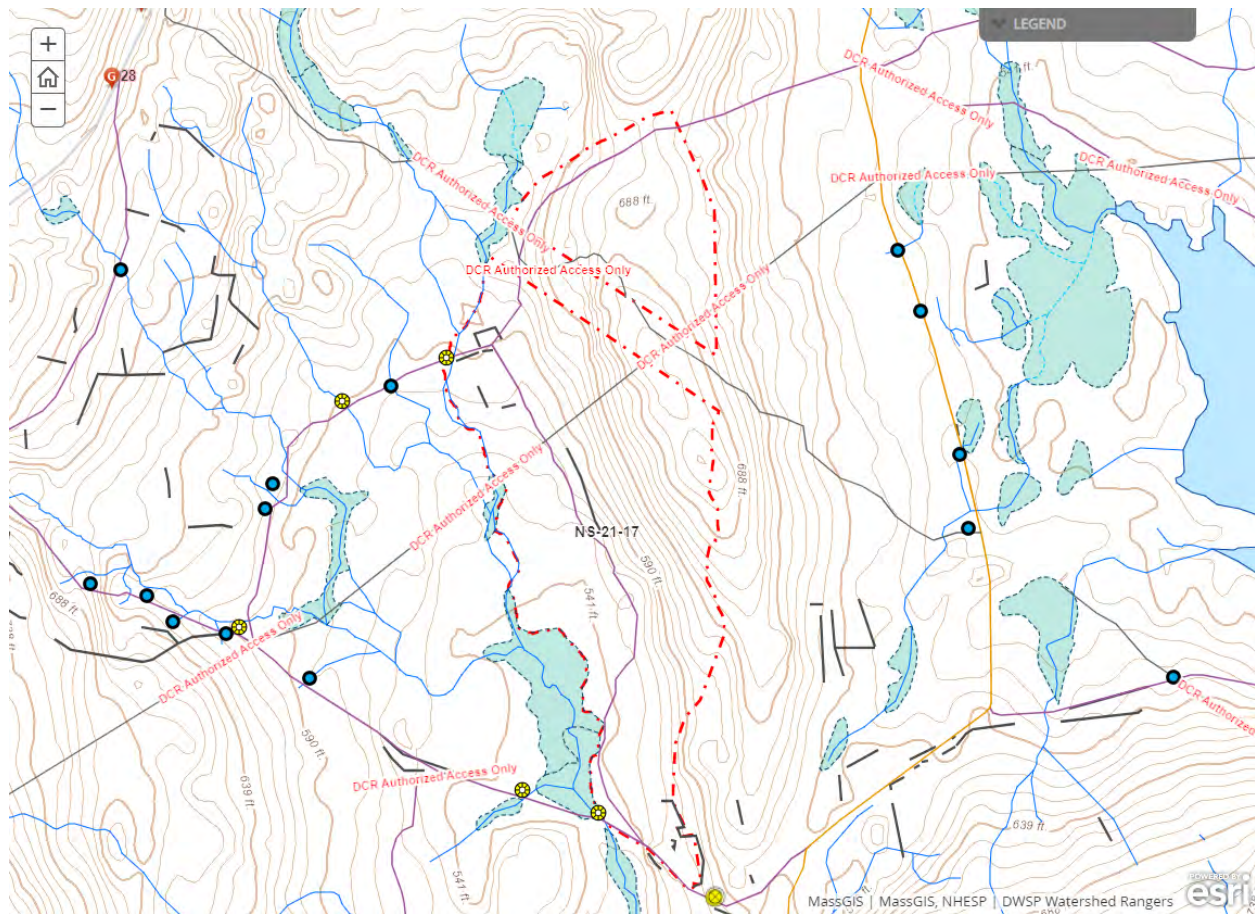
Forwarder required: **No**

Feller/processor required: **No**

Steep slopes present: **Yes**

Comments on harvesting limitations:

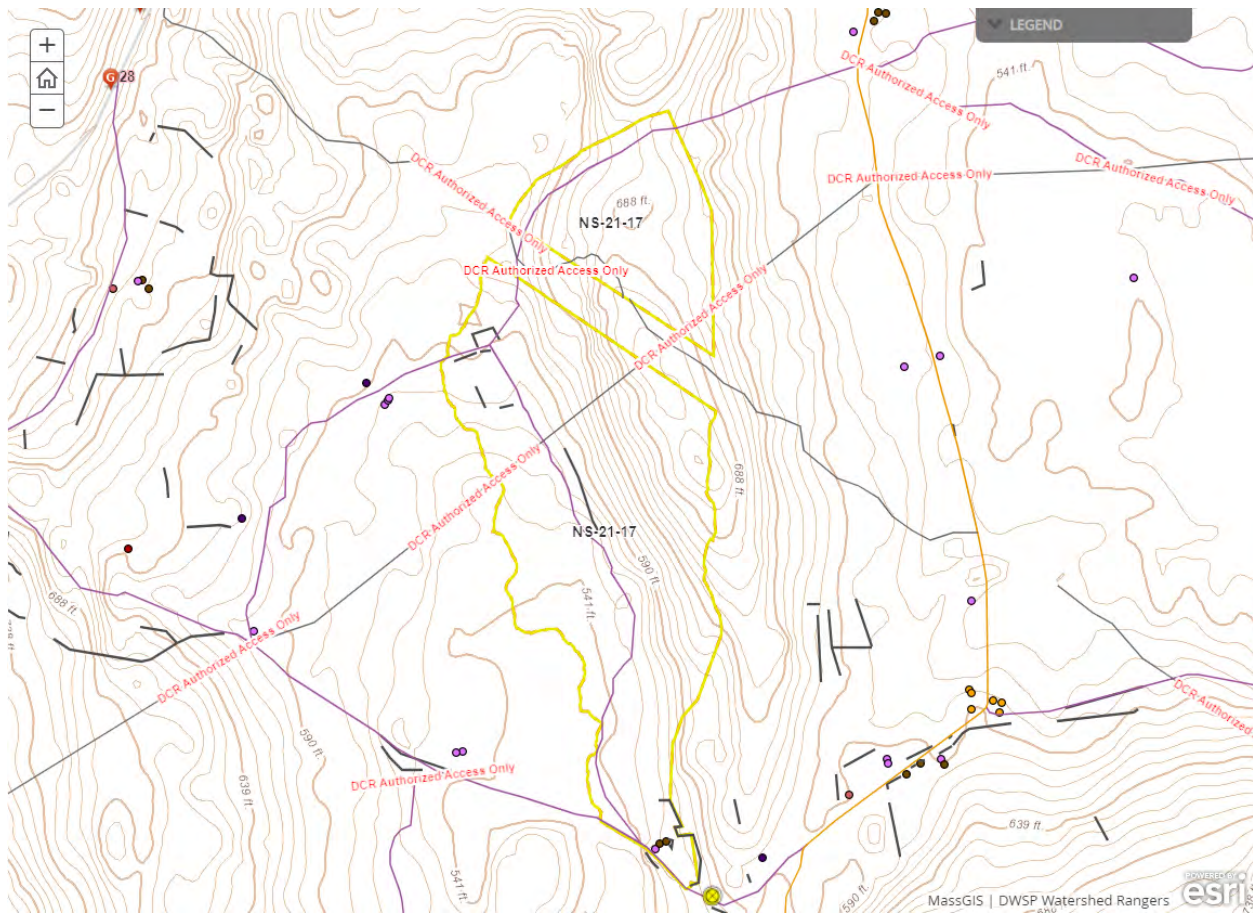
Skid roads will be routed to avoid steep slopes.



Cultural Resources

Comments on Cultural Resources:

All cultural features will be flagged, avoided, and protected.



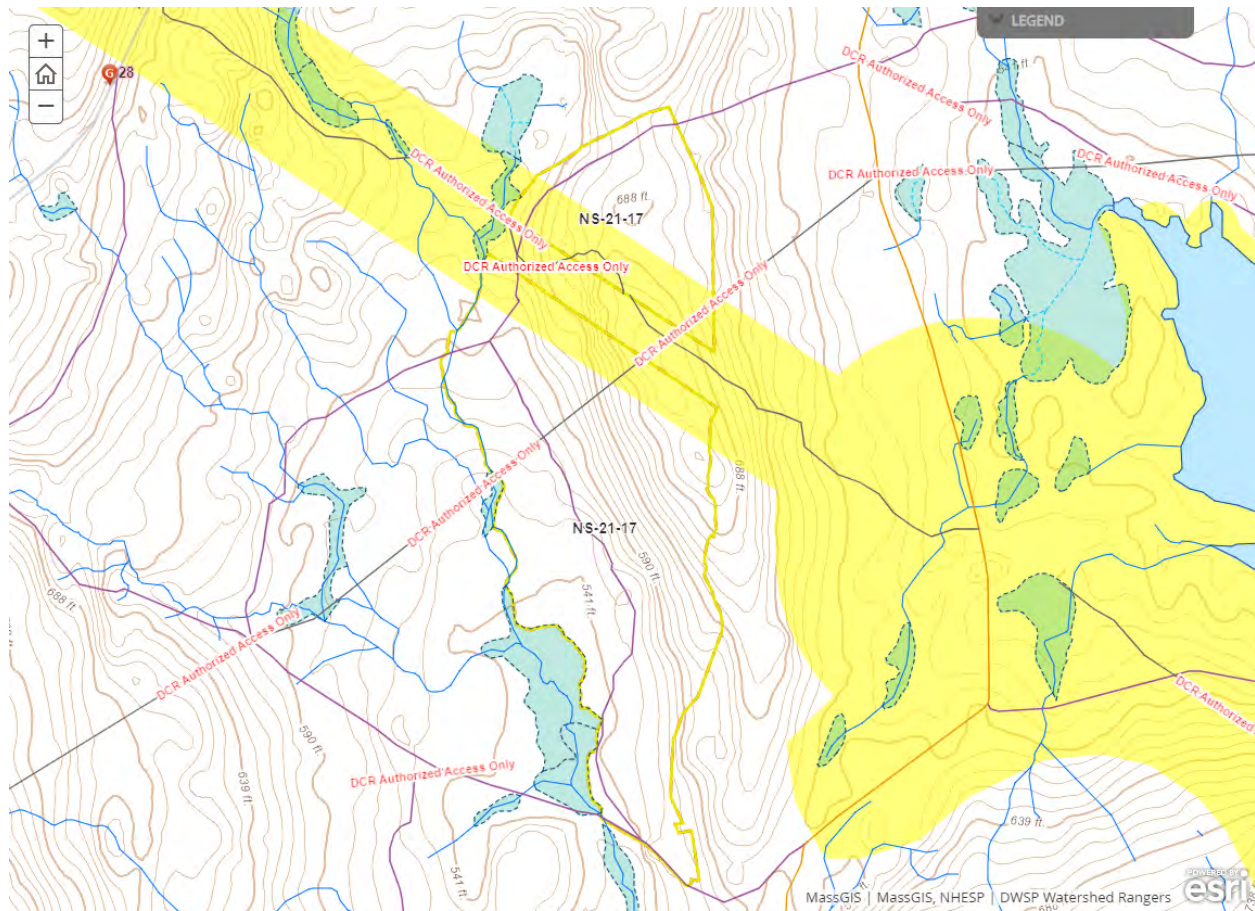
Wildlife Resources & Rare and Endangered Species

General Wildlife Comments:

Deer scat is prevalent in the southern portion of the lot, and some moose scat is also present. Overbrowsing may partially explain the dominance of softwoods in this area, but the sandy soils are also favorable for pine. Porcupine browsing was observed on hemlocks on the slopes near the powerline. Evidence of beaver activity (chews, dams, lodges) is present throughout the length of Manning Brook as well as in and around the beaver pond.

Comments on Rare Species/Habitats:

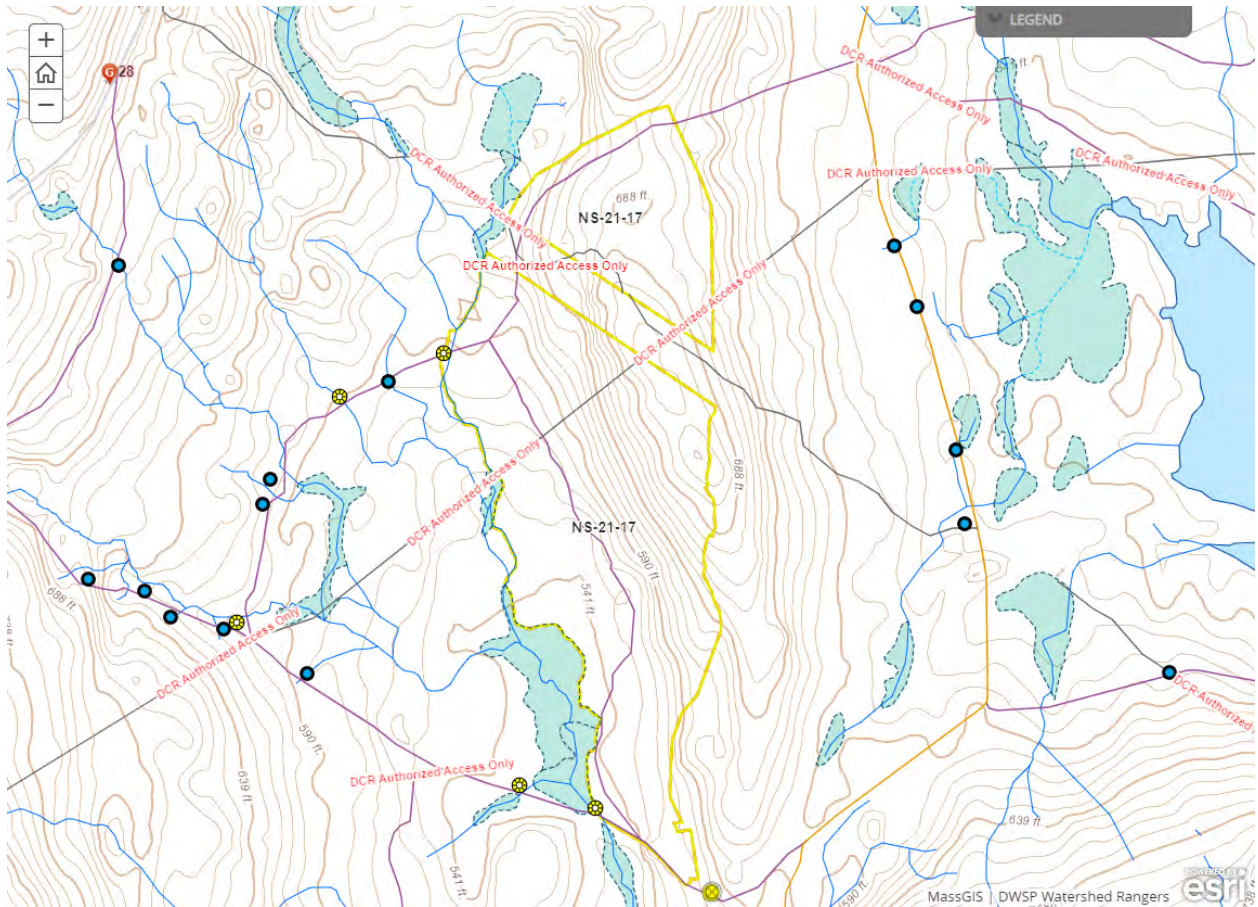
NHESP has determined that certain state-listed sensitive species or habitats may exist within the lot proposal area. To protect them from any necessary disturbance, detailed information regarding affected species and their locations is not included in this report. DWSP will coordinate with NHESP and follow recommendations to protect these species during the proposed activity.



Environmental Quality Engineering

Comments on EQ Issues:

No stream crossings or EQ comments.



Forest Access Engineering

Gravel needed: No

Landing work needed: No

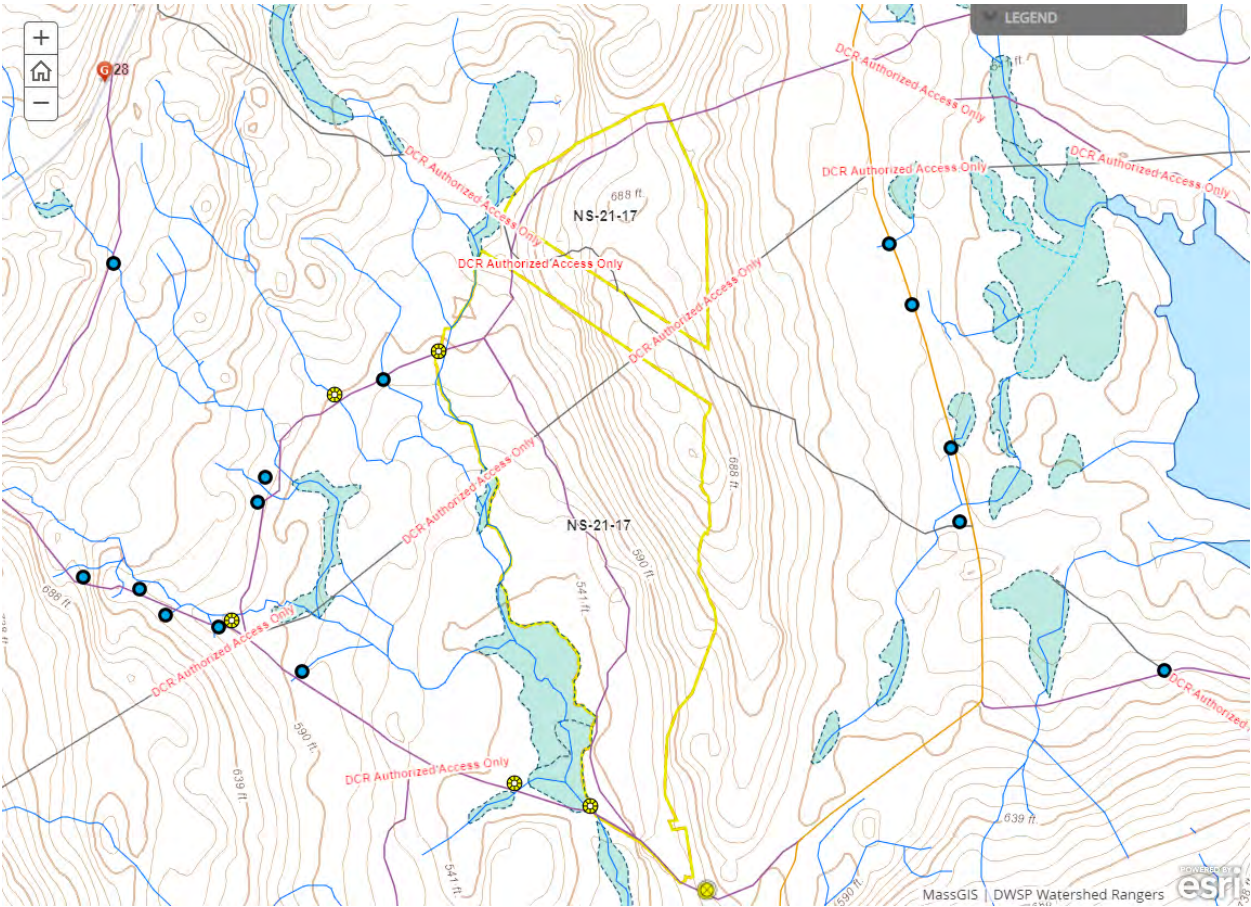
Culverts needed: No

Work needed on permanent bridges: No

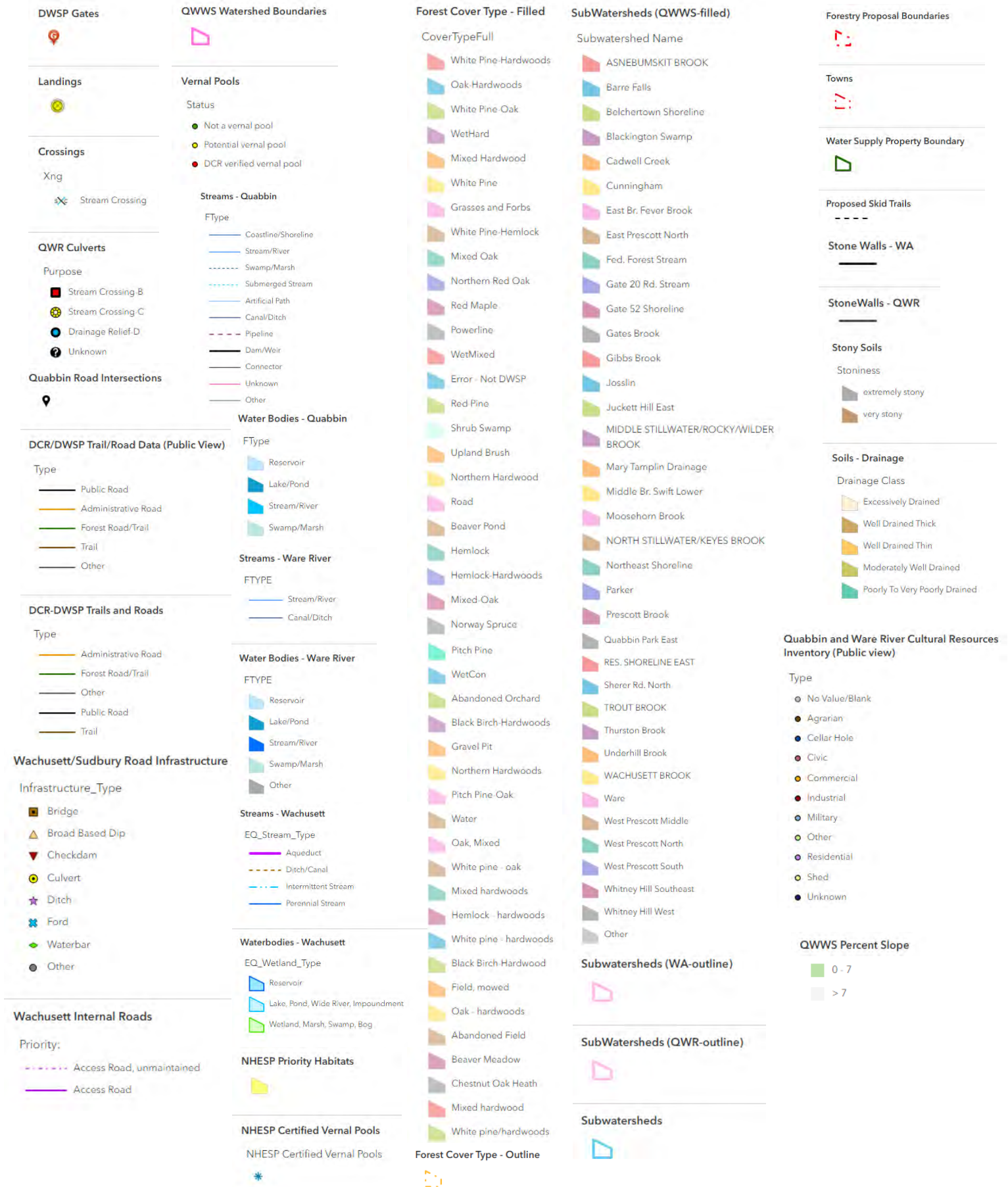
Beaver issue: Yes

Further comment on access needs:

The access road from intersection 29-2 to the powerline is eroded and needs grading. Beaver activity is not currently affecting access, but could conceivably in the future.



DWSP FY 2021 Forestry Proposals – Master Legend for story maps



Quabbin Harvest Proposal PE-21-09

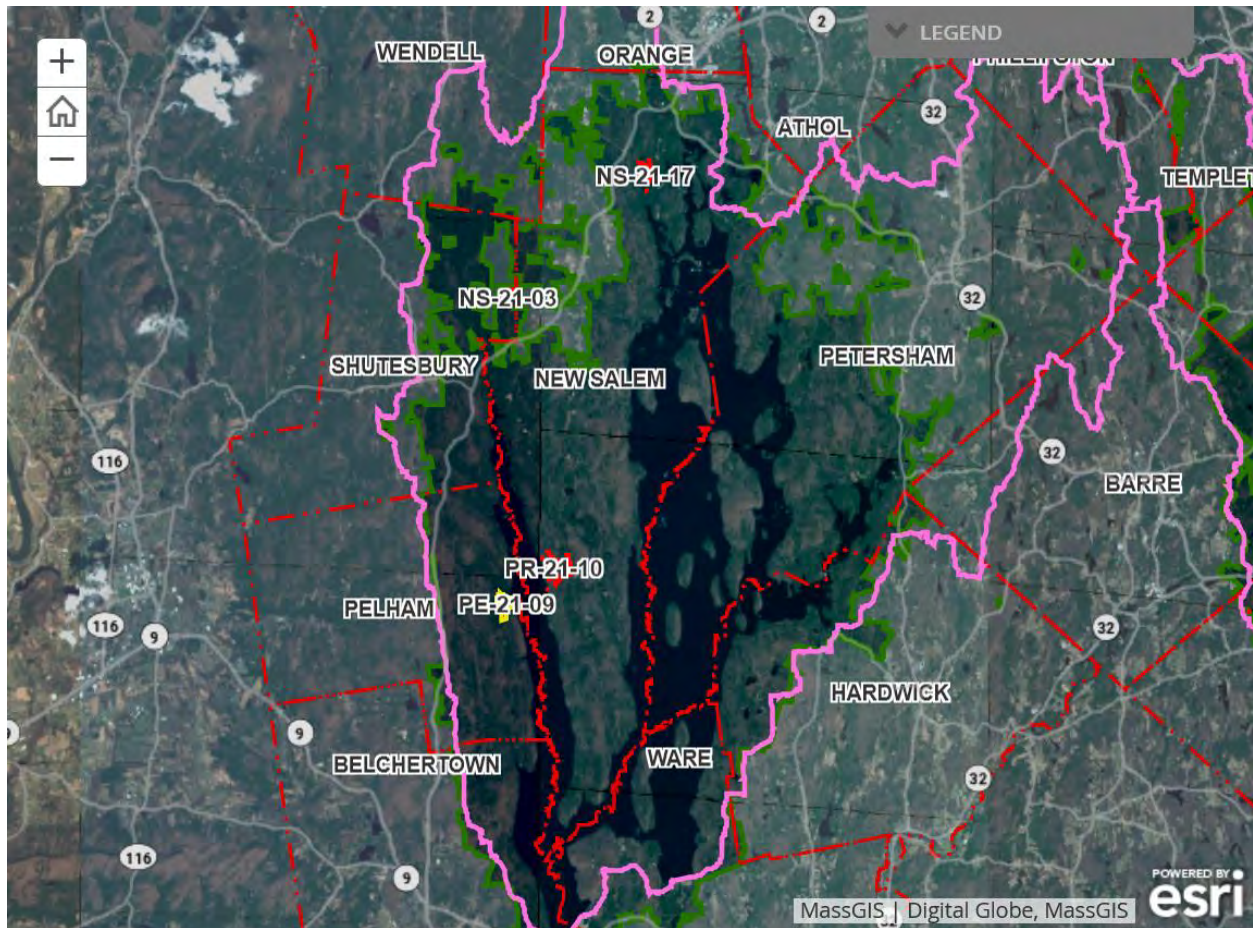
Proposal Goals

This proposal seeks to achieve overall watershed goals of increasing age and species diversity by harvesting areas with low species diversity, poorly formed or unhealthy stems. The harvest will target release of existing regeneration, and provide opportunities for new regeneration to establish.

Proposal Location

The lot is bounded by Pelham Hollow Road and steep slopes to the North, Governor's Woods Road to the West, an intermittent stream to the south, and the reservoir shoreline to the east.

Total Acres: 67



General Description

	Overstory Type(s)	Acres
Dominant	White pine/hardwood	54
Secondary	White pine	10
Other	Hemlock	2

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

Secondary	Mountain laurel prevalent
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Description of forest composition/condition:

The majority of the proposed area is in white pine/hardwood white pine/oak cover. Median stocking throughout is 110 ft² / acre with a median diameter class of 16 ". Eastern white pine and northern red oak are the dominant overstory species. The white pine on site ranges from pole sized to > 30 " in diameter with a mean diameter of 25 ", the red oak shows two size classes centered around 13 " and 20 " diameter. Pole sized red maple, mostly poorly formed is the next largest constituent followed by small sawlog sized hemlock. Larger hemlock in the proposed area has been hard hit by hemlock wooly adelgid (HWA; *Adelges tsugae*) creating small gaps which have initiated mostly white pine regeneration 5-15 years old, with some black birch and red maple mixed in. The 11 acres in white pine cover is a true white pine stand with little species diversity, a closed canopy and only very small gaps (up to 0.1 acres) available for regenerating white pine seedlings unlikely to persist. Basal area in the pine stand is 110-130 ft² / acre and is primarily in >20" diameter size class. The hemlock stand in the southeastern section of the proposal still contains pole sized to small saw log healthy hemlock, with red maple, paper birch, and red oak the primary hardwood species. Hemlock regeneration has been heavily browsed and it was rare to find a hemlock between 2 and 20 ft tall.

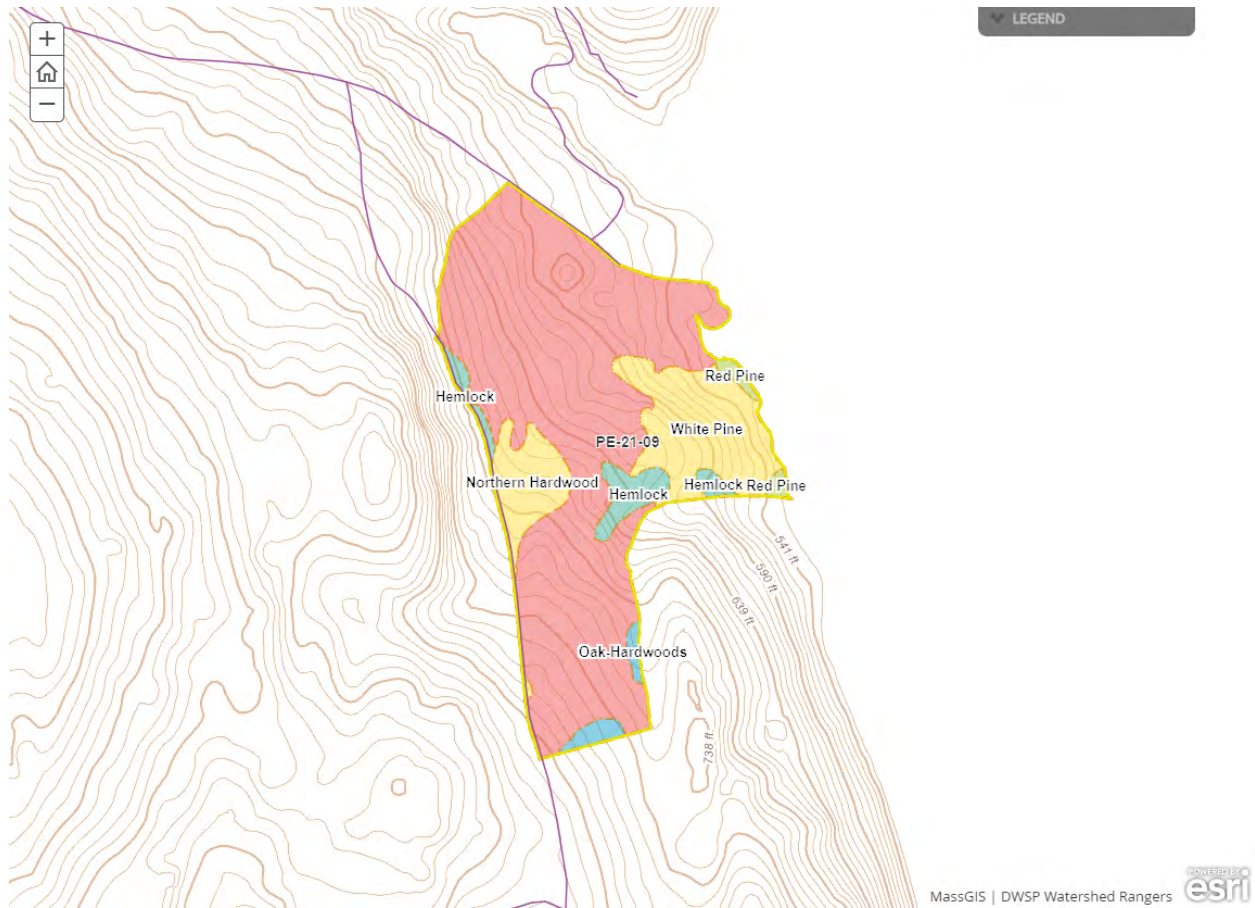
There are small pockets of red pine near the shoreline only a few acres in size. The red pine is in drastic decline and given its poor condition, proximity to the reservoir shoreline and its distance from areas regularly accessed by the public it will most likely be left to collapse in place.

At the time of the establishment of the Quabbin Reservation real estate sheets show that the top of the slope on the western to southwestern portions of the lot were in sproutland, and the northern slopes near the road intersection and the pine stand were previously in woodland.

The proposed area contains two previous harvests, 0131 completed in 1976 and 0609 completed in 1993. Lot 0131 was a 19 acre thinning of the pine and hemlock located north and south of the perennial stream. Lot 0609 overlaps with the southern edge of the proposal creating small (< 0.25 acre) openings and initiating some now sapling sized white pine and black birch regeneration.

Assessment of Terrestrial Invasive Species:

Invasive species were not observed during a prism cruise of the proposed area. There are known patches of *Berberis thunbergii* north of the proposal on the gate 11 road, but outside of the area to be treated.

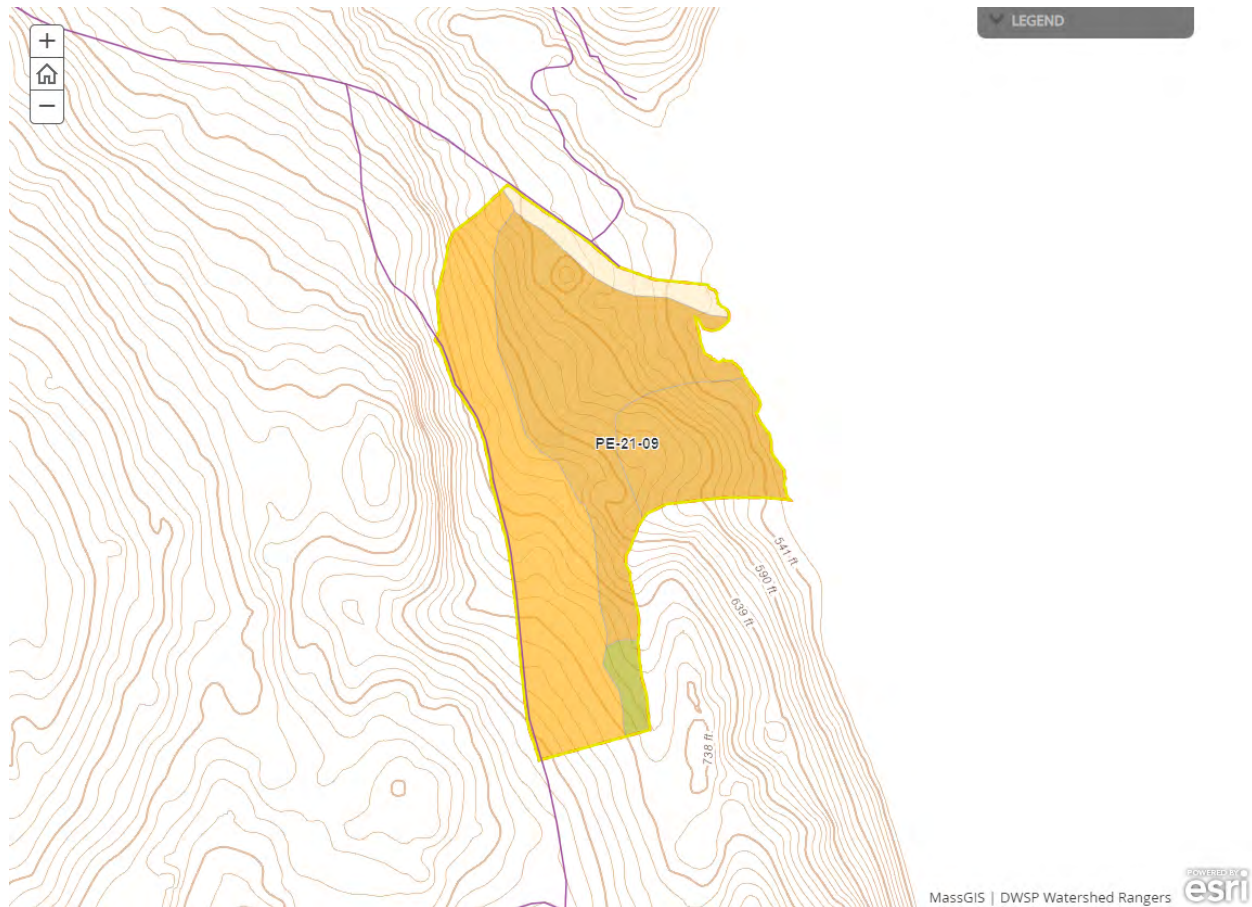


Soils

Drainage Class	%
Excessively Drained	5
Well Drained Thin	37
Well Drained Thick	55
Moderately Well Drained	3

Poorly to Very Poorly Drained	0
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Canton fine sandy loam comprises half of the lot, Charlton-Hollis-Rock outcrop complex another third, with Hinckley loamy sand and Scituate fine sandy loam as minor components. Landings will be located on Charlton-Hollis-Rock outcrop well drained soils.

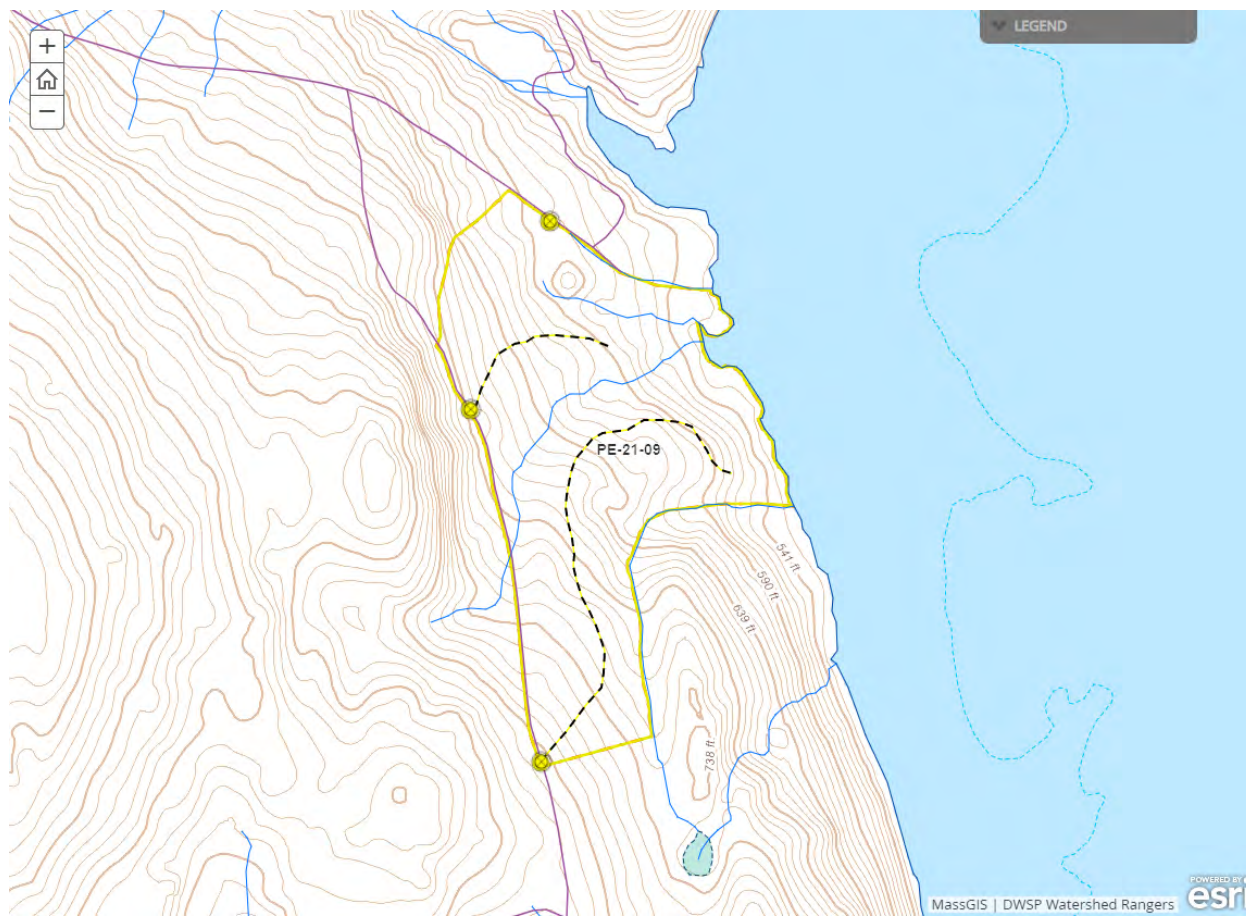


Wetlands

- Wetlands present? - **No**
- 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** ([Riparian Zone Mgt](#))

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

Landings and skid roads have been planned so as to avoid the need for stream crossings.



Silviculture

Acres in Intermediate cuts: **20**

Acres in prep/establishment cuts: **11**

Acres in Regeneration cuts: **19**

Average regen opening size: **1**

Maximum regen opening size: **2**

Description of advance regeneration in proposal area:

White Pine seedlings and saplings are present throughout the proposed area with stagnant/dying tall sapling white pine. Browse is extensive, nearly every plot visited had heavy browse impact: 'bonsai' hemlock, browsed striped maple, there were even signs that the black birch saplings are being browsed. Moose scat was a frequent presence.

General comments on silviculture proposed:

The majority of the proposed area will be treated with regeneration opening with green tree retention 5-15 ft²/acre. Openings will be placed to release existing regeneration or target areas of particularly poorly formed overstory. In areas with interfering mountain laurel, release of existing regeneration will be prioritized and the mountain laurel avoided. If adequate regeneration is not in proximity the mountain laurel will be contained within an opening with low basal area retention and mechanical treatment of the mountain laurel will be required to attempt to provide the light conditions for fast growing shade intolerant to moderately tolerant regeneration to grow up before the mountain laurel recovers. Edge and interior retention trees will favor well formed, vigorous overstory individuals, and under-represented species.

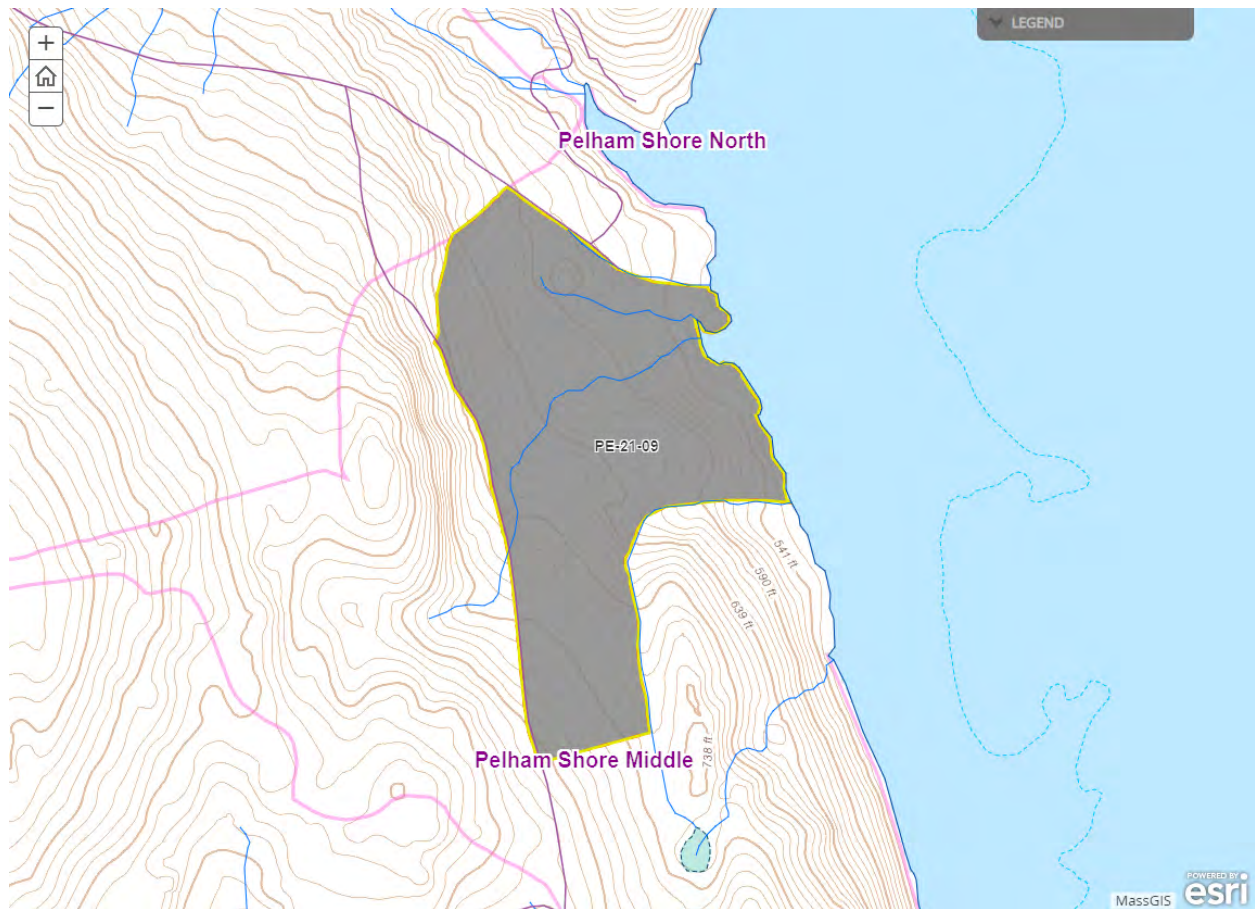
Improvement thinning will be performed in the matrix between regeneration openings targeting poorly formed and damaged individuals. In the white pine stand an extended irregular shelterwood system will be implemented. Basal area will be reduced to 30-40 ft²/acre and spatially grouped to reduce canopy closure shading over the extended shelterwood phase.

The limited red pine within the proposed area will likely be left unharvested, but if it is determined that the red pine is impeding white pine and hemlock regeneration the stand may be treated with some felling and/or girdling to adequately release the existing regeneration.



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
18 (Pelham Shore Middle)	322	0	81	73



Harvesting Limitations

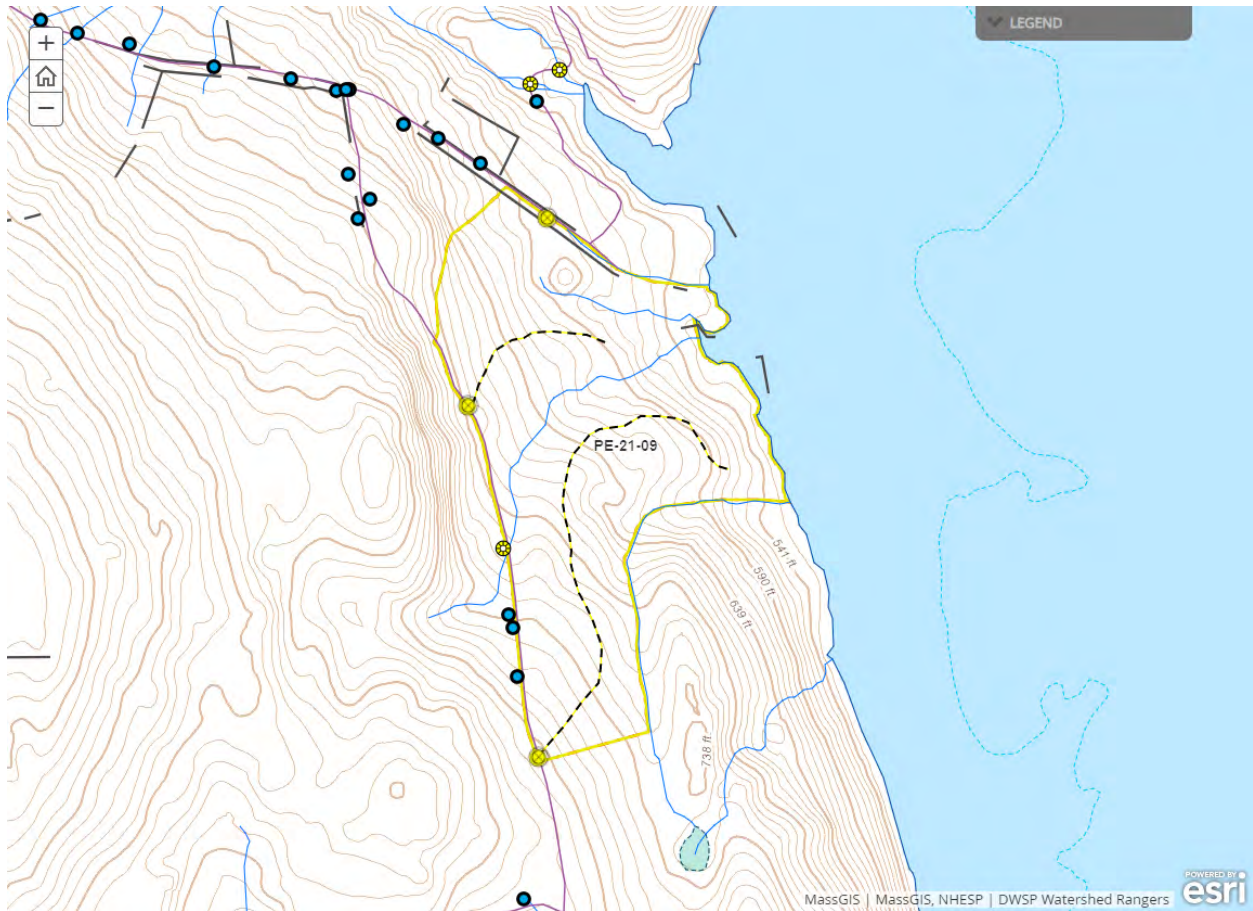
Forwarder required: **No**

Feller/processor required: **No**

Steep slopes present: **No**

Comments on harvesting limitations:

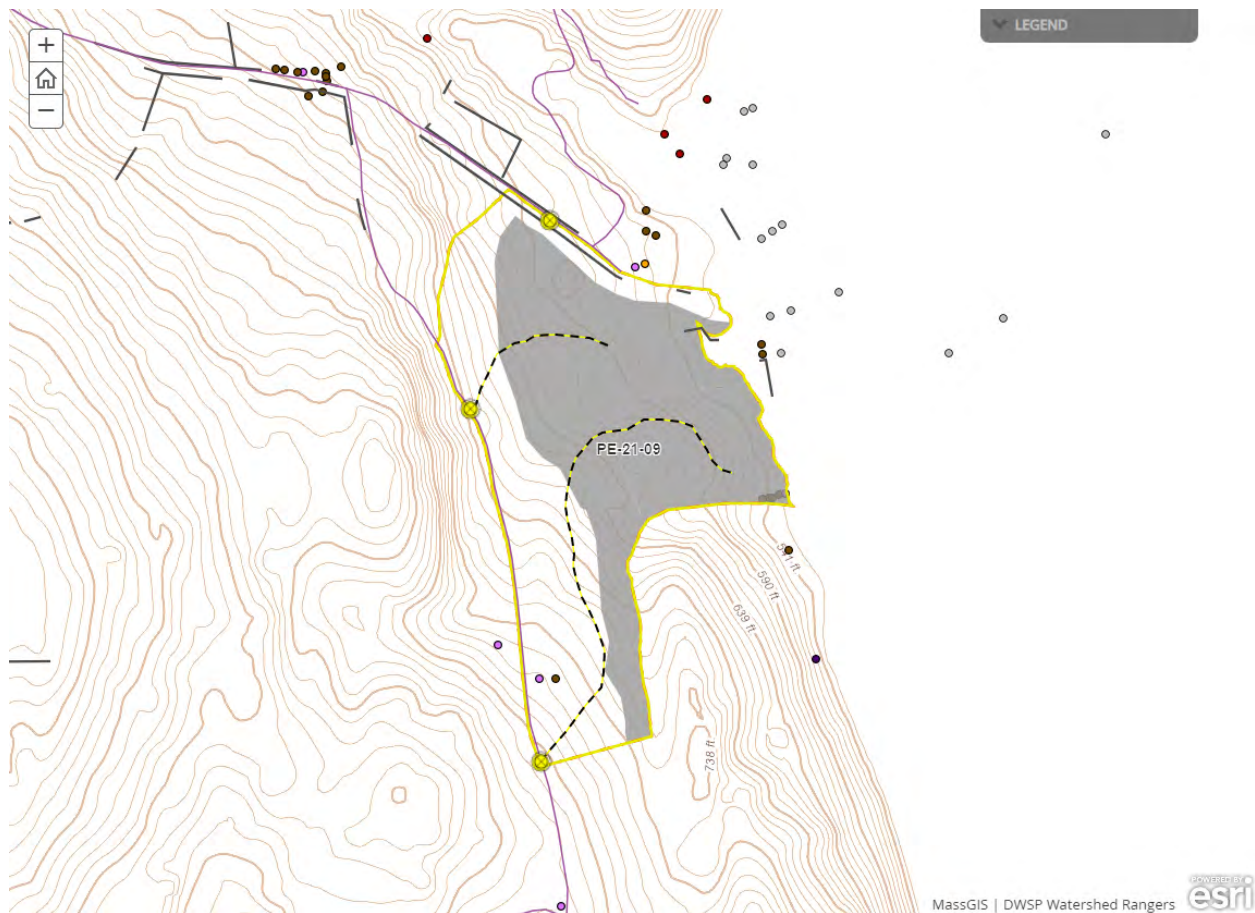
No restrictions are proposed.



Cultural Resources

Comments on Cultural Resources:

This lot contains stone walls as well as the foundations of the house of a Mr. Cutting, and the foundations of the house and barn of a Mr. Frost.



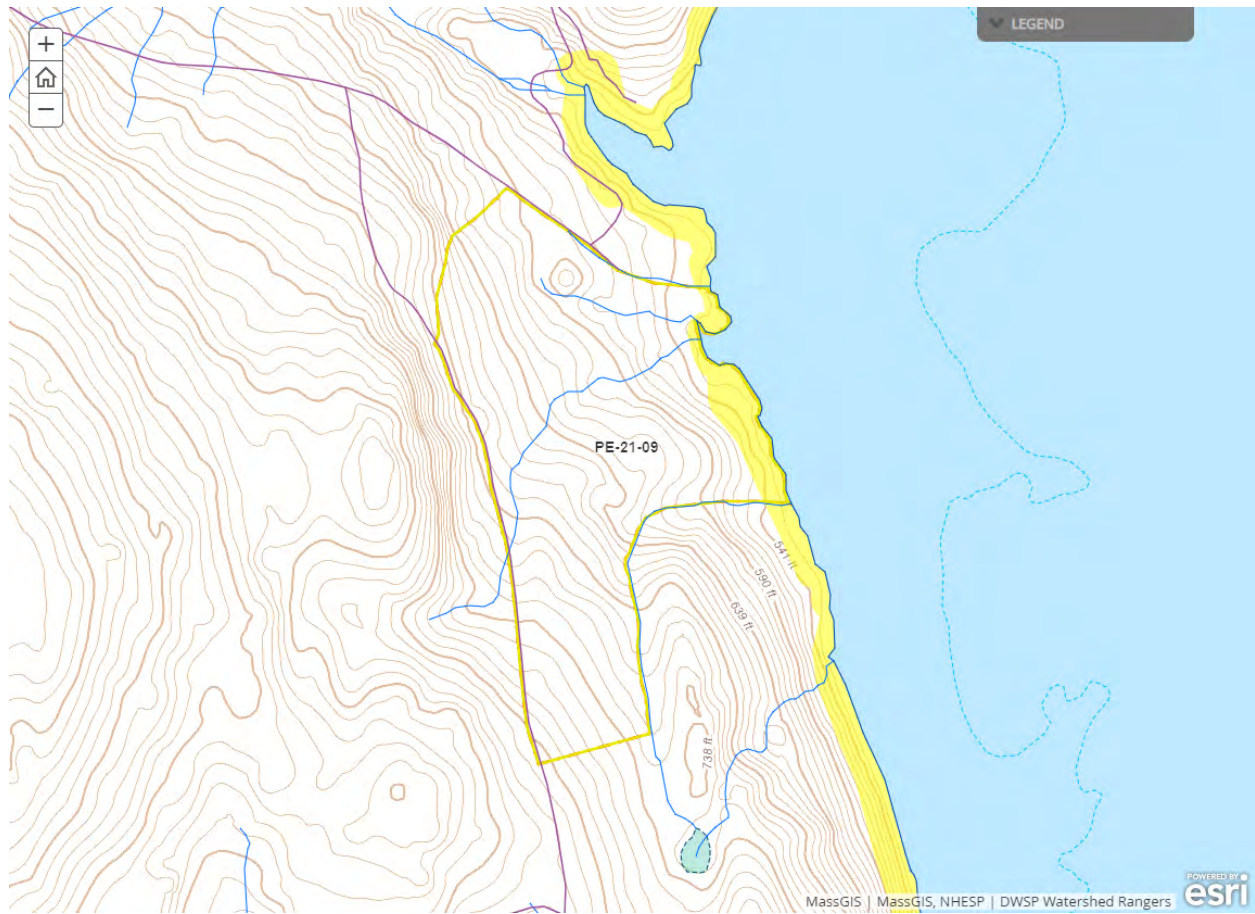
Wildlife Resources & Rare and Endangered Species

General Wildlife Comments:

Moose and deer browse is extensive throughout the proposed area. Hemlock seedlings are browsed to dwarf form and stripe maple stripped of all buds is common throughout. Even black birch seedlings were found with evidence of browsing. Moose scat was a common find.

Comments on Rare Species/Habitats:

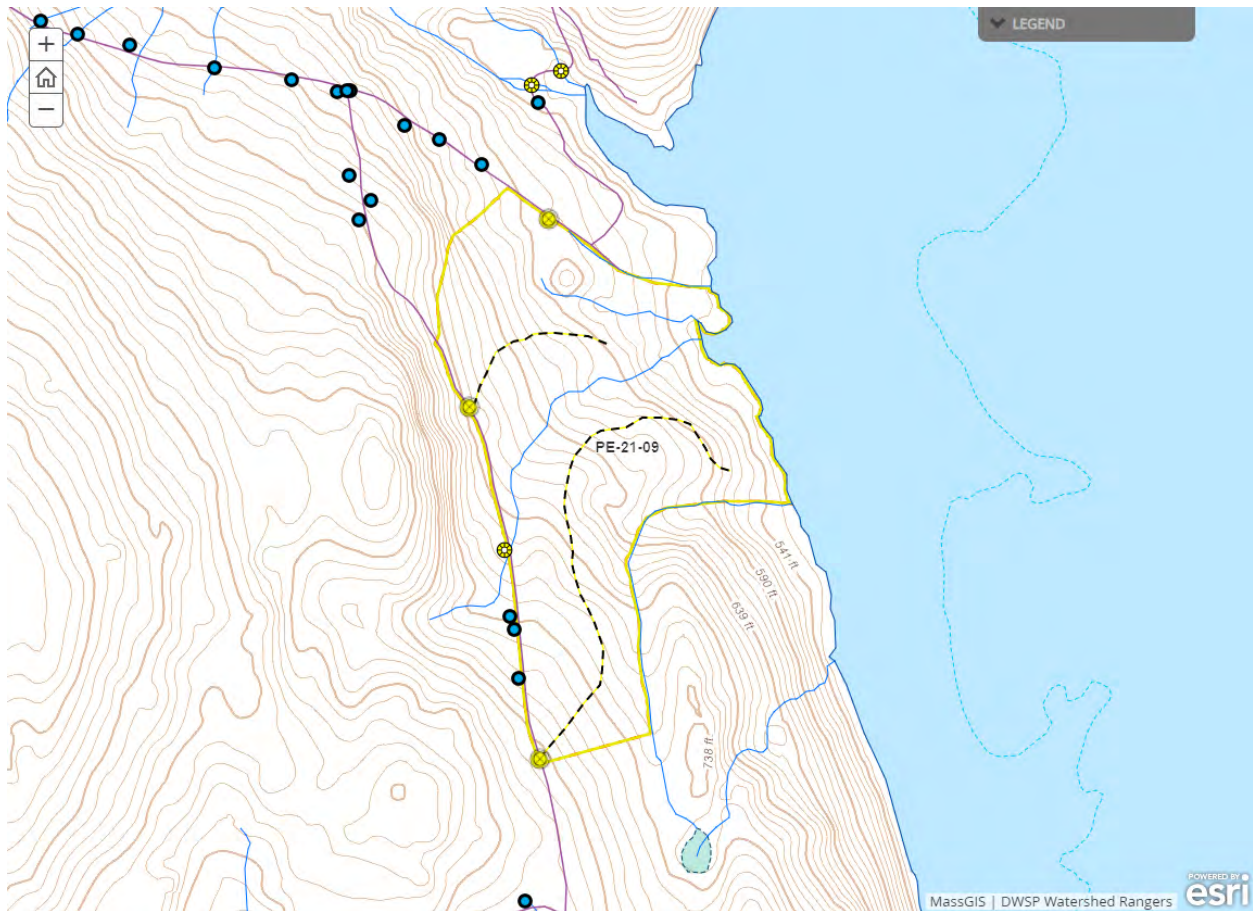
NHESP has determined that certain state-listed sensitive species or habitats may exist within the lot proposal area. To protect them from unnecessary disturbance, detailed information regarding affected species and their locations is not included in this report. DWSP will coordinate with NHESP and follow recommendations to protect these species during the proposed activity.



Environmental Quality Engineering

Comments on EQ Issues:

No stream crossings are proposed.



Forest Access Engineering

Gravel needed: Yes

Landing work needed: Yes

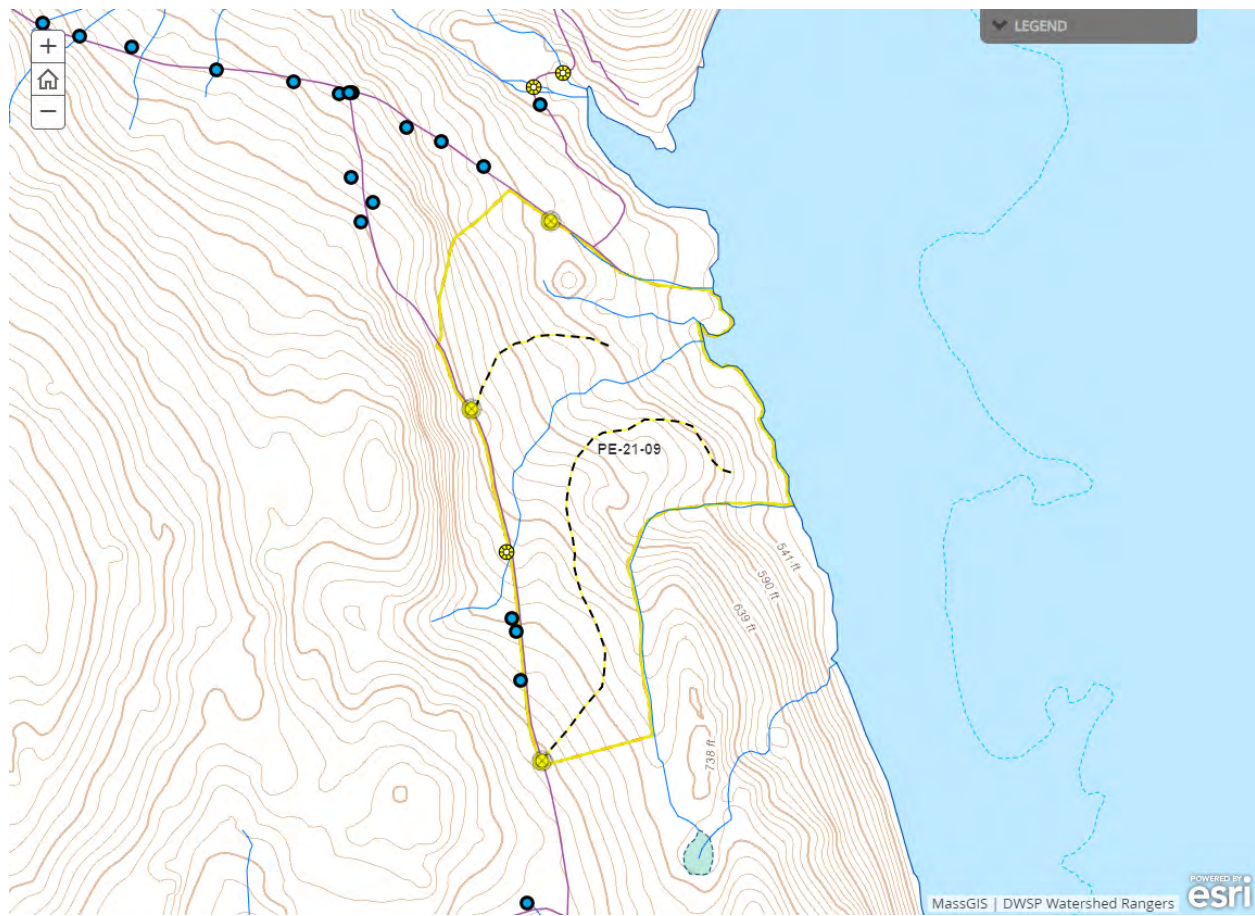
Culverts needed: No

Work needed on permanent bridges: No

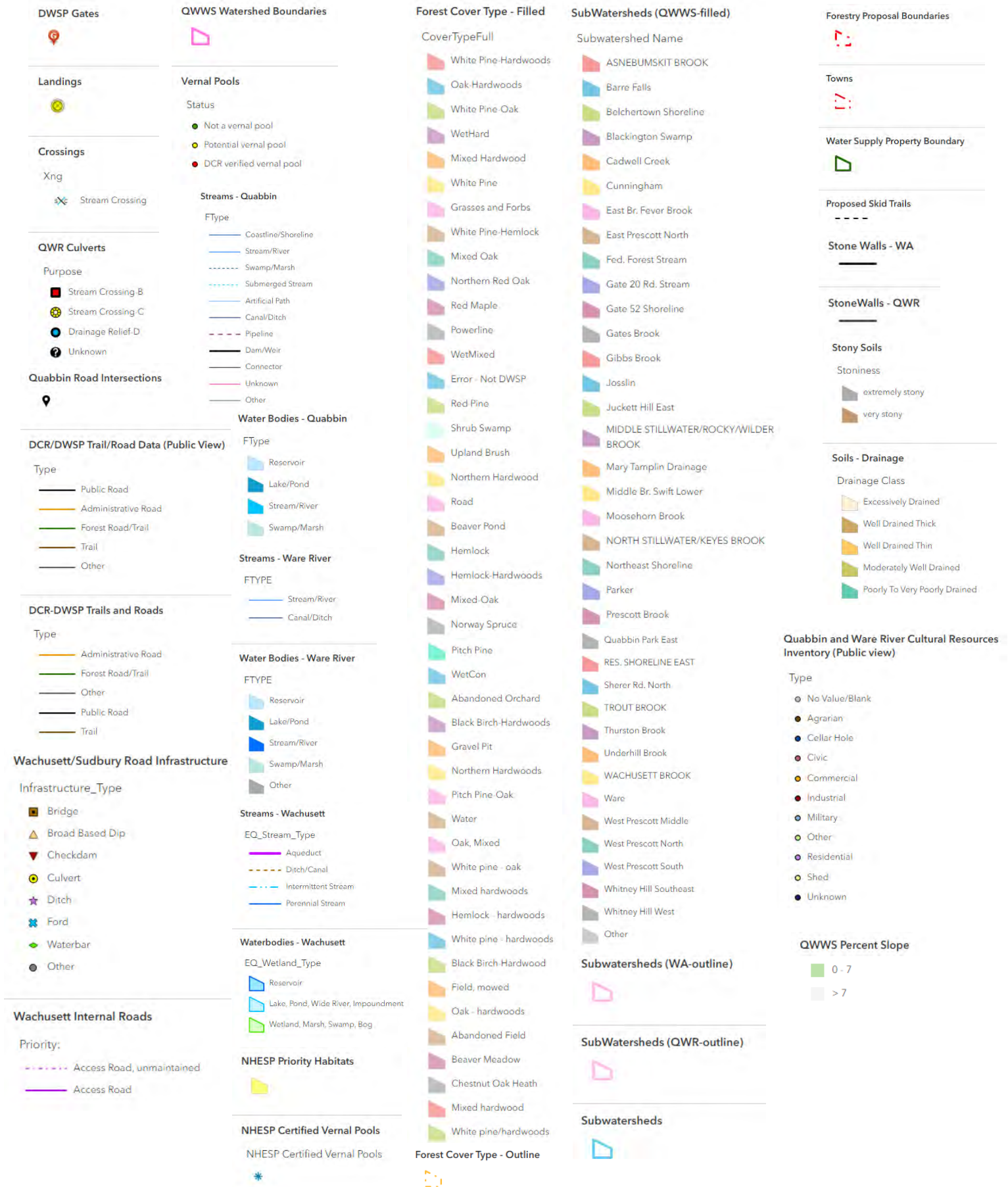
Beaver issue: No

Further comment on access needs:

Governor's Woods Rd is washing out in sections and will need repairs to the intersection 10-3A to allow trailers to turn around.



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Quabbin Harvest Proposal PR-21-10

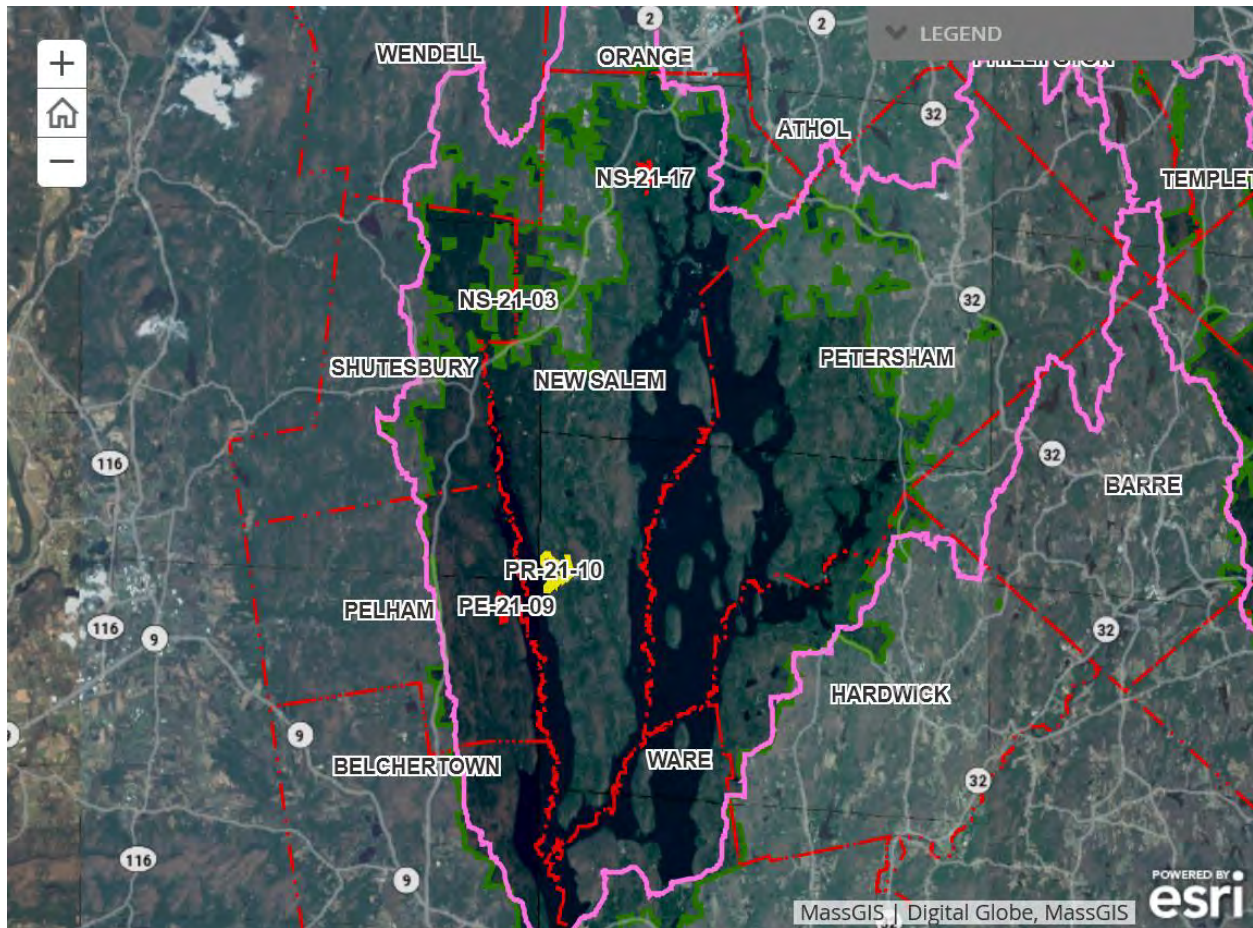
Proposal Goals

Diversifying forest structure and overall complexity is the primary purpose of the proposed harvest.

Proposal Location

Regionally, the area encompasses a portion of Prescott Hill's west slope. For point of reference, the area is northwest of the former UMass Observatory (Prescott Center) and north of East Valley Road. Specifically, it's bounded to the south by a perennial brook; to the west by steep slope, to the north by intermittent brook/stone wall/steep slope and to the east by Prescott Road (a.k.a. Gate 17 road).

Total Acres: 140



General Description

	Overstory Type(s)	Acres
Dominant	Oak/hardwood	93
Secondary	White pine/red pine	31
Other	White pine/hardwood	16

	Understory Type(s)
Dominant	Other, please see the below description

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

Pre reservoir, the lion's share of watershed land (including this area) was open (agriculture) or in early stage reforestation from agricultural abandonment/short term forestry. Post reservoir (1920s), gone was the threat of agricultural clearing and shortsighted forestry practices; and the forest, for the most part, developed naturally with inexorable events (i.e. hurricanes, fires, drought and insect/disease outbreaks) being the main agent of change/disturbance. The exception was the arable land along the gate 17 road where portions became forest plantations (1940s Civilian Conservation Corp era). Documented forest management occurred in 1990 with thinning of the white and red pine along the 17 road and a fourteen acre thinning executed by Quabbin's inhouse logging crew. The inhouse project covered a reasonably flat longitudinal terrace that bisects the area's moderate to steep west slope. Faded tree marking paint found during field assessment suggests the project was not fully completed as planned. Post-harvest, a significant portion of the area (southern 1/3) was intentionally excluded from forest management planning on account of a recently concluded watershed study implemented in 1999 to assess changes in water yield and nutrient deposition resulting from natural disturbance (hemlock mortality from woolly adelgid). The infestation, likely beginning in the late 1970s, is quite small relative to this area (< 10%). However, it's concentrated along the perennial brook that forms the area's south boundary; hence why selected for the watershed natural disturbance study.

Current Composition:

Tall (relative to site) full canopy red oak is the dominant forest cover (86 acres). Composition variability is directly related to terrain position which affects a tree's availability to soil/water.

Upper slope: Red oak has less canopy abundance, but is replaced by other oak, better adapted to drier sites, like black, white, scarlet and chestnut. Mid canopy is predominately birch (black and white) red maple and hickory. Pole/small sawtimber represent the majority of size class distribute and timber quality is generally rougher due to droughtier growing conditions. Interestingly, much of the scattered larger sawtimber has uphill basal scarring/decay which is indicative of a hot fire.

Mid and lower slope: Red oak abundance, size and quality increase; while black, white and scarlet decrease and chestnut oak mostly disappears. Occasionally, the associated tall canopy oaks (black, white and scarlet) are outcompeted by white ash, black birch, red maple, hickory, cherry, white pine and sugar maple. In addition to oak, these associates comprise the majority of the mid canopy. With greater availability to soil and water (particularly on the mid slope terrace) upper and mid canopy timber is generally better quality and larger relative to their up slope cohort. This portion of the area is also home to a few pockets of, below average quality large sawtimber size white pine (16 acres total). It's here (most southerly in particular) where hemlock, pre adelgid mortality, was present at all canopy levels. Currently it's down to a mere toehold of

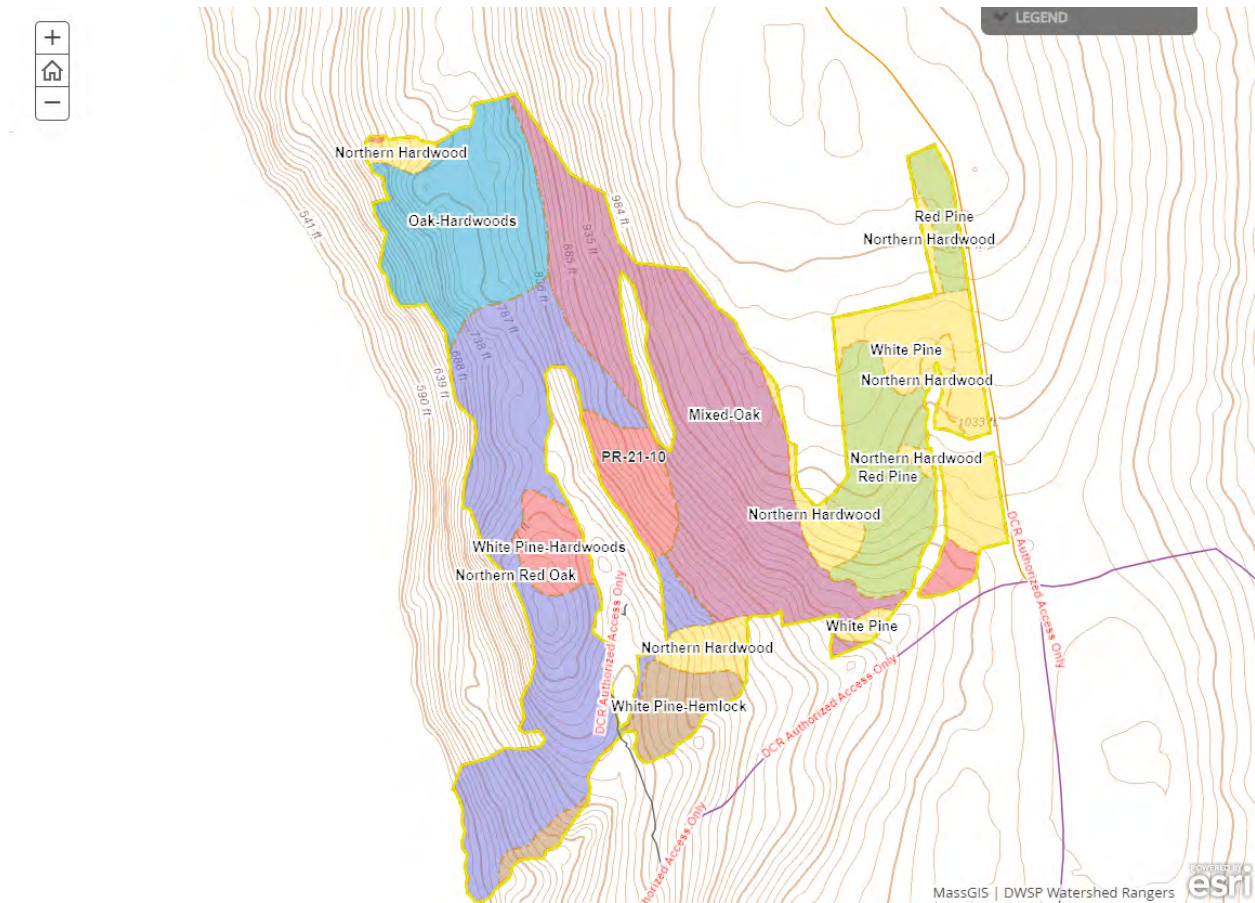
mostly struggling high canopy trees. Hemlock loss has been replaced by pole/sawtimber size black birch and red maple.

The eastern edge of the area is home to naturally regenerated sawtimber size white pine interspersed with sawtimber size planted red pine. Beginning in the mid 2000s a red pine scale infestation began moving (south to north) through Quabbin watershed plantations rendering them lifeless usually within 2 years. Unfortunately, the area's red pine is in the nascent stage of a scale infestation. Tell tail sign of an infestation onset is tufts of browning needles (usually current years growth) randomly interspersed throughout the stand. After onset, the browning darkens and envelopes the entire crown leading to tree mortality.

Area wide, regeneration (aka seedling/sapling layer) is under represented and confined to small pockets created by the 1990 thinnings or severe hemlock mortality (It should be noted that spurring regeneration was not the harvest intention). That said, harvest area understory is almost entirely represented by black birch. Encouragingly, some pockets of hemlock mortality have a fairly dense layer of vigorous seedling/sapling white pine.

Assessment of Terrestrial Invasive Species:

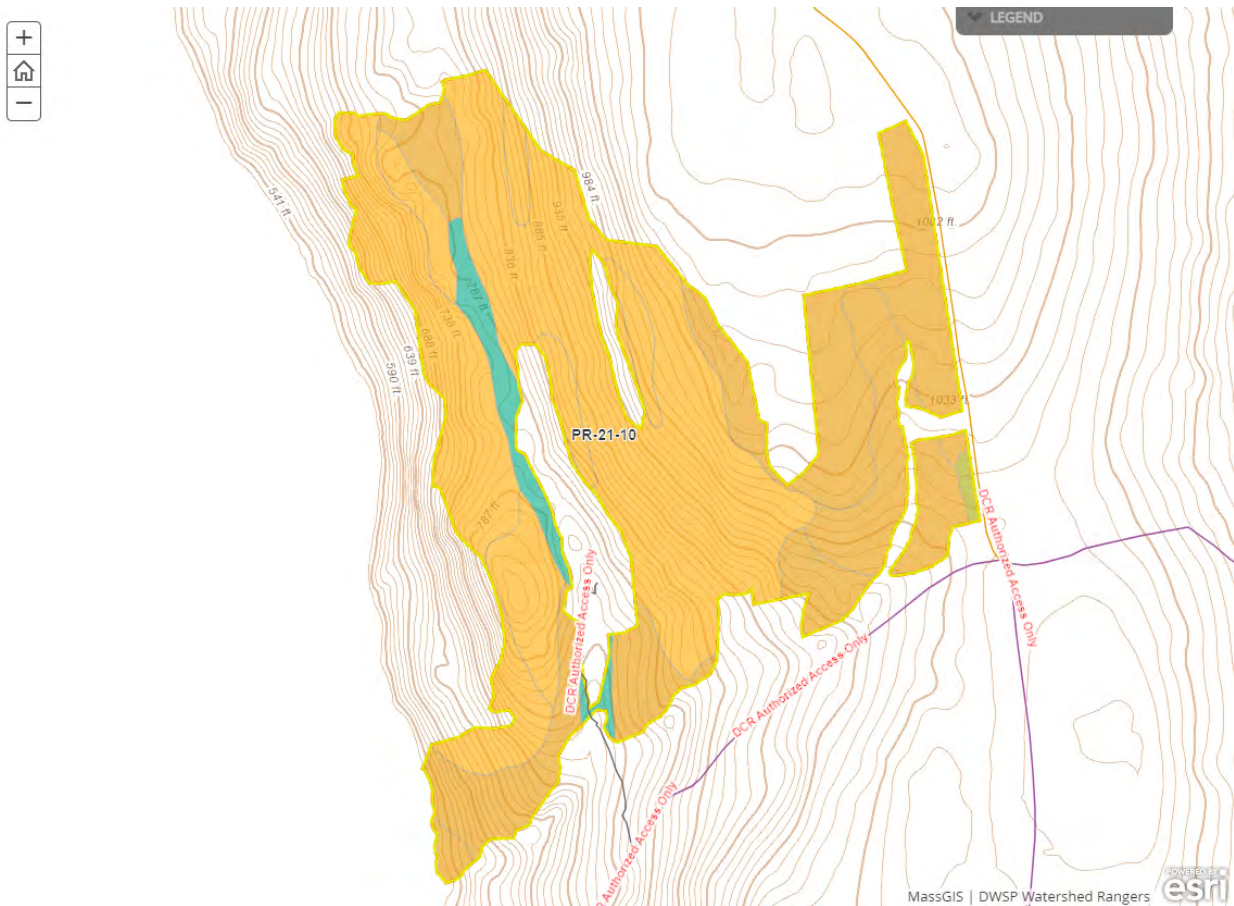
Several days of field reconnaissance suggests invasive presence in moderate to low. Greatest invasive density and diversity was found along the gate 17 road; home to several old homesteads and accompanying cropland/improved pasture some of which has been overtaken by Japanese barberry, non-native honeysuckle, and Asiatic bittersweet. An old farmstead in the midsection of the area is home to Japanese barberry and non-native honeysuckle. Greatest density is concentrated in what was likely a former wet meadow/orchard/tilled area. (thankfully much of this area can be avoided and is actually excluded from the proposal area). Frequency/density ebbs traveling away from the homesteads. Spread is a concern particularly within the gate 17 road section of the area.



Soils

Drainage Class	%
Excessively Drained	0
Well Drained Thin	31
Well Drained Thick	66
Moderately Well Drained	0
Poorly to Very Poorly Drained	3

The lot is mostly on Chatfield-Hollis complex soils with minor components of Canton fine sandy loam, Henniker sandy loam, Montauk fine sandy loam and Whitman very stony mucky fine sandy loam.



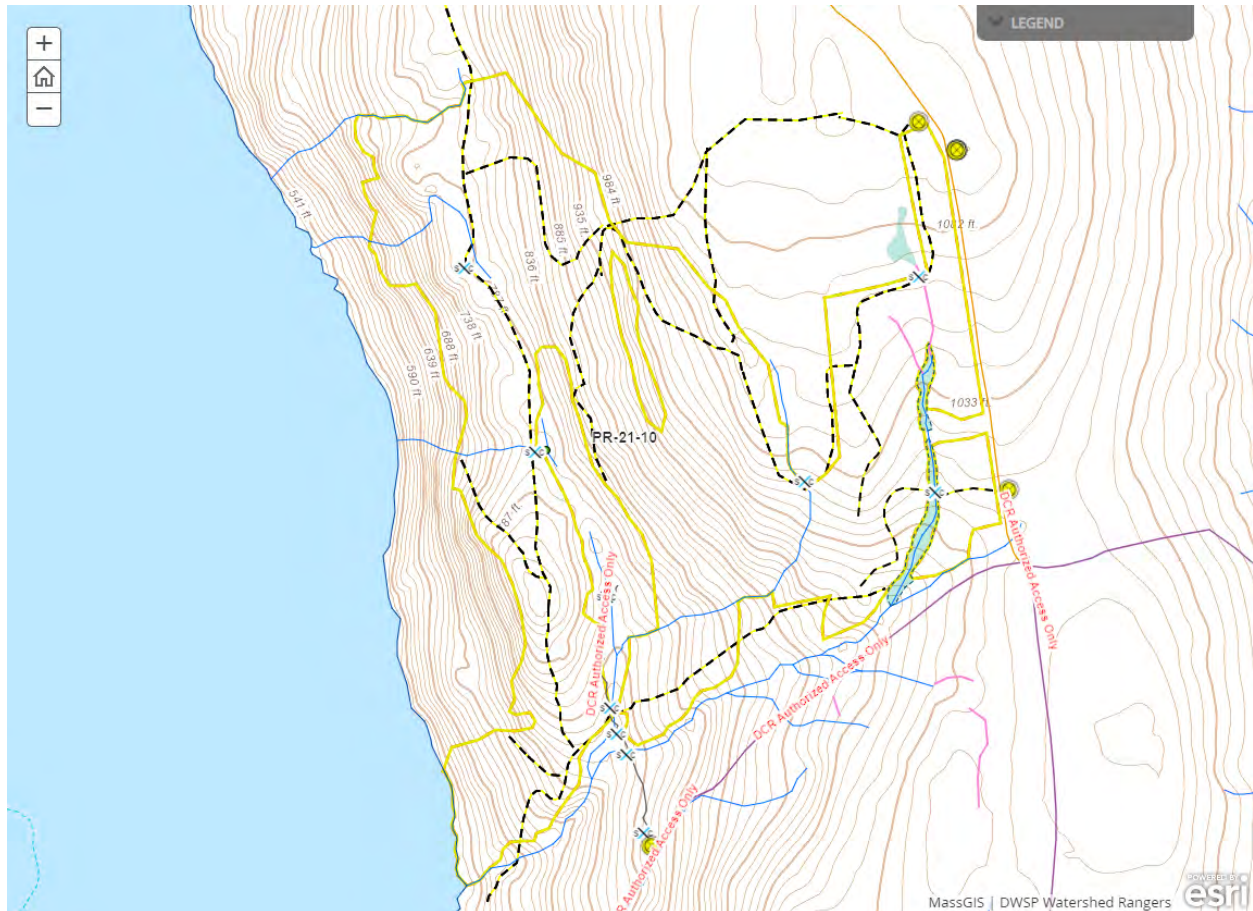
Wetlands

- Wetlands present? - **Yes**
- Streams present? - **Yes**
- Vernal pools present? - **None known**
- Seeps present? - **Yes**
- Are stream crossings required? - **Yes**
- Are wetland crossings required? - **No**
- Is logging in filter strips planned? - **Yes** ([Riparian Zone Mgt](#))
- Is logging in wetlands planned? - **No**

There will likely be seven stream crossings. With respect to the streams, only one is perennial and its crossing is an existing culvert. A temporary skid bridge should be used for all crossings

except maybe the most northerly. For the culverted perennial stream, a temporary skid bridge should be installed to protect it.

The southerly most crossing (just north of East Valley Road) isn't a stream but rather drainage from an up-gradient culvert on East Valley Rd.



Silviculture

Acres in Intermediate cuts: **0**

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

Acres in Regeneration cuts: **28**

Average regen opening size: **2**

Maximum regen opening size: **5**

Description of advance regeneration in proposal area:

Given the light silvicultural treatment history (two thinnings (one not fully completed) in 1990), it comes as no surprise that the forest canopy is closed and vigorous regeneration is, at best, scarce. That said, natural canopy gaps have developed with the continued mortality of adelgid stricken hemlock; some large enough to trigger a vigorous white pine seedling/sapling layer. Black birch saplings occupy the skid roads and random small gaps associated with the 1990 thinning.

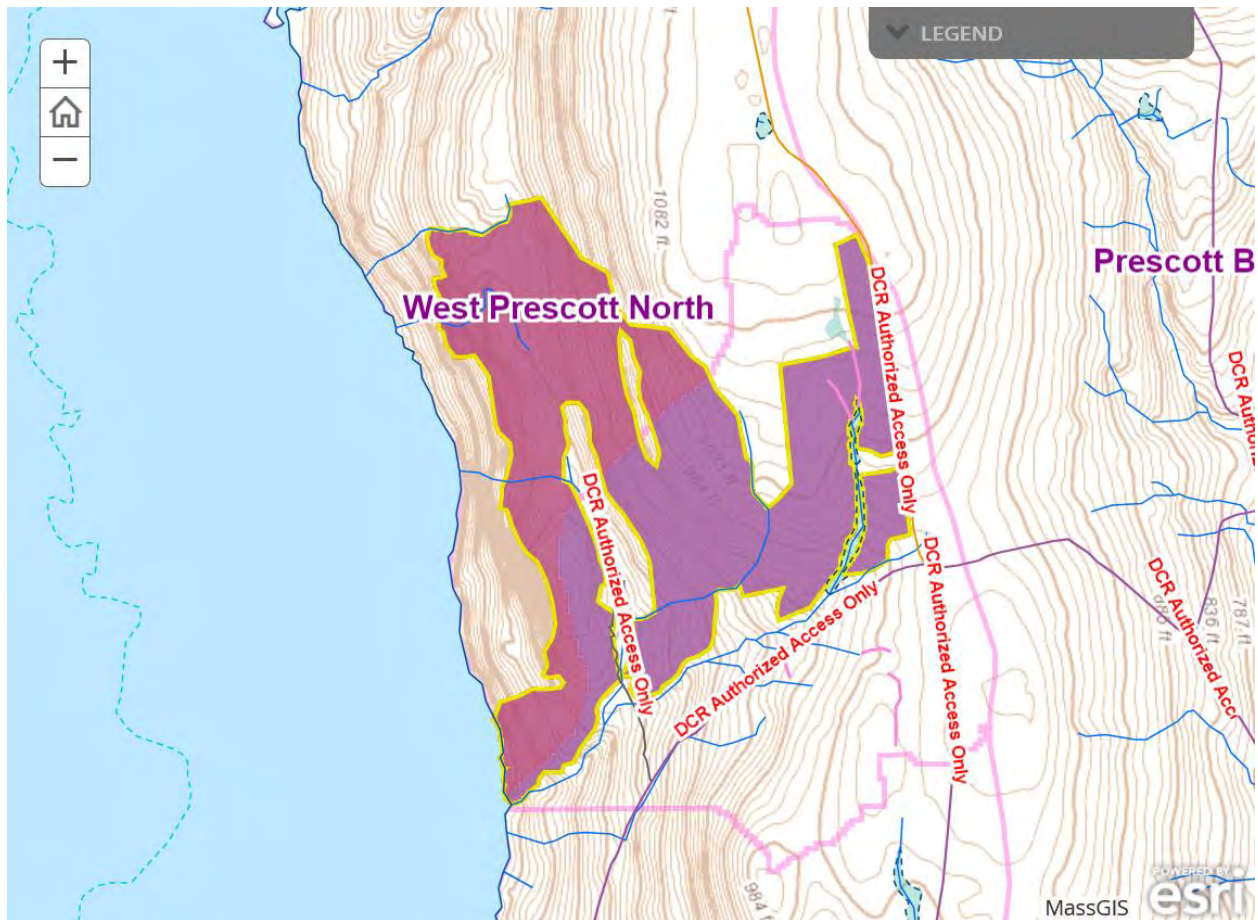
General comments on silviculture proposed:

Harvest purpose is to increase forest complexity, with the lion's share being accomplished through patch cutting to foster/stimulate understory development. First priority is removing dying red pine (~50% of the regeneration cutting in this harvest), followed by release of areas exhibiting vigorous dense seedling/sapling development, and lastly treating lower quality overstory that has sparse to no regeneration beneath. Within the red pine vicinity, lower quality white pine will be removed reducing risk of disease and increasing spacing for overstory development. Furthermore, within openings, sufficient levels/numbers of legacy (extraordinarily large/old) trees and coarse woody debris will be preserved. Lastly, to the greatest extent possible, openings will be well distributed and fit the contour.



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
27 (West Prescott North)	1054	0	257	63
68 (Shays Brook)	219	6	49	77



Harvesting Limitations

Forwarder required: **Yes**

Feller/processor required: **No**

Steep slopes present: **Yes**

Comments on harvesting limitations:

Specific forwarder requirement would like be a minimum of 6 wheels which increases displacement of ground pressure and reduces chance of severe soil compaction. A competent operator of such equipment can effectively/efficiently armor main skid trails and install/remove temporary bridges.



Cultural Resources

Comments on Cultural Resources:

Most of the stone walls traverse the flat ground along the Gate 17 road associated with an old homestead.

A significant complex of foundations is present along the mid-slope intermittent brook. These buildings were part of the Daniel Shays homestead. The entire area will be avoided during the harvest activities.

A small borrow pit was found adjacent to an intermittent brook along the area's eastern edge.



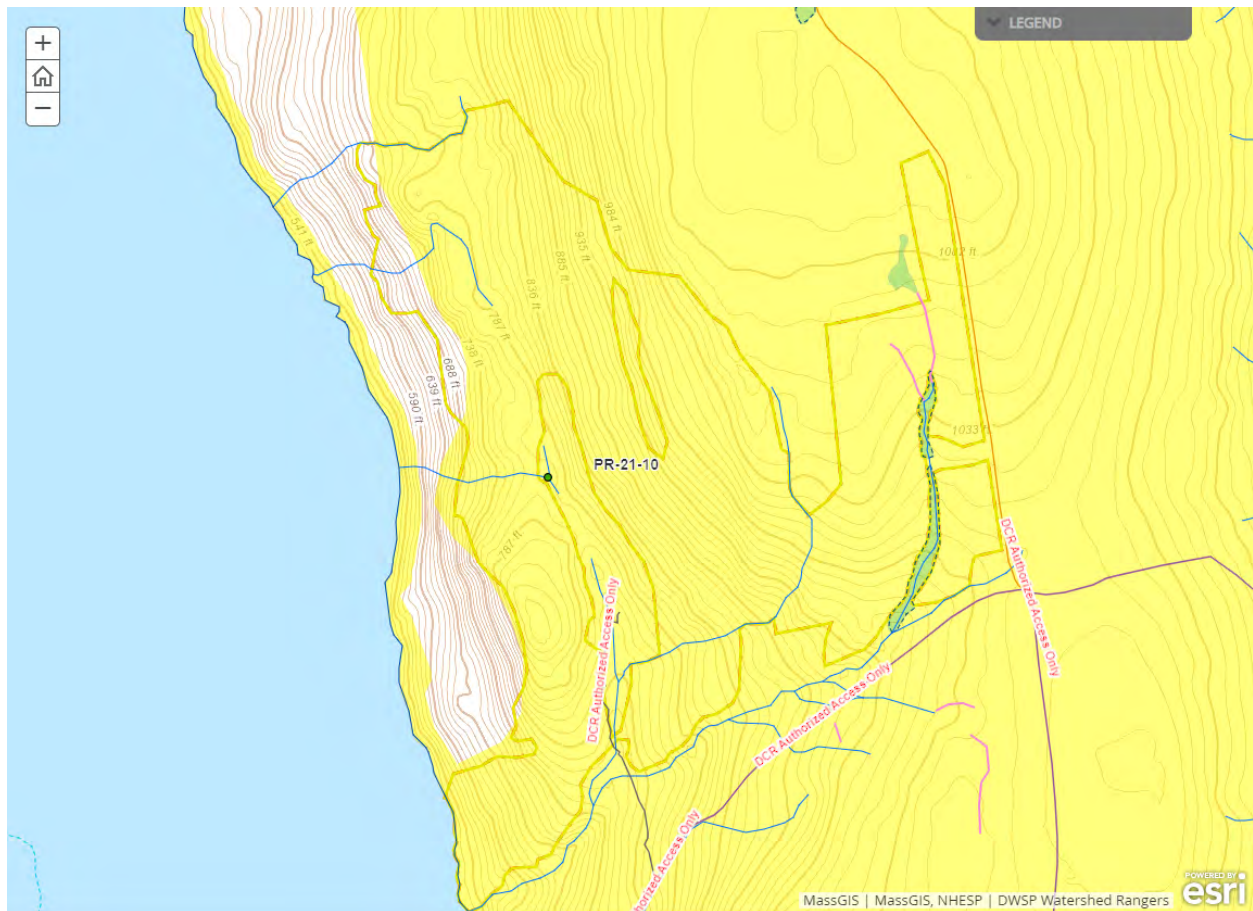
Wildlife Resources & Rare and Endangered Species

General Wildlife Comments:

The upslope portion of the area is home to scattered legacy trees with likely fire derived basal scars/decay that provide foraging/denning opportunity.

Comments on Rare Species/Habitats:

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 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 activity.



Environmental Quality Engineering

Comments on EQ Issues:

The perennial stream crossing offers a sampling opportunity for EQ's short term water quality monitoring program associated with watershed timber harvesting projects.



Forest Access Engineering

Gravel needed: Yes

Landing work needed: Yes

Culverts needed: Yes

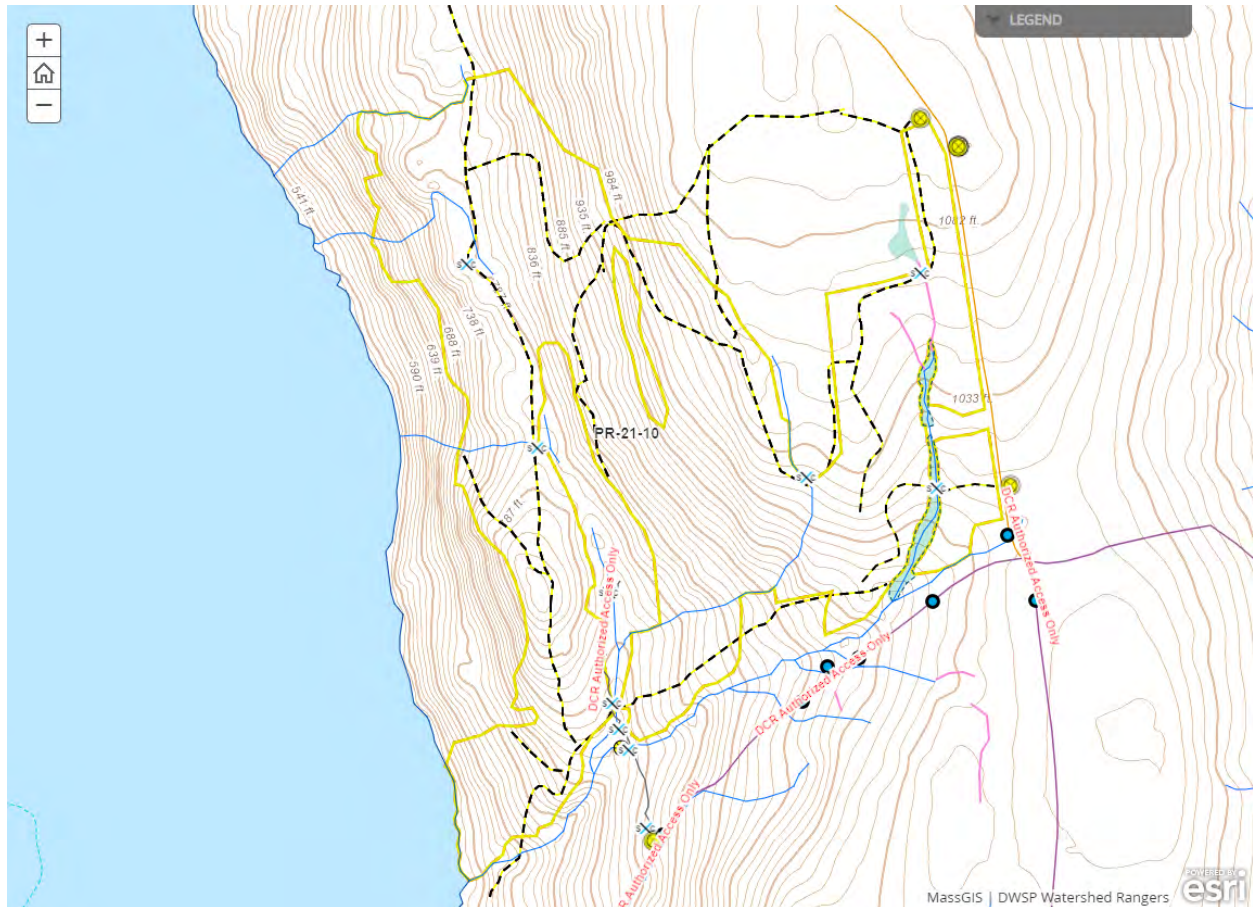
Work needed on permanent bridges: No

Beaver issue: No

Further comment on access needs:

Some work was done several years ago to triage drainage issues on East Valley Road, although it could use more attention with respect to stabilization and proper culvert protection (some are above road grade/exposed).

As mentioned in the wetlands section above, the southerly most stream crossing (just north of East Valley Road) exists because of runoff from an up-gradient East Valley Road culvert. Due to the fact that it would be a high frequency/traffic crossing during a timber harvest, it's recommended a culvert be installed.



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