

[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.

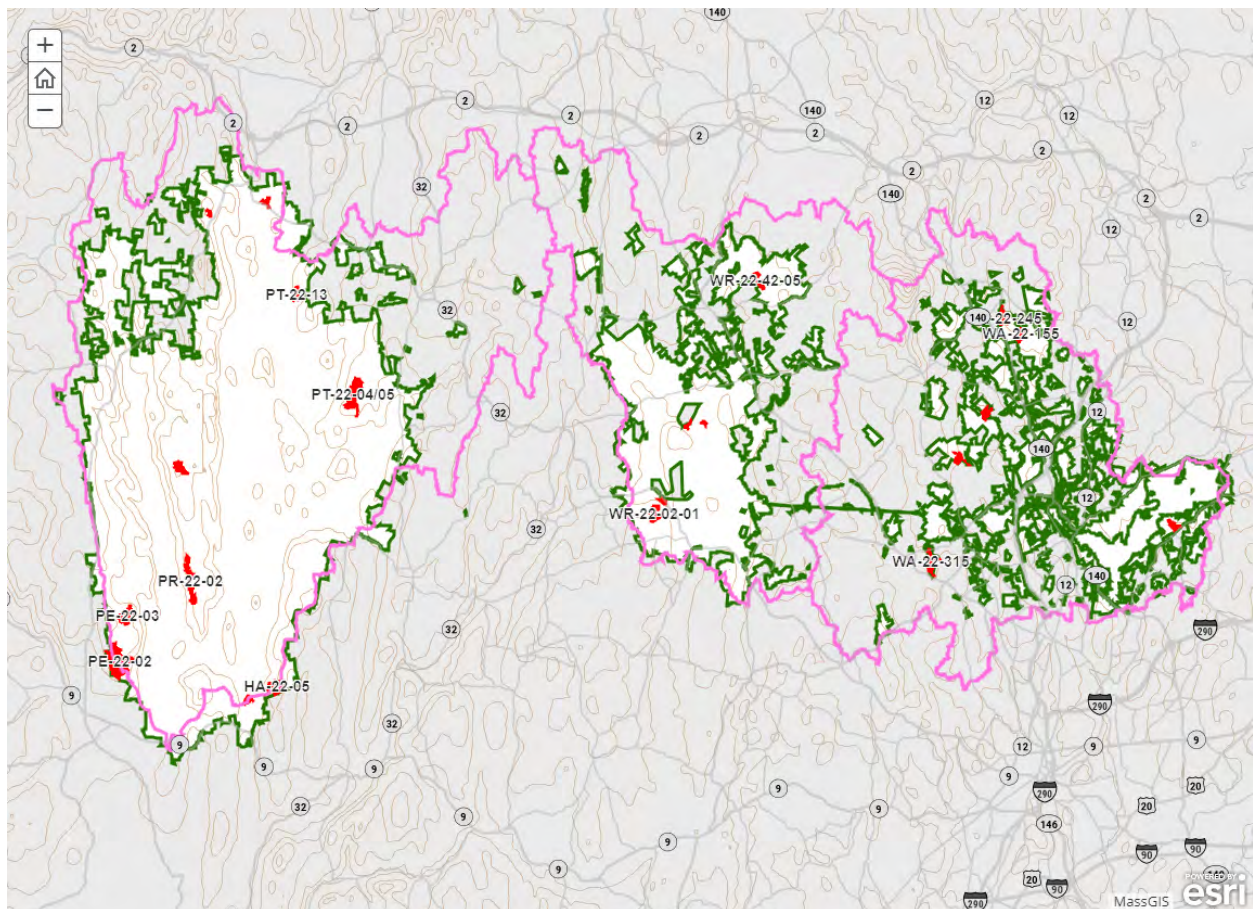
Public comment on these proposals is welcome and can be submitted online at this link: <https://www.mass.gov/forms/dcr-public-comments>. Comments may also be submitted by U.S. mail to

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 (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.

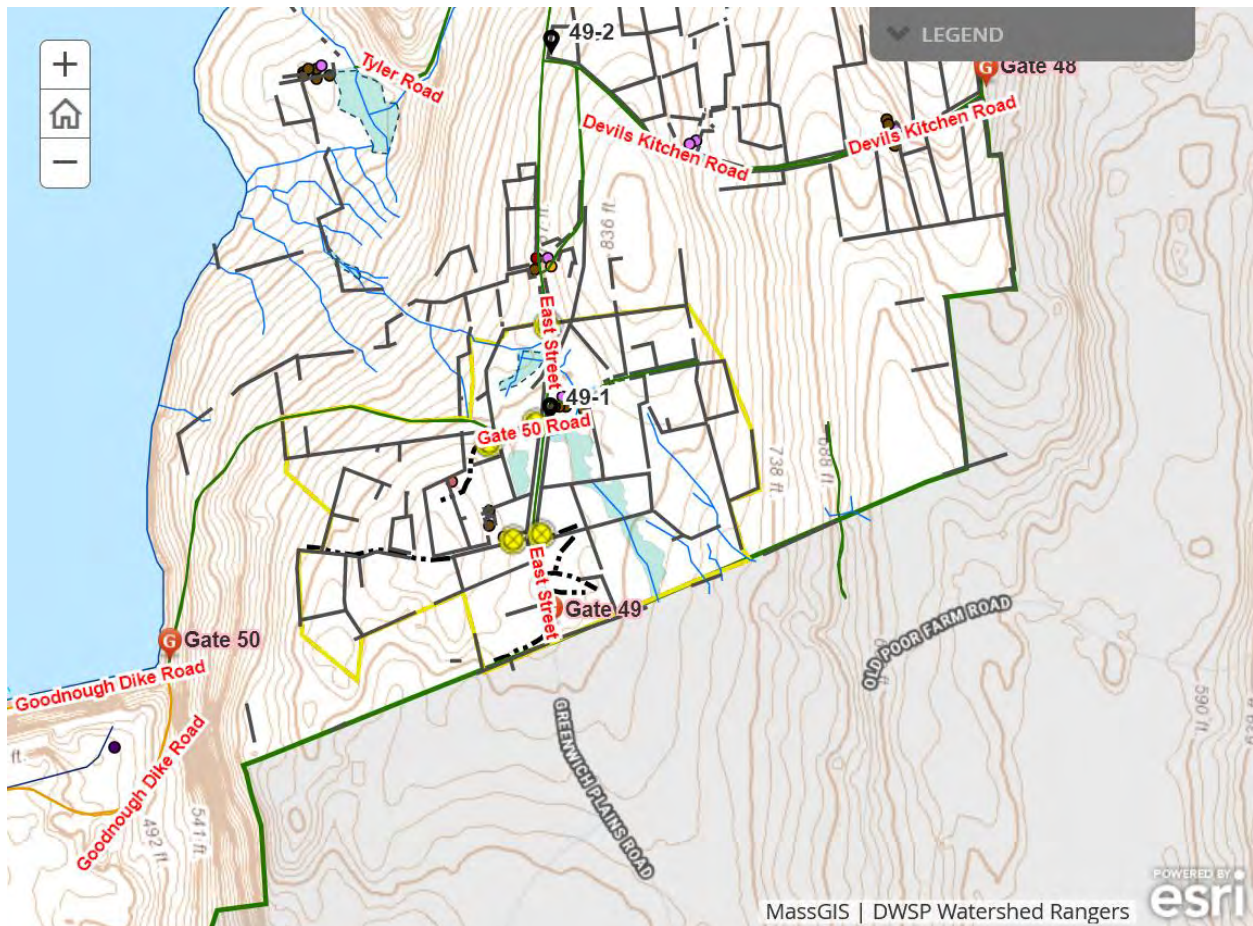
For full details on DWSP watershed land management please see the:

[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.

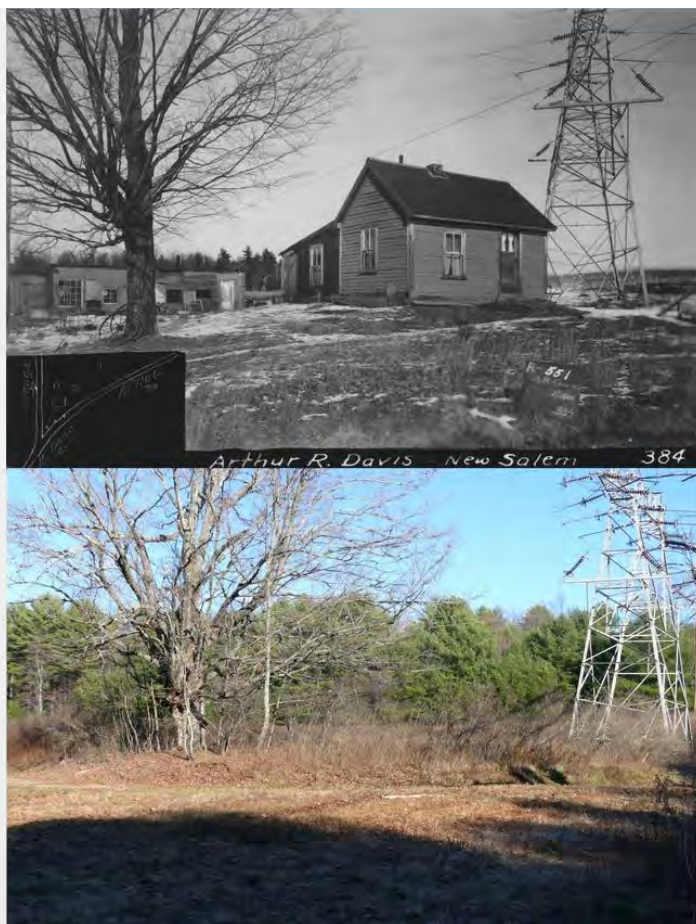


Cultural Resource Protection and DWSP Forestry Activities

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.

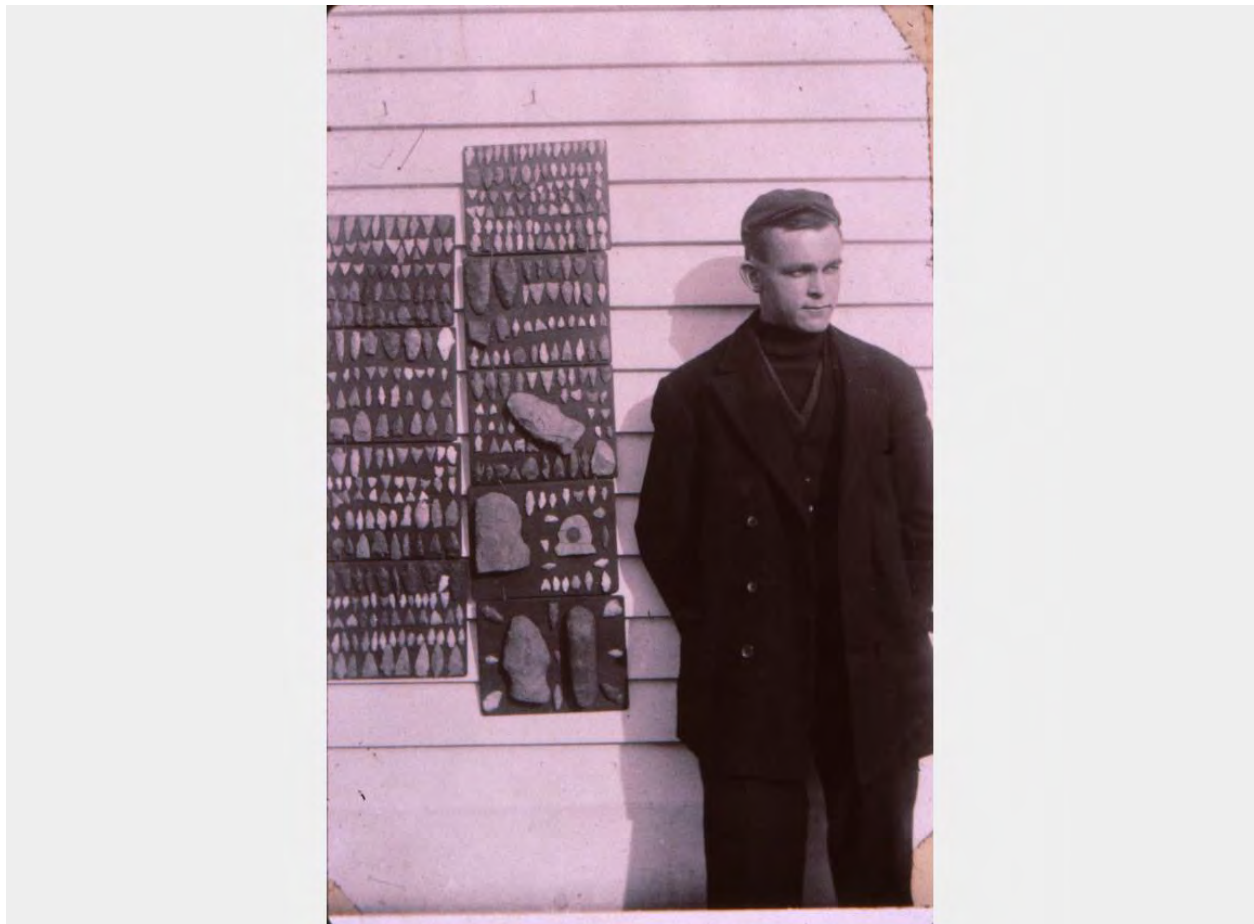


Protection of Sensitive Sites

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.



Quabbin Harvest Proposal PT-22-4/5

Proposal Goals

The southern and western section of this proposal is cleanup of a salvage cut that was not fully completed, with additional live unacceptable growing stock being included. The rest of the area is mainly oak or white pine hardwood stands proposed to receive our standard group selection harvest or a seed cut shelterwood harvest which will allow for diverse regeneration to become established and further release existing regeneration. Much of the dead oak that is still merchantable will be salvaged.

Proposal Location

This proposal has 2 separate sections, the northern which is on east side of Whitney Hill Road north of the trailer turn around and the southern section which is south of the turnaround. Northern section starts at a wall on east side of road, goes easterly to S13SQ which is currently being completed. Follows that cut boundary easterly and northerly to a point then proceeds northeasterly to a wetland/intermittent stream complex. Follows the wetland edge north till its just an ephemeral stream with PT-19-05 on the eastern side, then goes northwest along ephemeral/PT-19-05 to a walled square. This probable old pasture is included and then follows wall west to Whitney Hill Road then south to place of beginning.

Total Acres: 182



General Description

	Overstory Type(s)	Acres
Dominant	Oak, mixed - dry site	71
Secondary	Northern red oak	46
Other	White Pine - hardwoods	37

	Understory Type(s)
Dominant	Tree seedlings/saplings dominate site
Secondary	Mesic site - witch hazel, highbush blueberry

Description of forest composition/condition:

The whole proposed area was even-aged before the recent salvage harvest (S10SQ). Most of the overstory is 90-120 years old.

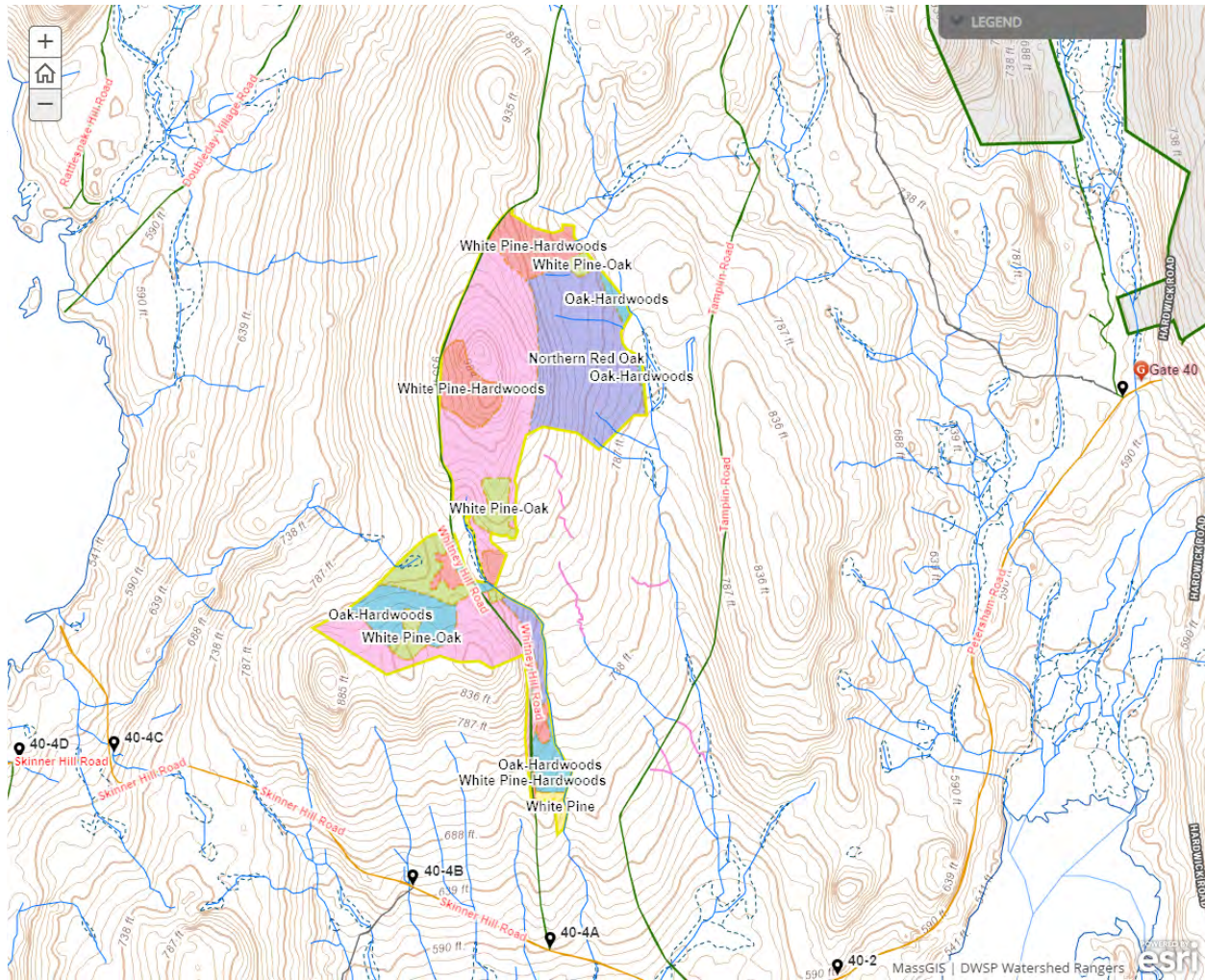
Southern section was mostly salvage harvested as lot S10SQ. This harvest was left incomplete with quite a bit of marked unacceptable growing stock (ugs) left uncut along with areas of live ugs skipped. In this portion there is also a stand of average white pine which had a shelterwood prep cut in 1983 (347) and a surrounding stand of maple/birch on wetter soils which was also cut at that time. The section east of Whitney Hill Road was also cut in 1983 (362a). The rest of this southern portion had a prep cut shelterwood in 1986 (461).

In the northern section, the southeastern corner, which is on a better site, had an irregular shelterwood seed cut completed in 2004 (3033). The northern end around the north landing was thinned in 1990 (561). It appears this harvest was not completed. The rest of this section has not been recently cut. The overstory on this whole section is well stocked, trees are losing vigor and some are starting to drop out. Gypsy moth was present during 2016-2020 and mortality of oaks is high along the southern edge; GM impact gradually decreases to north and west up the slopes. Emerald ash borer (EAB) started impacting ash in this stand last year and there is mortality from that and there has been a general decline in ash here over the years. The upper slopes tend to be drier with a lower site index. Areas that were not recently cut are over stocked and contain a lot of ugs.

Overstory species present in pine stands included white pine, red oak, black oak, red maple, black birch and white oak with widely scattered black cherry. The red oak type has had about 1/4 of the oak die. Also present are black and white oak, ash, red maple and black birch. Scattered yellow birch, black cherry and white birch are also here. The oak hardwood type is mainly on poorer drier sites though some goes down to the stream or wetlands and these tend to be pretty good sites. Besides red oak there is black and white oak, red maple, and black birch. White birch is scattered and is also declining partly from GM but probably also just old age as it isn't a long-lived species. White pine, black cherry, beech and hickory are also present.

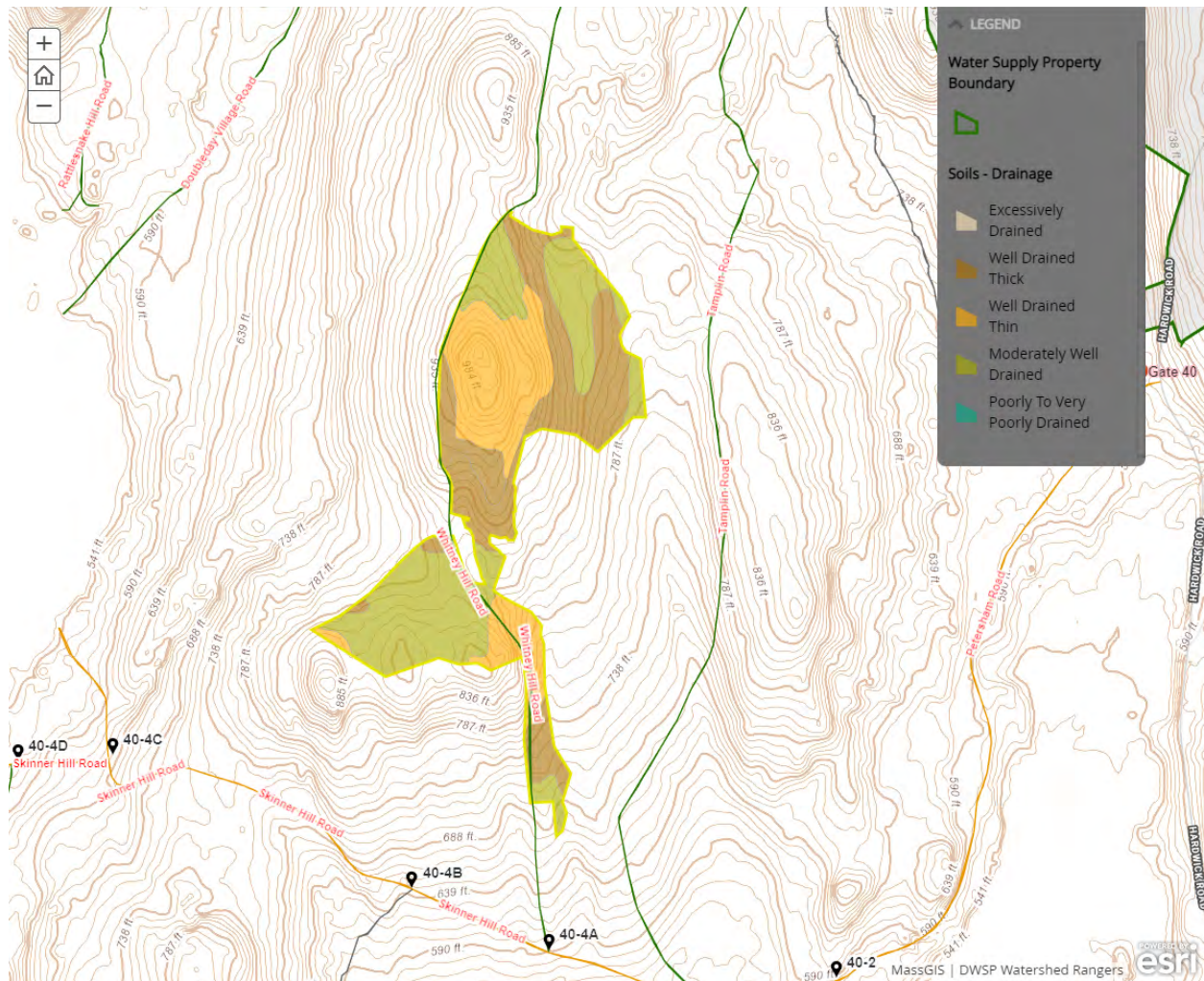
Assessment of Terrestrial Invasive Species:

Only invasive seen was scattered Japanese Barberry mainly along wetland on the east edge of proposal.



Soils

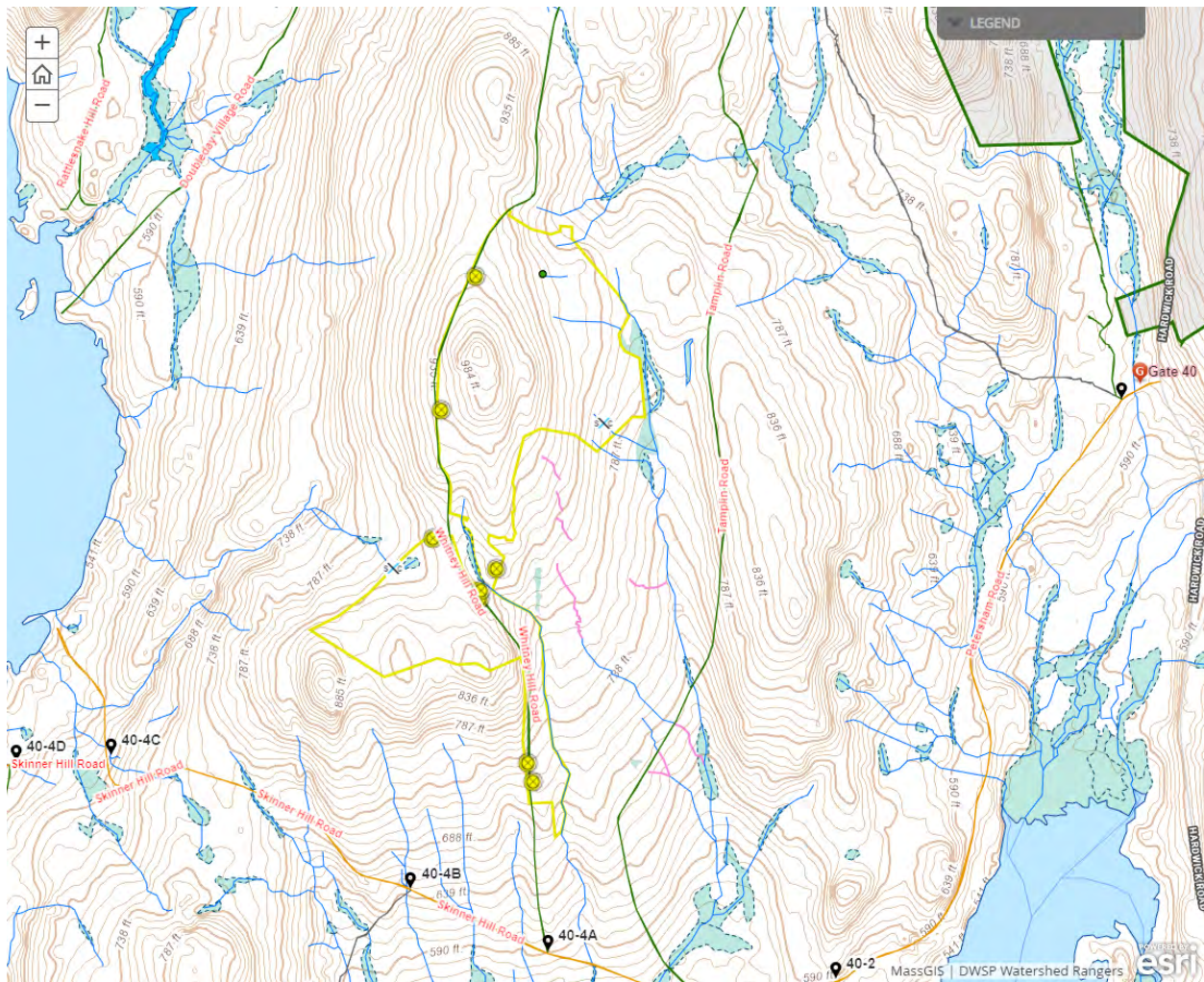
Drainage Class	%
Excessively Drained	0
Well Drained Thin	27
Well Drained Thick	73
Moderately Well Drained	0
Poorly to Very Poorly Drained	0



Wetlands

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

There is a small -- probably dug -- pool in a seep which drains into the large eastern wetland. It was checked this year and has no eggs or vegetation and was classified as not a pool.



Silviculture

Acres in Intermediate cuts: **90**

Acres in prep/establishment cuts: **40**

Acres in Regeneration cuts: **35**

Average regen opening size: **1**

Maximum regen opening size: **4.9**

Description of advance regeneration in proposal area:

Advance regeneration is established on most of the proposal but is not very diverse, mainly black birch, red maple and white pine. Oak, hickory, black cherry, beech and sugar maple are scattered on uplands and some yellow birch and hemlock are present along the wetlands. Regeneration is mostly in the sapling size with some pole sized particularly where there were larger openings created from past harvests. Seedlings are present throughout but are mainly non-vigorous due to being suppressed for so long. Moose and deer are common here and are one of the reasons for lack of diversity and prevalence of white pine and black birch which are not preferred browse. There is some oak and red maple seedlings and saplings surviving without too much browse so there is still hope for some to get past the browse height of moose. Most areas have over 1,000 seedlings/acre.

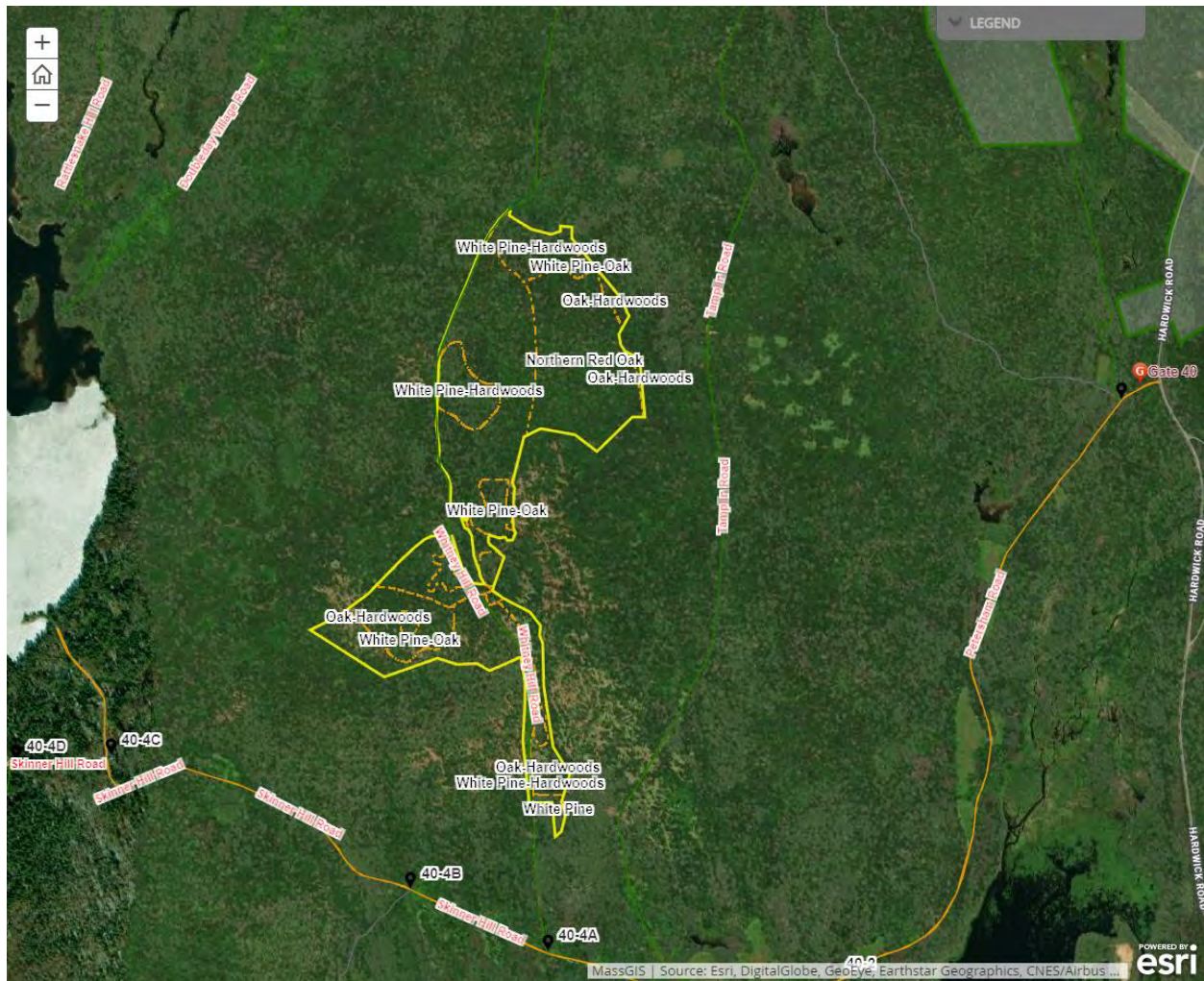
General comments on silviculture proposed:

The part of the proposal south of the main central landing/trailer turnaround was previously partially cut as lots S10SQ and S9NQ. S10SQ was left incomplete. A lot of TSI and the more challenging marked trees along the road were left as was scattered marked large dead sawlogs on both lots. Also, both lots were gypsy moth salvage harvests so not much live wood was marked. There are several areas of mostly live trees that were skipped within the salvage sales which contain mostly low-quality wood and should be harvested. There is both existing old blue paint (from the 2 lots mentioned) and some fresh blue and green paint in the proposal area. These trees plus additional wood will be included in the new lot. This section also has some oak that died after the original salvage marking, and there is a section of white pine just south of the turnaround which is included in this proposal. So, for this section the harvest will be additional salvage of gypsy moth killed trees, cleanup of previously marked and unmarked UGS (unacceptable growing stock) with additional mainly poorly formed and/or low vigor trees cut. Intent is to try and create more openings for diverse regeneration to have a better chance of successfully establishing. Openings here should be in the 1-3 acre range but due to the amount of mortality and past harvest they might not be as clearly defined as openings in a healthy stand. Opening sizes and retention will be as directed by guidelines in place at the time the lot is marked. Species cut other than the oak which is mostly dead will be red maple, black birch, white pine and ash (also salvage due to presence in stand of emerald ash borer (EAB)). Some healthy individuals of all species present will be retained to maintain and hopefully increase diversity. The stand of better- quality white pine will have a seed cut shelterwood and will have an irregular shelterwood look when done with small openings created due to oak mortality and portions on edges that have more red maple and black birch which will be mostly cut. The poor-quality white pine stand on the east side of road will all be harvested, creating one of the openings.

The northern portion has not had any cutting since early- to mid- '80s. Our standard small group selection silviculture will be used here with openings from 0.5 acre to maybe as large as 4.9 acres. Again, there is mortality here from GM and EAB and where there is still economic value these trees will be salvaged. GM impact was not as bad here as it was to the south. There are 3 stands of white pine, the better-quality portions will be treated similar to a seed cut shelterwood with openings from 1/4-1 acre in the poorer formed or sections with more hardwoods.

For all treatments openings will be placed as per our then current guidelines and will be located first in areas with more trees of low vigor or poor form or health. In areas partially cut these same categories will be targeted first. Additional large higher quality trees will then be included to create the desired condition. Retained trees, other than wildlife and structural trees mentioned below, will generally be the better formed, vigorous individuals of the range of species that are desired to be regenerated on the area. Attempt will be made to retain structure and select well rooted, wind-firm trees particularly in retained exposed groups in openings.

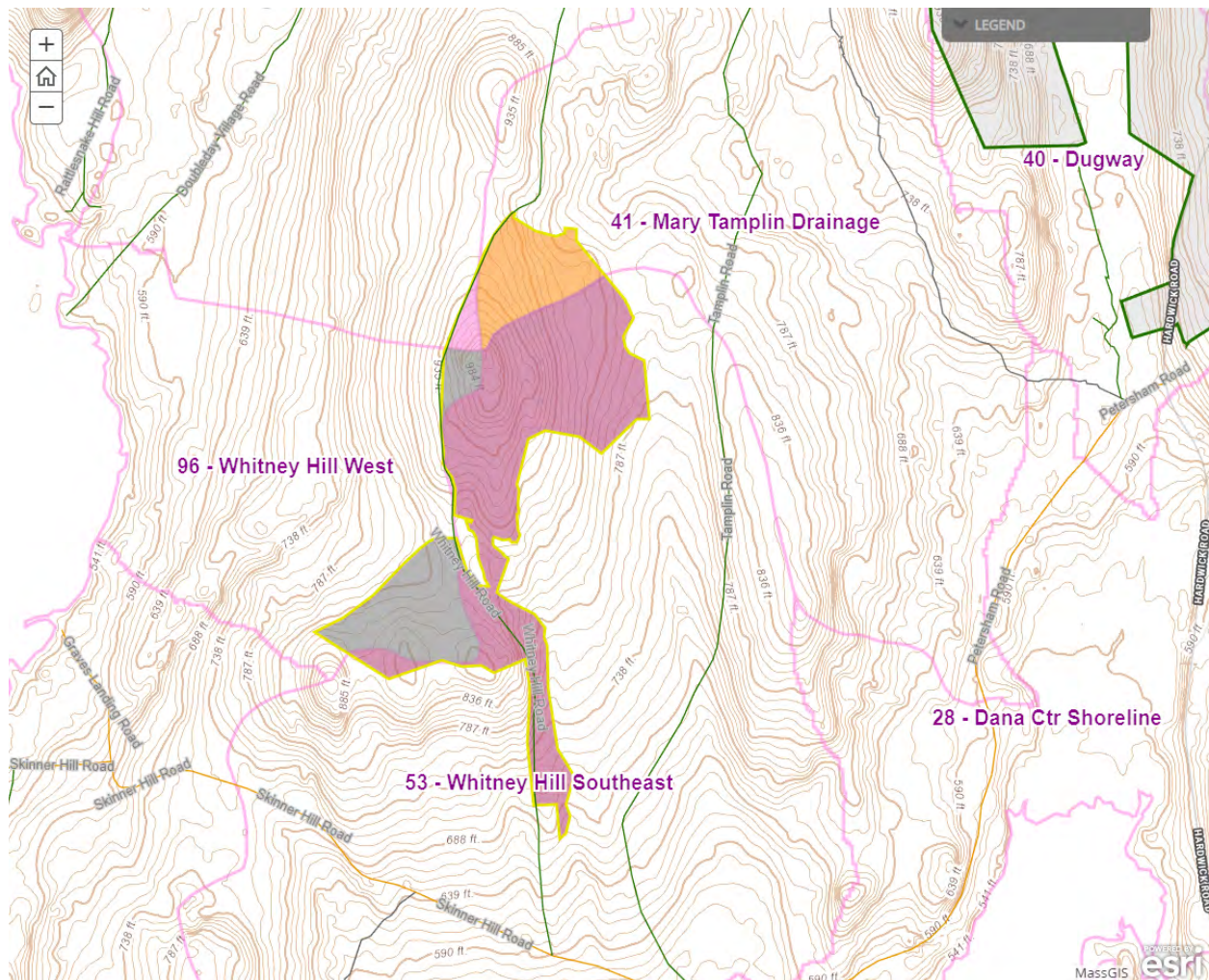
Scattered wildlife trees, standing dead, healthy individuals of all species present, and individuals with superior form and vigor will be retained throughout proposal to preserve habitat, maintain or increase diversity, improve overall stand health and vigor and retain some carbon storage and increase the growth rate (carbon sequestration) of the retained trees. One of the main silvicultural goals across the proposal is to diversify species and age structure by regenerating openings with free to grow regeneration, that should stay vigorous for at least 10 years. These openings should also encourage species that are better adapted to our changing climate to become established.



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
41 (Mary Tamplin)	746	6	181	26
53 (Whitney Hill Southeast)	1082	39	231	114
82 (East Branch Fever Brook)	5557	19	1371	4
96 (Whitney Hill West)	328	35	47	38

Proposed harvesting will not exceed the 25% threshold.



Harvesting Limitations

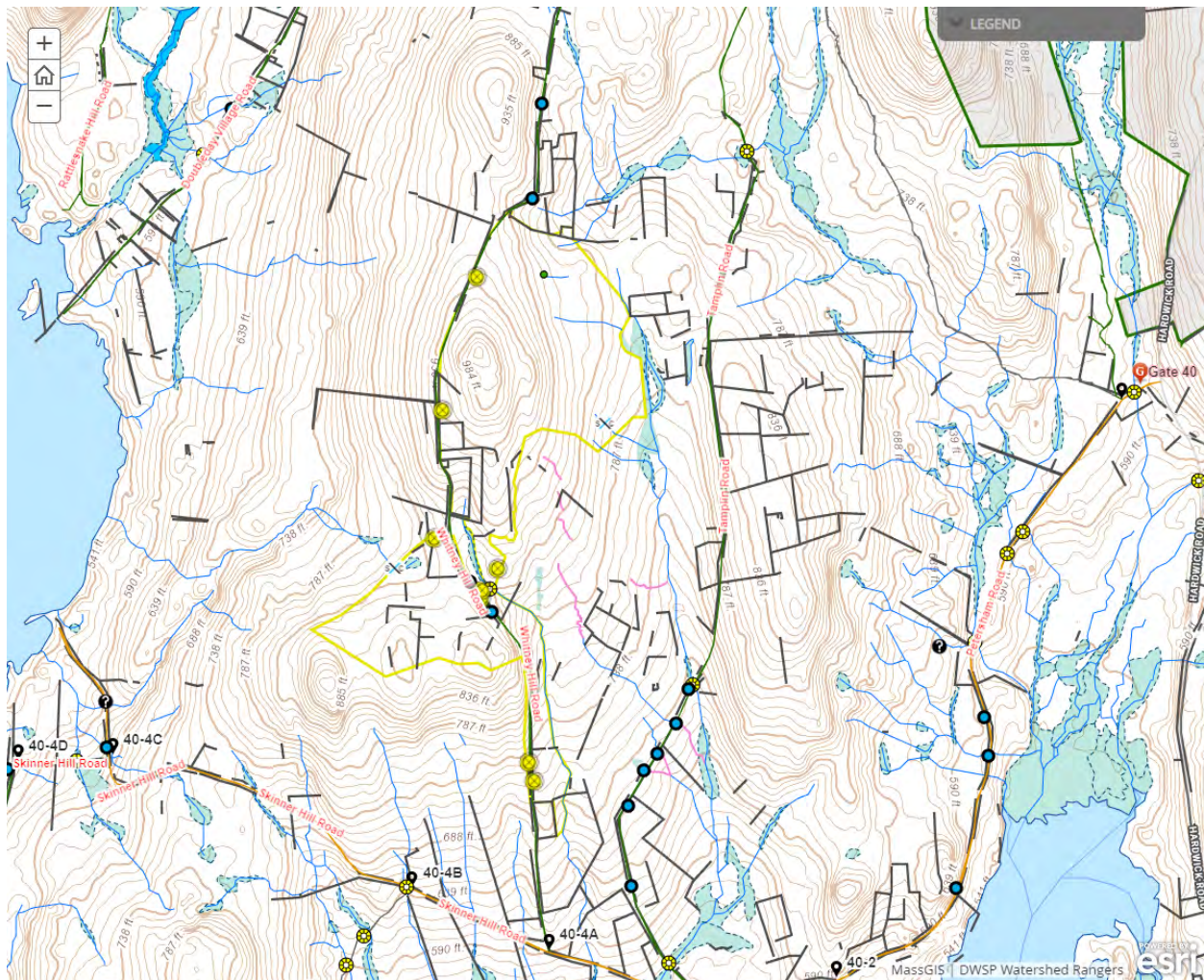
Forwarder required: **Yes**

Feller/processor required: **No**

Steep slopes present: **No**

Comments on harvesting limitations:

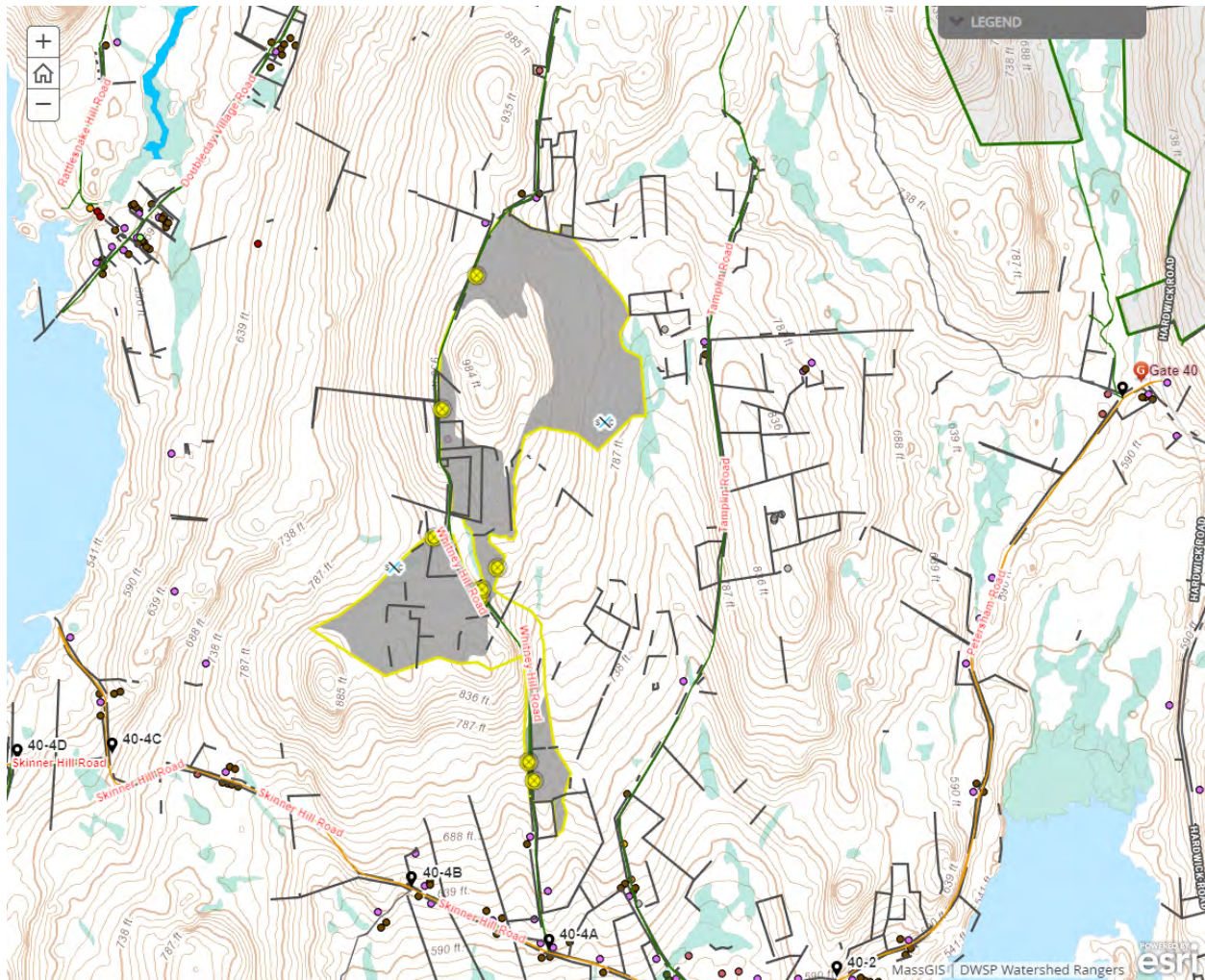
Due to the small, mostly roadside landings, and prevalence of stone walls and other cultural resources, a 6- or 8-wheel forwarder with tracks available will be required. Some trees will be cut within filter strip so a cable should also be available.



Cultural Resources

Comments on Cultural Resources:

Surface stone and irregular microtopography is prevalent throughout the whole lot. There is one cellar hole just off the road on the western portion of proposal and there is one just off the proposal east of the trailer turn-around/landing. No wells were found on the lot. There are numerous stone walls, particularly along Whitney Hill Road and the western portion of proposal.



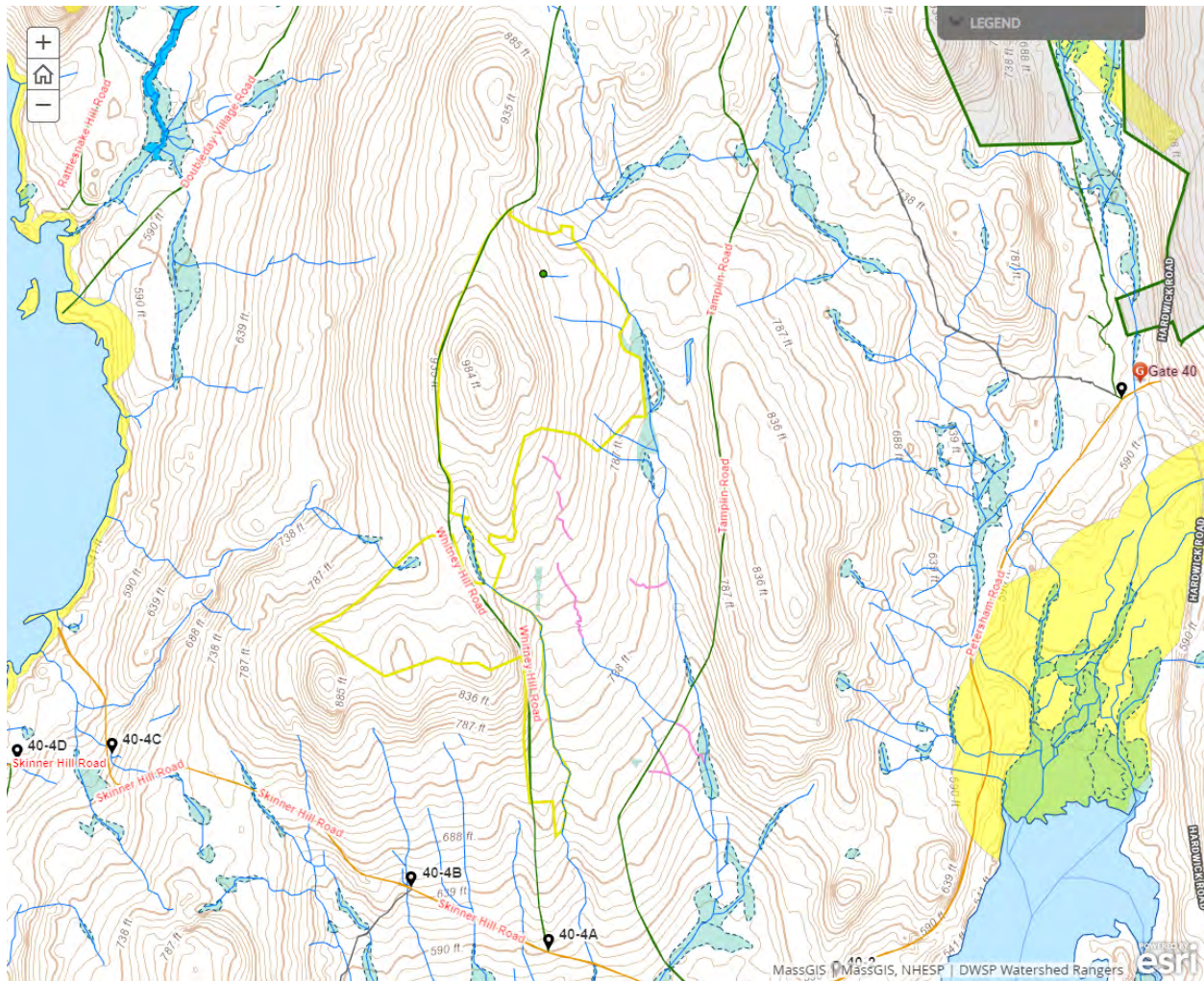
Wildlife Resources & Rare and Endangered Species

General Wildlife Comments:

Lots of sign of deer and moose and the logger on the abutting harvest has trail camera photos of 5 different moose using this area. Bear and turkey are known to use area and a woodcock was seen near the eastern wetland.

Comments on Rare Species/Habitats:

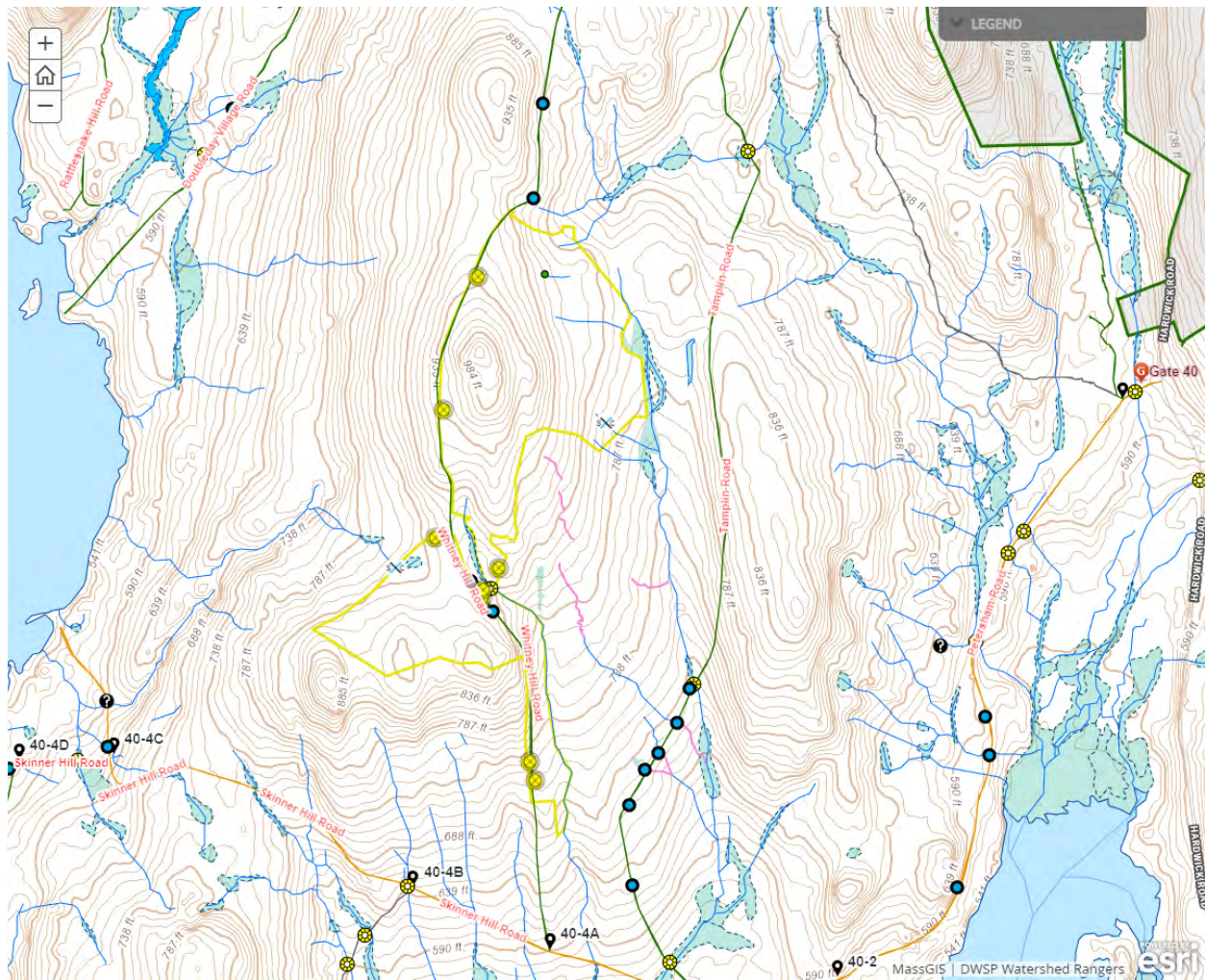
There is a small, probably dug, pool in a seep which drains into the large eastern wetland. It was checked this year and has no eggs or vegetation and was classified as not a pool. No other rare habitats or species observed. No NHESP habitats located within the proposal area.



Environmental Quality Engineering

Comments on EQ Issues:

There is a small wetland and 1 intermittent stream crossing both of which are only seasonally wet and have been crossed before. Bridging and other protection measures will be used as needed.



Forest Access Engineering

Gravel needed: Yes

Landing work needed: Yes

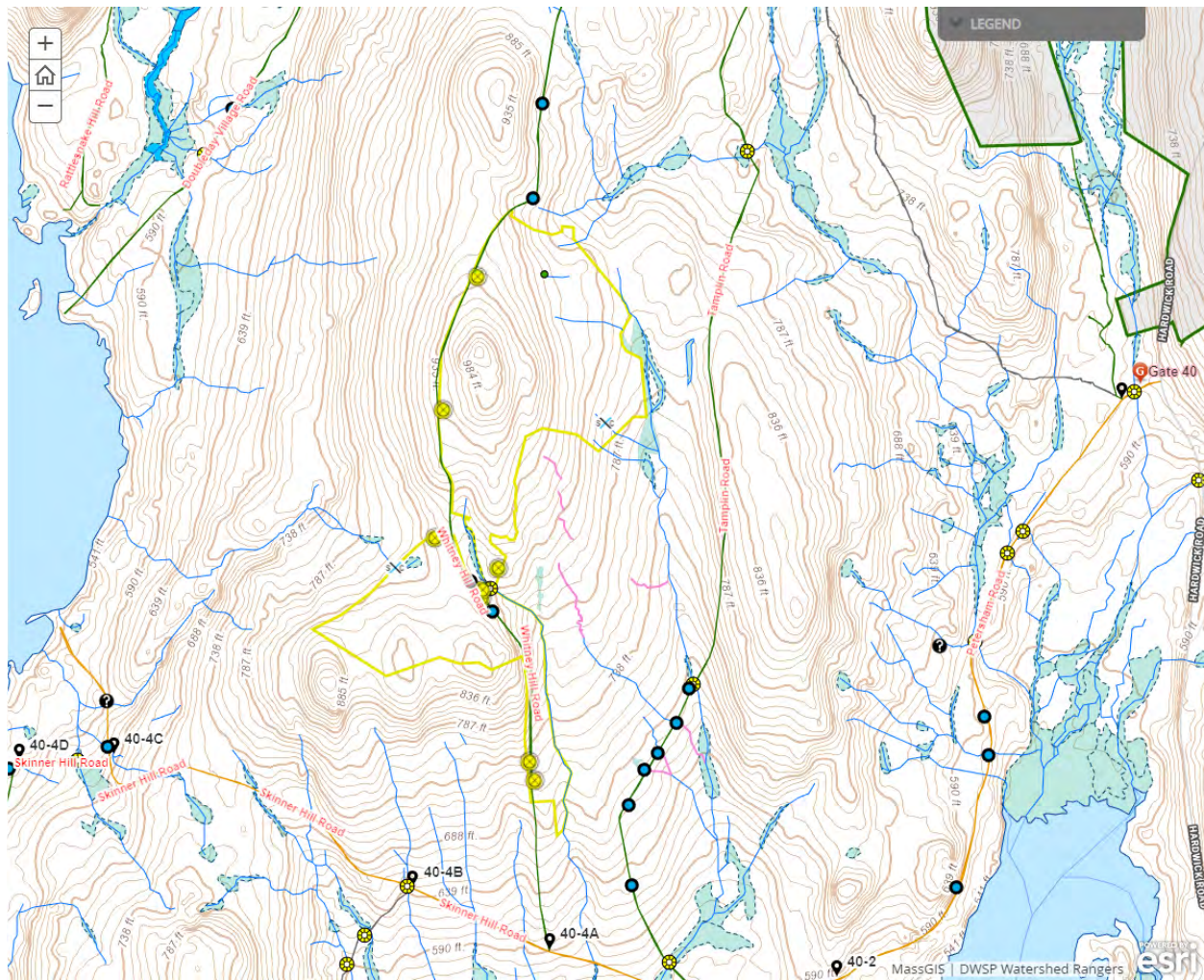
Culverts needed: No

Work needed on permanent bridges: No

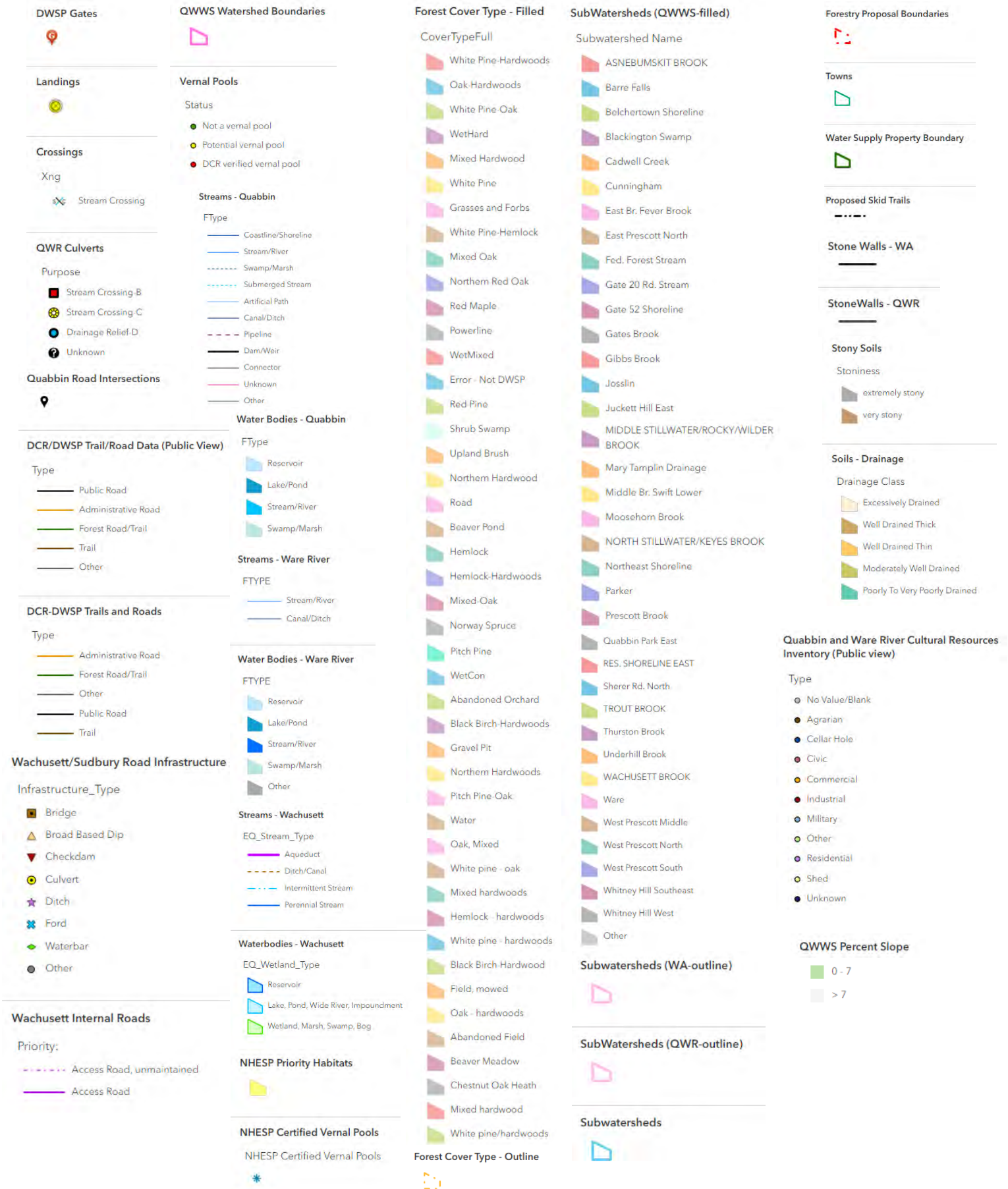
Beaver issue: None

Further comment on access needs:

Whitney Hill Road needs general maintenance on the hill portion. Water bars in particular need to be improved along with ditch which is lacking on portions. The existing northern landing needs to be improved and enlarged preferably to allow for trailers to turn.



DWSP FY 2022 Forestry Proposals – Master Legend for story maps



Quabbin Harvest Proposal PT-22-13

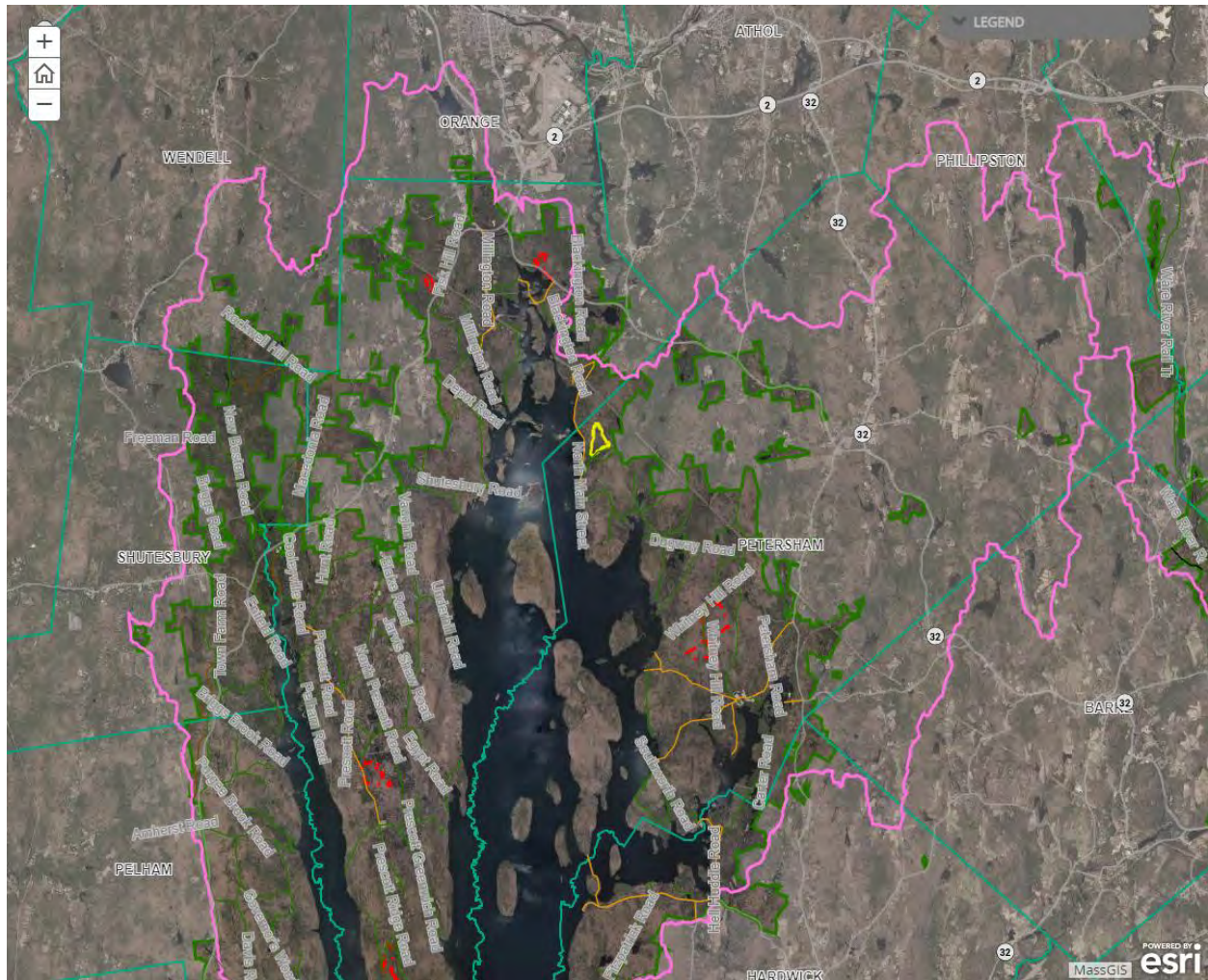
Proposal Goals

The primary goal here for this proposal is to release patches of diverse advance regeneration to promote diversity and resiliency. Oak regeneration is particularly plentiful and well-developed in this area and will be favored.

Proposal Location

Bounded to the northeast by a steep slope descending to an unnamed perennial stream and associated wetlands; to the southeast a steep slope descending to the Gate 36 access road; and to the west by a line extending approximately 3,000 feet northerly from intersection 35-2A.

Total Acres: 53



General Description

	Overstory Type(s)	Acres
Dominant	White pine - oak	30
Secondary	Oak - hardwoods	19
Other	White Pine	4

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

Description of forest composition/condition:

Most of the proposal area has a multi-aged mix of oaks and other hardwoods with emergent white pine. White pine vigor is good throughout, but form is highly variable, ranging from very poor old field white pine in the southwest with multiple forks and stems, lots of sweep, and/or many large branches, to clear straight sawtimber to the north and east. The Quabbin forest types layer shows an abandoned orchard on the southwest border of the proposal area, but no fruit trees were found, and the area is now dominated by old field white pine.

The oak species mix is diverse, including red, black, scarlet, white and occasional chestnut oak. Oak form and vigor is generally fair to poor, in part because the area was hit hard by gypsy moth, resulting in damage to the crowns of the oaks that survived. Red maple with fair form and vigor is a common associate. Less common sawtimber species include white ash, big tooth aspen, and pitch pine. Most of the hardwoods with good form are red oak. Scarlet oak has particularly bad form, often with large branches and knots, lightning scars, and large cavities.

Pole stock includes red maple, red oak, white oak, white ash, paper birch, black birch, black cherry, and occasional shagbark hickory. Excellent advance regeneration is in place, with dense oak seedlings on the upper slopes, and white pine mixed with oak and other hardwoods on the lower slopes. Chestnut stump sprouts are also present.

The shrub layer includes witch hazel, mountain laurel, blueberry, huckleberry, hazelnut and hawthorn. Groundcover includes wintergreen, partridgeberry, clubmoss, and sheep laurel, and hay-scented fern. Grape vines are present but not numerous, and do not appear to be damaging the canopy. The witch hazel, mountain laurel and hay-scented fern are not dense enough to cause major regeneration challenges; invasives will be a more serious problem (see below).

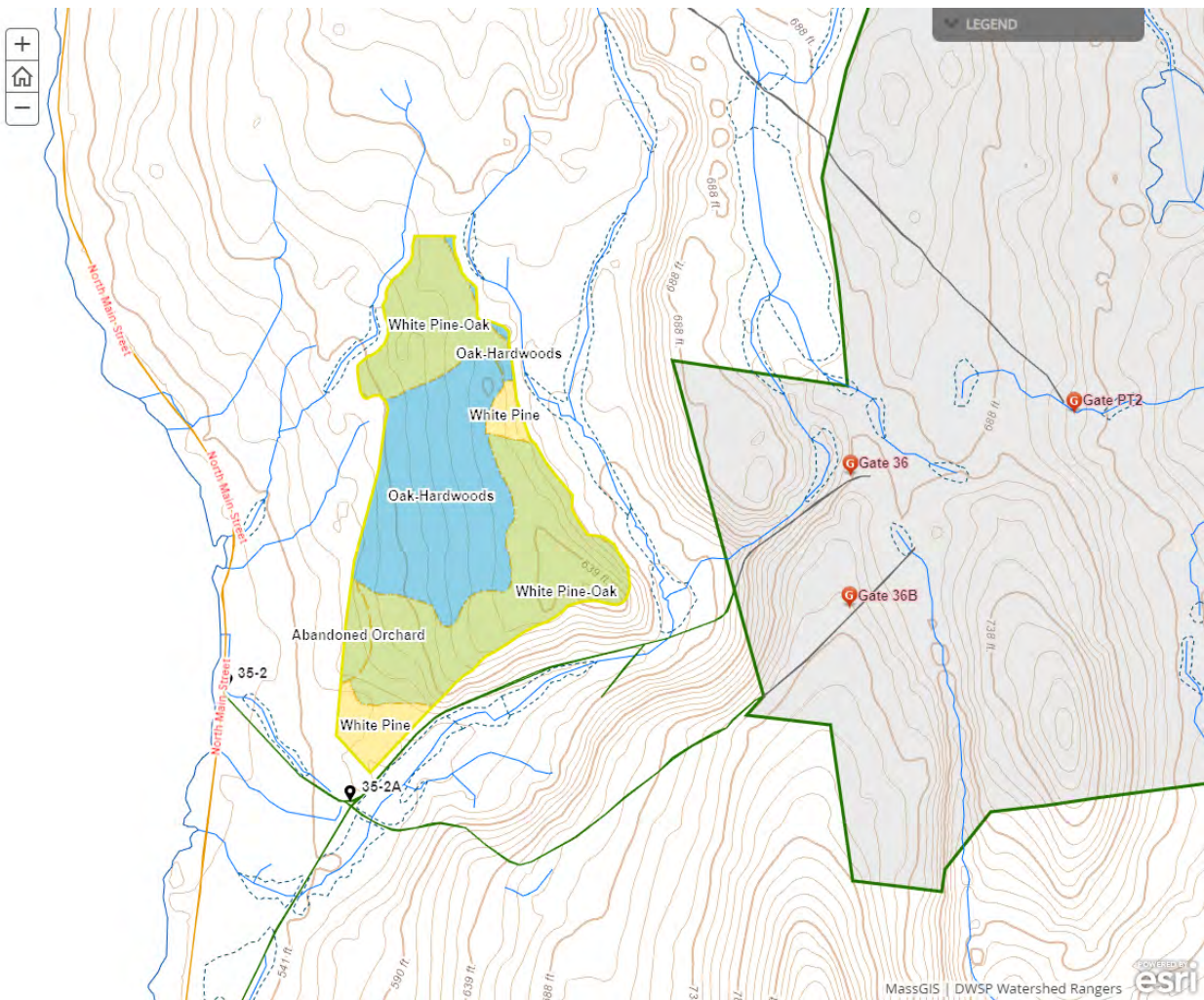
This area received an 11.7 acre salvage cut in 1991. About 3 acres were part of adjacent shelterwood prep cuts, to the east in 1990 and to the southwest in 1969. Some of the old field white pine was girdled at an unknown date, with variable success.

Assessment of Terrestrial Invasive Species:

Seven species of invasives were observed: Japanese barberry, bittersweet, honeysuckle, Japanese knotweed, multiflora rose, euonymus and phragmites. Most of these (honeysuckle, Japanese knotweed, multiflora rose, and euonymus) are outside the proposal area, concentrated in and around an old cellar hole at intersection 35-2A. Multiflora rose and euonymus are present in small patches, with only a few stems apiece. Knotweed and honeysuckle patches are larger, but still concentrated in limited areas. Phragmites is located primarily in the beaver pond across Gate 36 road.

In contrast, bittersweet is extensive within the proposal area, both around the cellar hole and along an old woods road that leads from the cellar hole at intersection 35-2A to the former orchard to the north. At present it seems to be limited to these edge areas. Japanese barberry is more widespread still, particularly under the old field white pine and into the more diverse adjacent stands. The upper slopes to the east and north seem to be uncontaminated as yet.

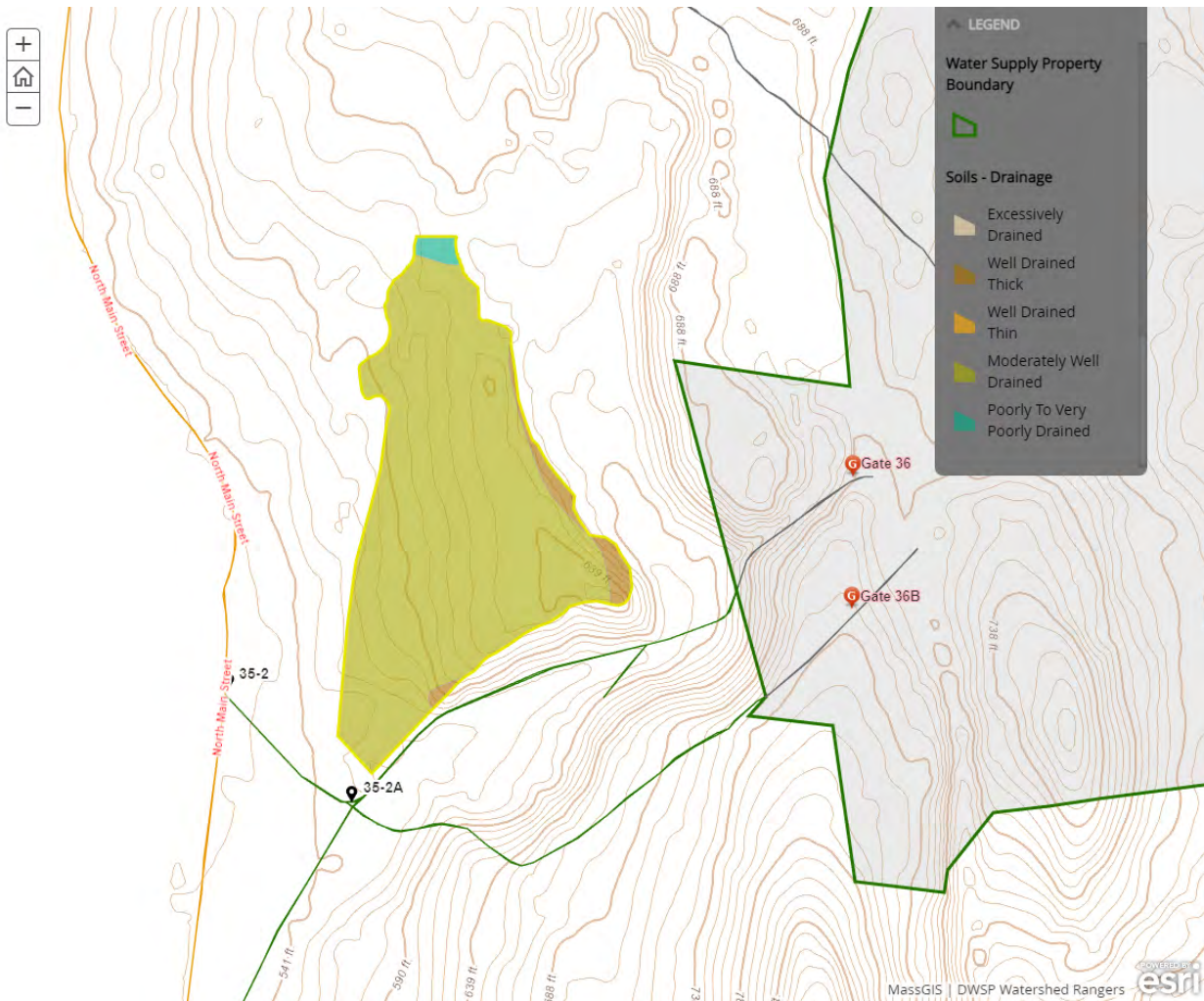
Of these invasives, bittersweet probably poses the greatest risk to future forest development. Ideally all of the invasives would be treated whether or not the area is harvested, but at minimum bittersweet should be treated prior to cutting, to reduce the risk of it spreading into newly created openings.



Soils

Drainage Class	%
Excessively Drained	0
Well Drained Thin	0
Well Drained Thick	4
Moderately Well Drained	95
Poorly to Very Poorly Drained	1

Based on field reconnaissance, it's likely that the entire area is moderately well drained Montauk-Scituate-Canton association, 3 to 15 percent slopes, extremely stony. The other types shown in the soils layer are poorly drained Ridgebury-Whitman association, 0 to 8 percent slopes, and well drained thick Montauk-Canton association, 15 to 45 percent slopes. However the entire proposal area is upland with gentle slopes, so these other soils were probably mislabeled due to imprecise mapping.

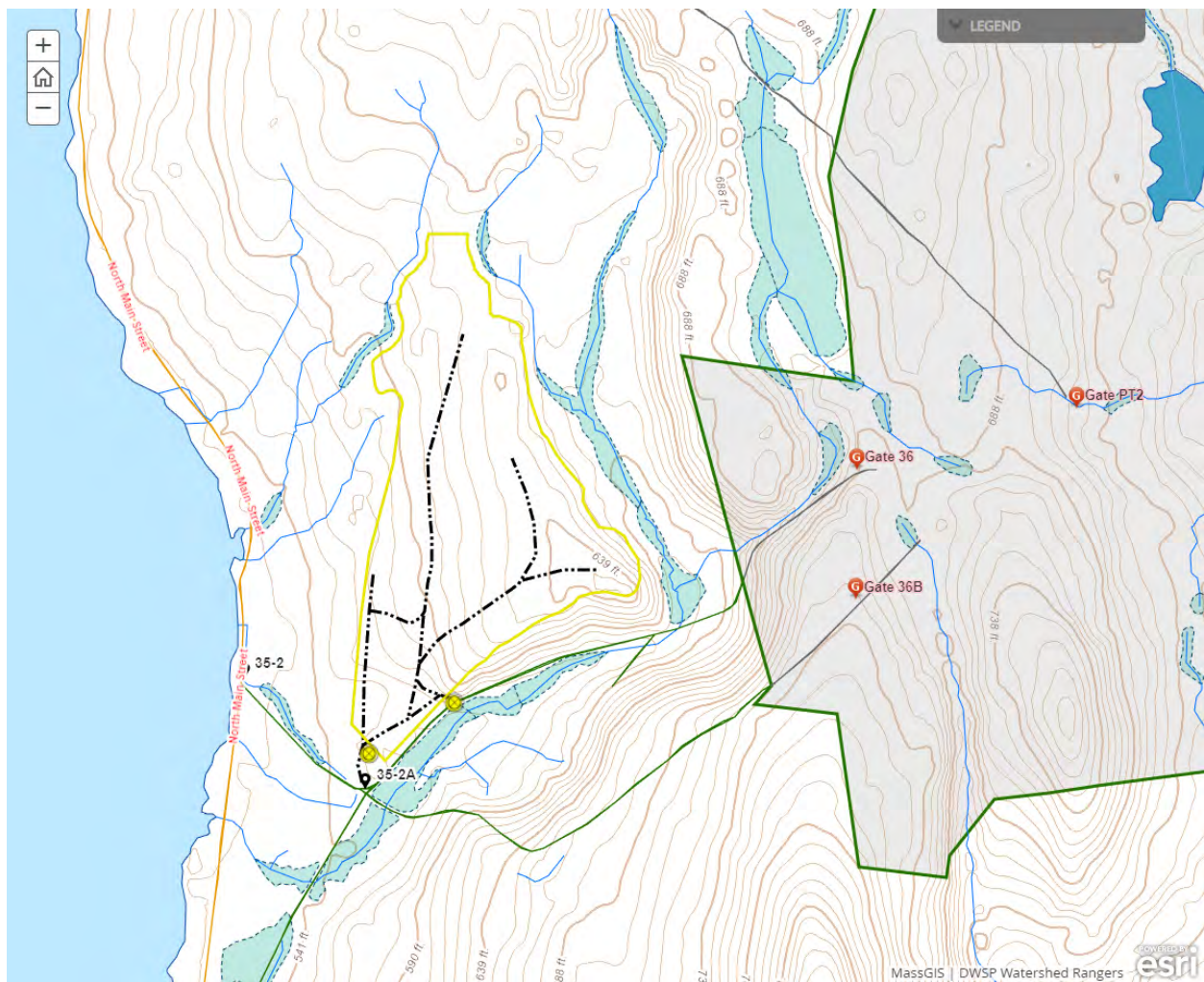


Wetlands

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

About 700 feet north of the cellar hole at intersection 35-2A, there's a seep and associated small wetland. An intermittent stream flows out of the wetland, disappearing about 115 feet downhill at a stone wall.

There are numerous other streams and wetlands near this proposal, but no others within the harvest area. All wetland features within and adjacent to the harvest will be protected by filter strips.



Silviculture

Acres in Intermediate cuts: 0

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

Acres in Regeneration cuts: **17**

Average regen opening size: **1.5**

Maximum regen opening size: **4**

Description of advance regeneration in proposal area:

Excellent advance regeneration is in place, with dense oak seedlings on the upper slopes, and white pine mixed with oak and other hardwoods on the lower slopes.

General comments on silviculture proposed:

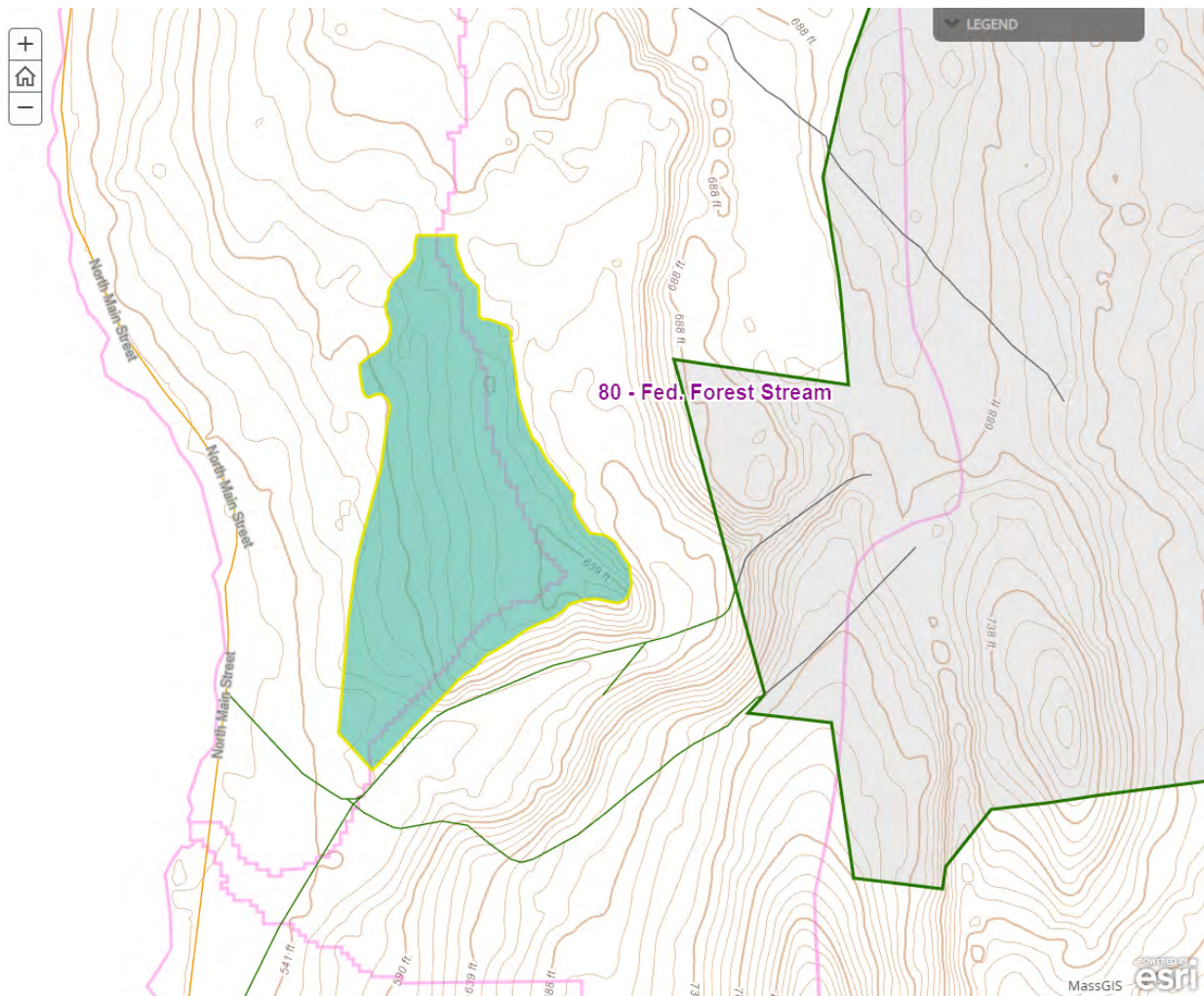
The primary objective of this harvest is to release advance regeneration, especially oak, while it's still viable. This will be accomplished by creating openings of up to 4 acres by removing trees with weak form and/or poor health, the largest being a patch of very low quality white pine in the southwest area near the landing. 5-10 ft²/acre of healthy, vigorous mature trees with good form will be retained in most openings. Oaks with large crowns and good form will be favored as seed sources, and the healthiest trees of all species will be retained.



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
10 (Northeast Shoreline)	776	10	192	38
80 (Federated Forest Stream)	313	18	65	15

Proposed harvesting will not exceed the 25% threshold.



Harvesting Limitations

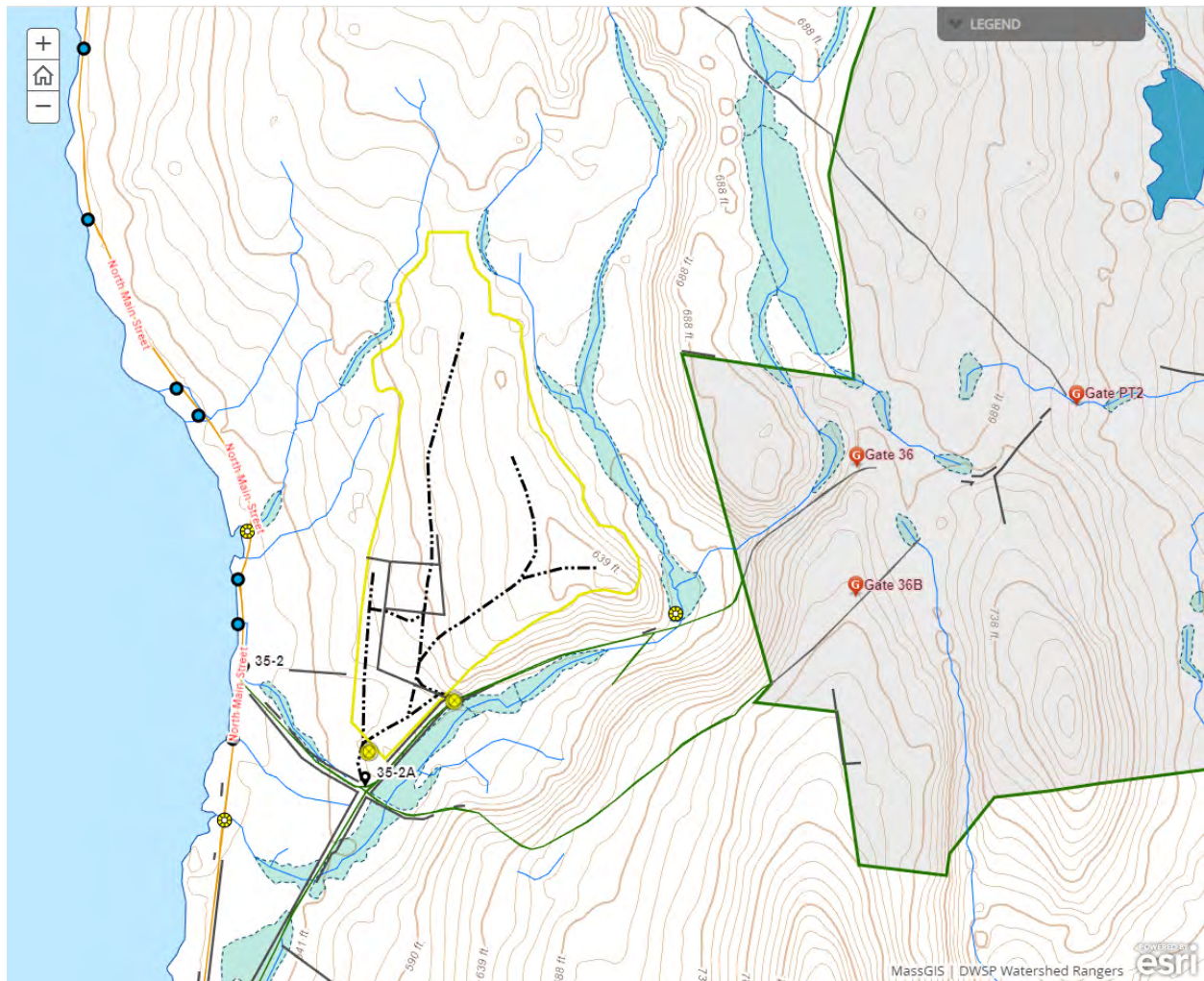
Forwarder required: **No**

Feller/processor required: **No**

Steep slopes present: **No**

Comments on harvesting limitations:

None.



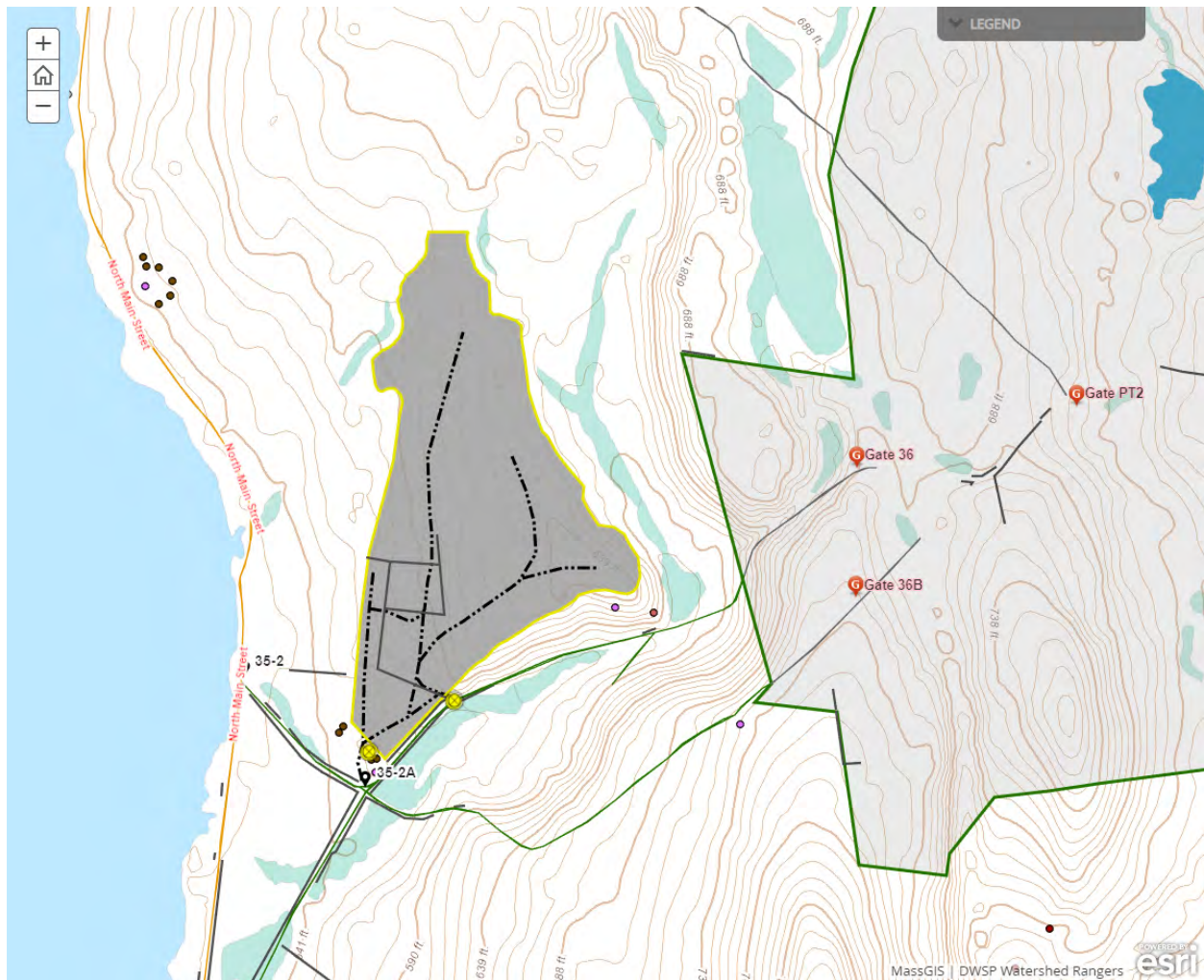
Cultural Resources

Comments on Cultural Resources:

This lot contains numerous thrown stone walls, most of them near intersection 35-2A. Wherever possible walls will be protected and avoided; however, they may need to be crossed or barways widened in some locations. Such crossings will be minimized, and will be located where walls are already breaking down due to prior use.

Additional cultural sites that are near but not within the harvest area include a former homestead near intersection 35-2A that included a house, a barn and two sheds; and about 1,500 feet up the road, a former school with a house nearby.

Two wells were found about 700 feet north of the cellar hole at intersection 35-2A; they will be mapped, flagged and protected, as will any other cultural features that are identified in the course of this harvest.



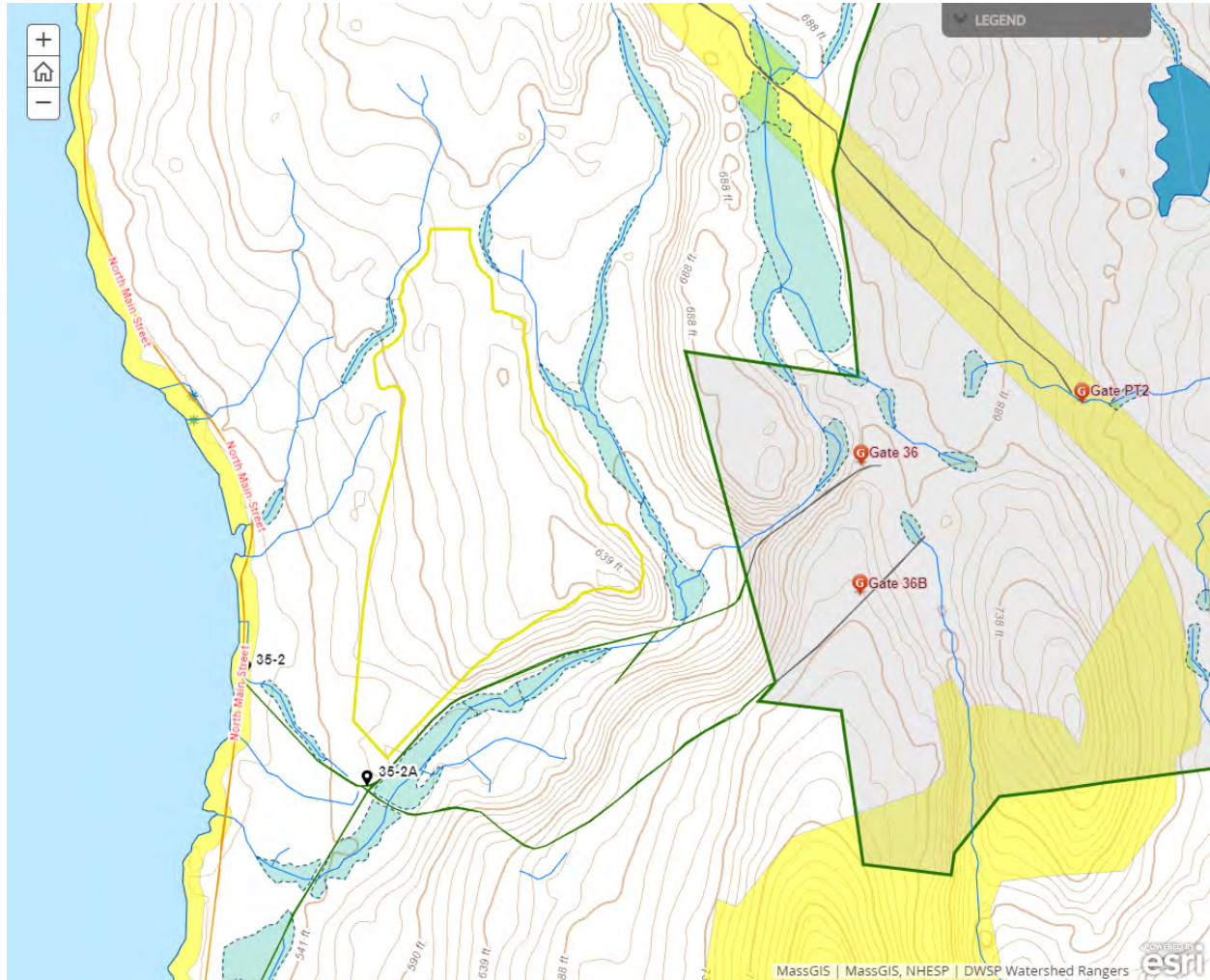
Wildlife Resources & Rare and Endangered Species

General Wildlife Comments:

Moderate deer browse was observed on oak and other hardwood seedlings, along with numerous deer pellets and tracks. Weevilled white pine and oaks killed by gypsy moth are providing habitat for pileated woodpeckers. There's a large beaver pond on the other side of the access road, but to date no evidence of beaver has been observed in the proposal area.

Comments on Rare Species/Habitats:

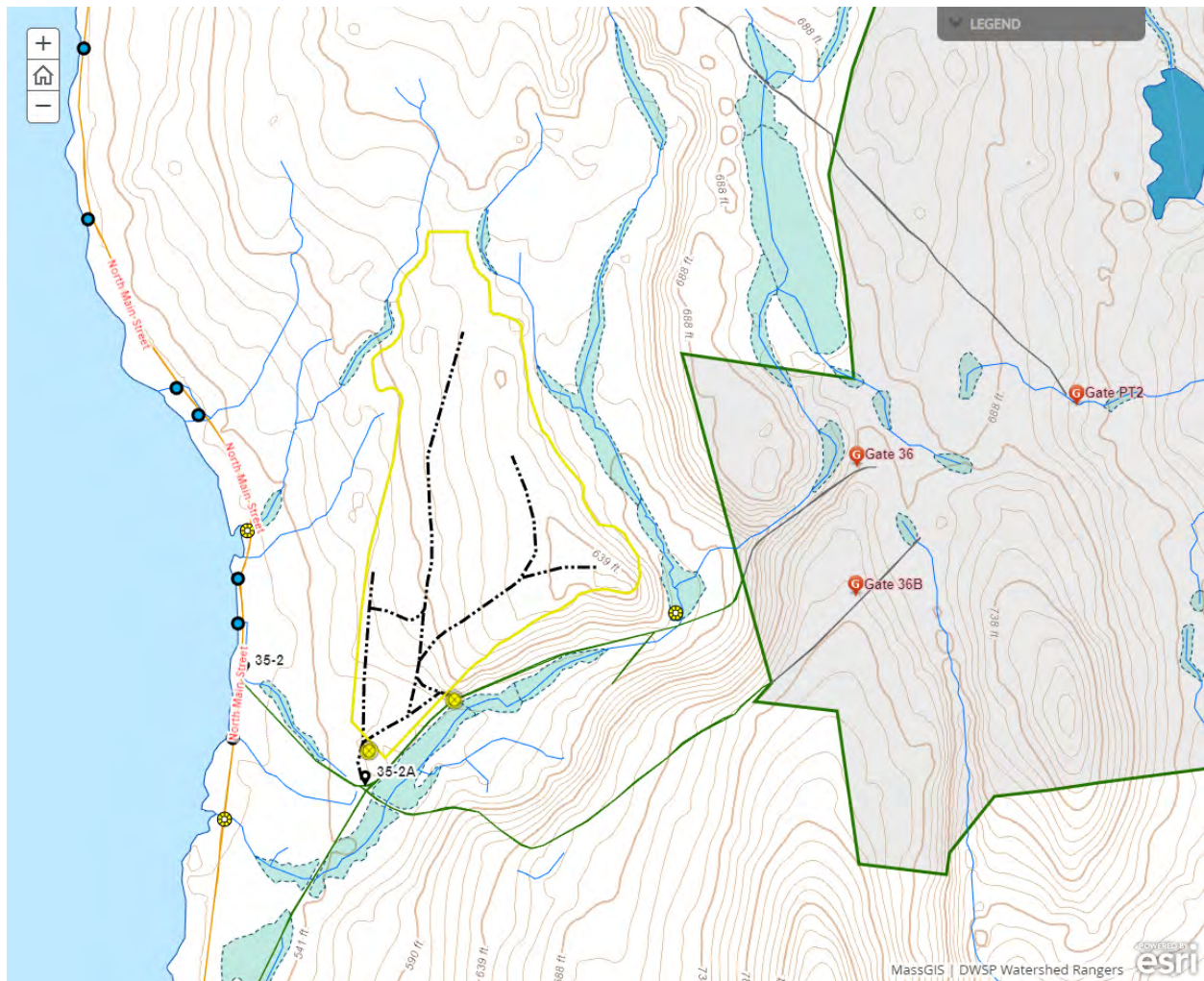
No rare species or rare habitats located within the proposal area.



Environmental Quality Engineering

Comments on EQ Issues:

There are no perennial streams or stream crossings on this lot.



Forest Access Engineering

Gravel needed: Yes

Landing work needed: No

Culverts needed: Yes

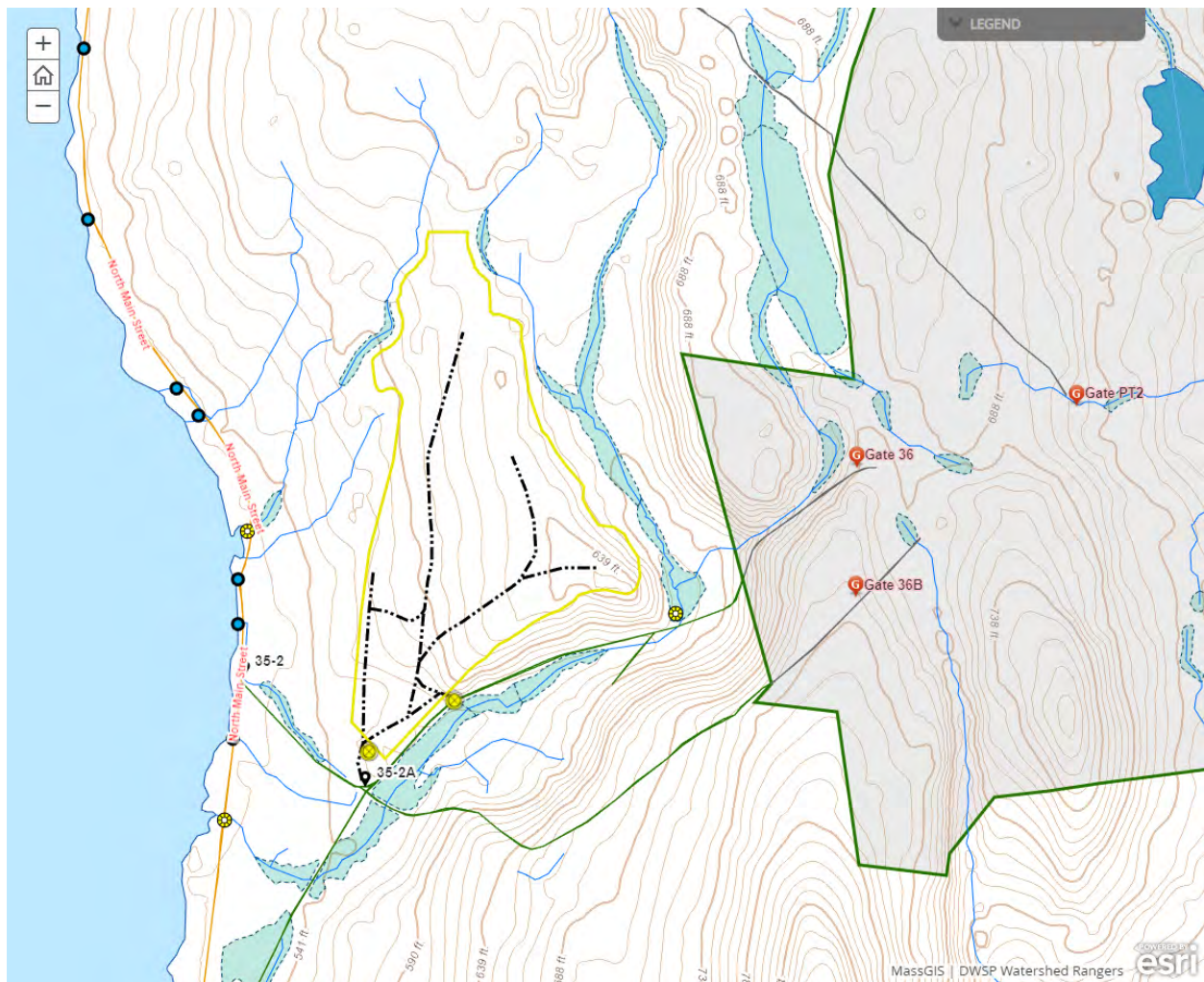
Work needed on permanent bridges: No

Beaver issue: Potential

Further comment on access needs:

Gravel may be needed depending on conditions at the start of the job. Culvert work may be needed on the Gate 35 access road.

There are not currently issues related to the beaver pond south of the Gate 36 access road, but it's possible that this could change.



DWSP FY 2022 Forestry Proposals – Master Legend for story maps

