Massachusetts Department of Conservation and Recreation

Division of Water Supply Protection, Office of Watershed Management

Forest Management Project Proposal Summary for Public Comment

Location, goals, and summary of proposed forest management.

Proposal Summary Item	Item Information/Description
Lot Proposal ID	**NS-25-24-BFA3**
Fiscal Year	2025
Watershed	**Quabbin**
Town(s)	**New Salem and Petersham**
Forester	Helen Johnson
Total Acres	37.6
Block	New Salem and Petersham
Compartment and/or Working Unit	NS-24
Location and Boundary Description	This is a resubmission of the east portion of the original NS-19-24_BFA, which ended up being restricted to red pine plantation removal by the DCR Commissioner at that time. The central section of NS-19-24_BFA was reproposed as NS-22-24_BFA2 in order to remove red pine newly infested with red pine scale. Six acres of NS-22-24_BFA2 that have not yet been cut will be considered for harvesting concurrent with this proposal, which will be the last harvest at the Gays Hill Barrens Focus Area. This proposal is bounded to the northwest by Blackington Swamp, to the north and east by the stream and associated wetlands draining from Blackington Swamp, and to the south and west by the proposal NS-22-24, on the north side of Route 122 and the western base of Gays Hill.
Previous Proposal?	
Project Goals and Summary Description	This will be the third and final barrens restoration harvest at Gays Hill Barrens Focus Area, completing the process of removal of generalist species (mostly red maple and white pine), leaving an open stand of mixed oak with occasional pitch pines and an understory of blueberries, bracken fern, and other upland species. After the harvest, this fire-adapted ecosystem will be maintained with prescribed fire.

Forest Cover Types and Acreages

Overstory Forest Types	Acres
Mixed Oak	26.8
White Pine – Oak	10.8

Understory Cover Types and Relative Importance

Understory Cover Type	**Relative area covered** (Dominant, Secondary, Minor, None)
Tree seedlings and saplings	Dominant
Mountain laurel	Secondary (northeast portion of proposal)
Mesic site - witch hazel, highbush blueberry	None
Dry site -Huckleberry, blueberry	Secondary

Understory Cover Type	Relative area covered (Dominant, Secondary, Minor, None)
Mesic site - cinnamon fern, mixed hardwood	None
Hayscented fern	None
Invasive shrubs/vines	Minor (southeast corner of proposal)
Other	None

Forest Vegetation Description

Vegetation Topic	Description
General Description, Forest Composition, Stand History, and Harvest History	Gays Hill is dominated by mixed oaks, including red, black, scarlet, white and chestnut oaks, with red maple and black birch as common associates, along with lower densities of other hardwoods (paper birch, black cherry, American beech, hickory and aspen), white pine, pitch pine and hemlock. The occasional emergent white pines on the upper slopes become more common as one descends, transitioning to white pine-mixed oak at the base of the hill. Pitch pine is spotty but occurs most commonly on the lower slopes, especially in the northeast. Most of the hardwoods are pole to small sawlog sized, with form ranging from poor to good. Spongy moth mortality is present but not severe or widespread. Mountain laurel is present, particularly in the northeast, but not severe. Other understory species include high and low bush blueberry, bracken fern, sheep laurel, wintergreen, and clubmoss. Most of this area has never been harvested by DCR. The exceptions are two overlapping harvests in the southeast corner of the proposal area: 3 acres of shelterwood prep completed in 1975 (Lot 114), and 7 acres of selection completed in 1998 (Lot 773). This area has a history of wildfire, most recently just to the west in the mid-twentieth century. The dominance of oaks and unusually high presence of pitch pine indicates that fire has likely been an important part of this ecosystem for centuries.
Advance Regeneration description	White pine seedlings and saplings with poor to fair vigor are present throughout the proposal area, and are particularly dominant on the lower slopes. Red and white oak group seedlings and saplings are present throughout the area, especially on the higher slopes. Red maple saplings, often from stump sprouts, are especially common in previously harvested areas, as is patchy hemlock regeneration. Black birch seedlings and saplings are present, but much less common than in other places at Quabbin.
Terrestrial Invasive Plants description	Japanese barberry is present in low densities near the stone walls in the southeastern corner of the proposal area.

Description of Wetland Resources Present

Resource Type	Description of resources present
Wetlands	Blackington Swamp is to the northwest; numerous bordering vegetated wetlands are present along the stream to the north and east. All of these are outside the proposal area.
Streams	An unnamed perennial stream is outside the proposal to the north and east, and flows from Blackington Swamp to O'Loughlin Pond on the south side of Route 122.
Vernal pools	None known.
Seeps	None known.

Description of Soils by Hydric Class

Soil Hydric Classes	% of area	Soil series and any further comments
Excessively Drained	11	Windsor loamy sand (SW corner of proposal)
Well-drained Thin	23	Chatfield Hollis Complex
Well-drained thick	50	Canton fine sandy loam
Moderately well-drained	0	Sudbury sandy loam (0.3% in the NW)
Poorly to very poorly drained	16	Walpole fine sandy loam (poorly drained, NE corner of proposal) This area is included in this proposal because it's part of the barrens focus area shown in the 2017 Land Management Plan. Initial inspection of the vegetation where soils are mapped as poorly drained found much of the area to be dominated by upland species (white pine, pitch pine, black birch, mountain laurel, low bush blueberry, clubmoss), with lower densities of wetland transition zone species (red maple, hemlock, high bush blueberry, sheep laurel), indicating probable inaccuracy of the NRCS soil survey map. This area (and the rest of the proposal) will be subjected to more detailed inspection and wetland delineation during marking, and areas that are found to meet the criteria for wetlands will be excluded from the harvest.

Proposed Silvicultural Activities

Topic	Description
Site Selection and Silvicultural Objectives	This is the final harvest in the Gays Hill Barrens Focus Area, as described on pages 111-127 of the 2017 DCR-DWSP Land Management Plan. It builds on prior red pine and white pine harvests to the west that were completed in 2019 (Lot 3159) and 2022 (Lot 3169), expanding the previously harvested area eastward to include Gays Hill. The primary objective for this harvest is to remove species associated with mesification (white pine, red maple and other non-oak hardwoods) in order to restore a fire-adapted vegetative community (including pitch pine, mixed oak, and blueberry) consistent with barrens habitat. A secondary objective is to reduce improve the health, vigor, and seed bearing potential of pitch pine, where present, and to reduce basal area in those areas to make it less attractive to southern pine beetle. A tertiary objective is to release advance regeneration, consistent with the DWSP goal of increasing tree age class diversity. No further harvesting is planned for this area after this proposal is complete; thereafter, the barrens will be maintained with prescribed fire.

Topic	Description
Silviculture Prescription	As in the first two entries, healthy pitch pine and oaks of all species will be retained, while species associated with mesification (white pine, red maple, other non-oak hardwoods) will be removed. Required TSI will include cutting all mountain laurel and white pine saplings in the harvest area. Where pitch pine is present, basal area will be reduced in accordance with the NAFSE Southern Pine Beetle Hazard Rating in an attempt to prevent loss of pitch pine on this site to that aggressive pest. Where substantial advance oak regeneration is present in combination with an overstory of declining health/vigor, the overstory will be removed in patches of up to 2 acres in order to release the younger age class. For the purposes of this proposal most of this harvest is classified as a prep/establishment cut, because overall post-harvest stocking levels will be similar to that of a shelterwood prep cut. However, this barrens restoration treatment would be more accurately described as being for habitat rather than regeneration, and having variable retention ranging from 0 to 120 ft^2/acre. The overall result will be a savannah-like forest with patchy but generally spacious stocking of mixed oak with occasional pitch pine.

Climate Change Considerations: DWSP has determined that the decision to implement this project is consistent with EEA climate goals and guidelines and agency land management objectives. Carbon and climate change considerations specific to the activities proposed for this project are discussed below.

Proposed Activity	Alignment of Activity with Climate Oriented Strategies and Recommendations
Full overstory removal, partial stand, patch regeneration cut. **(*see page 4, Silvicultural Prescription, group selection openings*)**	Patch cutting is a regeneration technique that straddles the boundary between classic even-aged and uneven-aged forest management systems. Foresters select appropriate areas ('patches' or 'groups') covering a portion of the stand to harvest rather than removing the entire stand and then return periodically to repeat the process in other portions of the stand. In using patch cutting there is no final regeneration cut. Patch size and shape are determined by many different factors including overstory condition, desired species composition in the regeneration layer, other desirable herbaceous and woody vegetation, location, stand re-entry period, etc. Harvesting in patches aligns with many **climate-smart forestry practices**: • Increasing **structural diversity** improves resiliency by reducing the impact of age/size related disturbances. • Extending regeneration periods minimizes short term impacts to groundwater and nutrient cycling. • Partial stand overstory removals more closely align with **natural disturbance patterns**. • More **carbon is left on the landscape** for longer periods, and within-patch live tree, snag, and coarse debris retention allow for development of old forest characteristics. • Can also be used as opportunities to increase the stocking of **future climate adapted species, current climate imperiled species**, or other types of desirable vegetation.

Proposed Activity	Alignment of Activity with Climate Oriented Strategies and Recommendations
Diffuse overstory removal, partial cut, late rotation regeneration related. **(*see page 4, Silvicultural Prescription, intermediate thinning on steeper slopes*)**	Partial cutting via single trees or small groups in a mature stand can advance a variety of management objectives as well as **climate-smart practices**. Single tree or very small group removals, if used exclusively and repeatedly, will perpetuate an **uneven-aged stand condition** with a species mix shifted towards higher shade tolerance. However, this type of harvest can also serve within an even-aged system to establish regeneration of species of lower shade tolerance under a partial canopy for subsequent release using larger group or patch cuts (irregular shelterwood) or complete-stand overstory removals. Advantages of partial overstory removals include, but not limited to: • Partial cutting **retains carbon on the landscape** for extended periods while regeneration develops. • Reducing competition for resources improves growth and **carbon sequestration** rates on residual trees. • Promotion of a diversity of age classes enhances overall forest **resiliency**. • Maintenance of continuous forest corridors provides for wildlife habitat. • As part of a regeneration system this method can be used to help guide species diversity towards more **future-adapted mixes**.
Additional Carbon and Climate Considerations	This harvest is part of DWSP's effort to **restore globally rare inland barrens habitat**, which is home to roughly half of the species protected by the Massachusetts Natural Heritage and Endangered Species Program (NHESP). This will protect and increase native **biodiversity**, creating **refugia** that will enable such species to persist in the face of continued habitat loss and degradation. Although some stored carbon will be removed from the forest in this harvest, some of that carbon, particularly in larger trees, will continue to be stored as long term wood products. In addition, the rate of carbon sequestration by trees that are not cut, as well as by new and existing tree regeneration, woody shrubs and herbaceous species, is expected to increase significantly, thus increasing the forest's carbon resilience. In addition, this harvest will increase climate resilience and reduce the impact of biological and environmental stressors by: • Making the pitch pine on this site less attractive to the highly aggressive southern pine beetle, • Improving overall forest health and vigor, increasing its resistance and resilience in the face of destructive insects and diseases and weather events, • Increasing age class diversity to allow rapid recovery after disruption of the forest canopy, • Facilitating transition to a suite of tree species that are well adapted to the developing warmer climate, and • Establishing fuel breaks to slow the spread of wildfire.

Proposed Activity	Alignment of Activity with Climate Oriented Strategies and Recommendations
Additional Carbon and Climate Considerations	Ecological functions will be sustained through best management practices, including: • Promoting carbon sequestration in retained trees, new and existing tree regeneration, and newly released barrens vegetation, • Installing water bars to prevent soil erosion, • Installing corduroy or matting to prevent compaction and rutting of sensitive soils, • Employing variable width filter strips to protect riparian areas, or avoiding these areas altogether, and • Preventing the establishment of invasive plants. This is an upland harvest with no stream crossings, no wetland crossings, no harvesting in wetlands, and no vernal pools.

Equipment and Access Constraints and Considerations

Constraint Topic	Description and Considerations
Proposed Equipment requirements	None
Proposed wetland or stream crossings	None
Further wetland comments	n/a
Vernal Pools	None known
Access improvements needed	n/a
Other EQ issues	n/a
In-kind Services	Cutting of all unmerchantable white pine, non-oak hardwoods, and mountain laurel, and removal of all woody debris greater than 4" in diameter will be required. Contractors may also be required to build a truck road and landing in the eastern part of the proposal area.
Other Access Concerns (parking, trails, etc.)	Planning for prescribed fire will be incorporated into skid road layout and marking. Signage for visitors is planned for the entire barrens focus area, but will not affect this harvest.

Subwatershed Analysis

Sub-Watershed number/name	Total DCR-owned acres in this sub-watershed	Acres regenerated on DCR land in the last 10 years in this sub-watershed	Total DCR-owned acres remaining for regenerating up to the 25% per 10 year limit for this sub-watershed	Acres in this sub-watershed that are part of this proposed lot
38 / Blackington Swamp	446.9	24.2	87.5	29.4
95 / Middle Branch Swift Lower	1176.9	35.8	258.4	8.2

Additional comments on Subwatershed analysis: No comments.

Wildlife and Habitat Observations and Considerations

Wildlife/Habitat	Observations and Considerations
Natural Heritage Priority Habitats?	Yes, the entire area is mapped as Priority Habitat for whip-poor-will, which will benefit from the decrease in stand density as a result of this harvest.
State Listed species present:	Yes (see above)
Rare Natural Communities:	None known, although this has been identified as prior barrens habitat
General Wildlife Comments	This harvest is the first step in barrens habitat restoration for the benefit of many wildlife species, including prairie warbler, chestnut-sided warbler, eastern towhee, brown thrasher, eastern whip-poor-will, tiger beetles, orange sallow moth, and many more.

Cultural Resources Description and proposed protection measures

Cultural Resource	Description and proposed protection measures
Historical features present; comments regarding protection	A pair of short “thrown” stone walls meet in a near-right angle in the southeast corner, just north of a cellar hole that is outside the proposal area. These will be flagged, protected, and avoided, as will any other cultural features that are found in the course of the harvest. No other cultural features have been found on this proposal. If any additional cultural resources are located before or during the harvest, the DCR Archeologist will be notified, and the cultural features will be protected and mapped according to guidelines set forth in the current DWSP Land Management Plan.
Description of site characteristics in relation to Ancient sites modeling or other verified evidence	Surface stone and microtopography are not prevalent or pronounced on this site. Slope is variable, ranging from nearly flat near the stream/wetland complex to the east and north, to slopes of up to 30% on Gays Hill.

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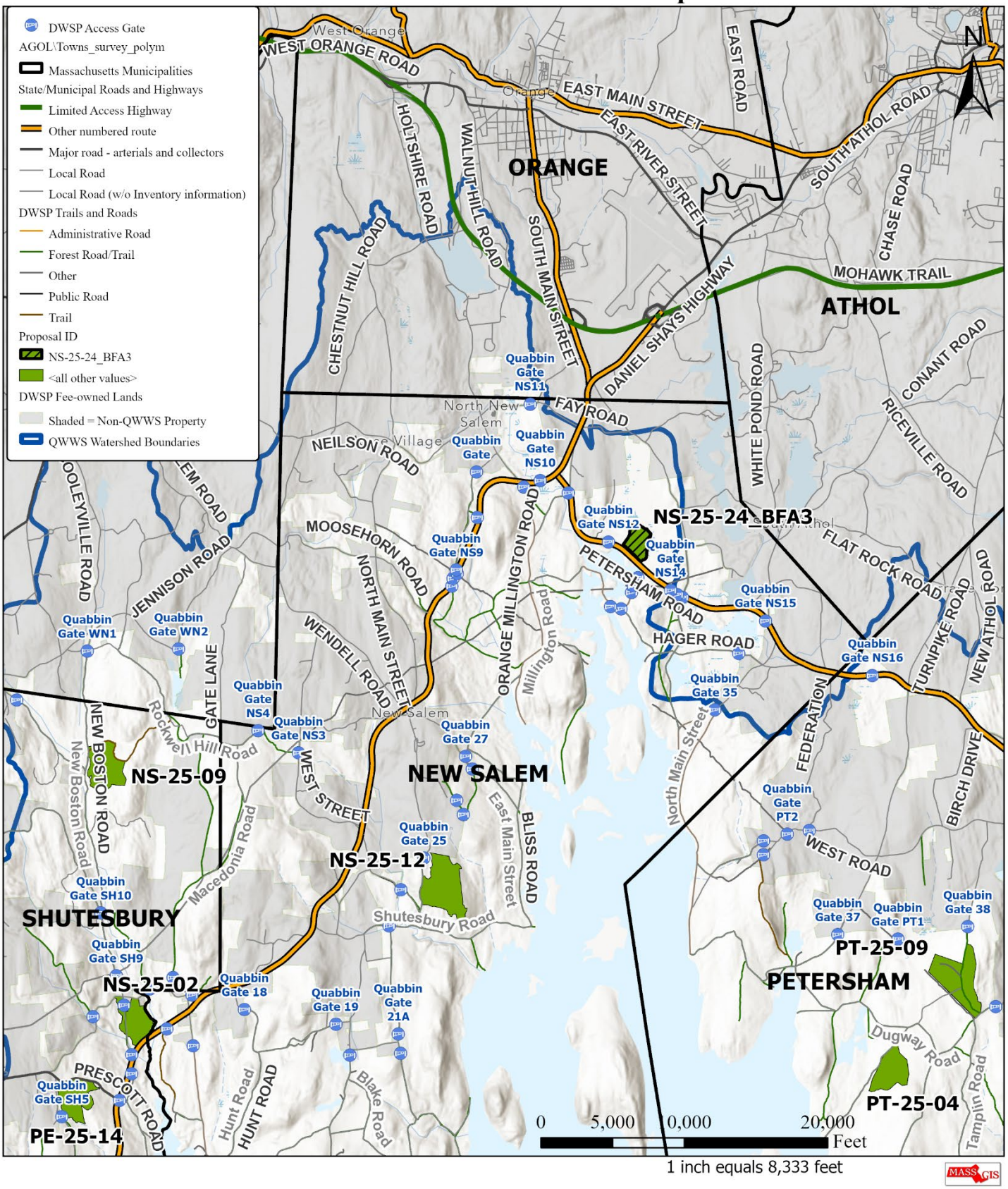
NS-25-24-BFA3 -- Locus Map



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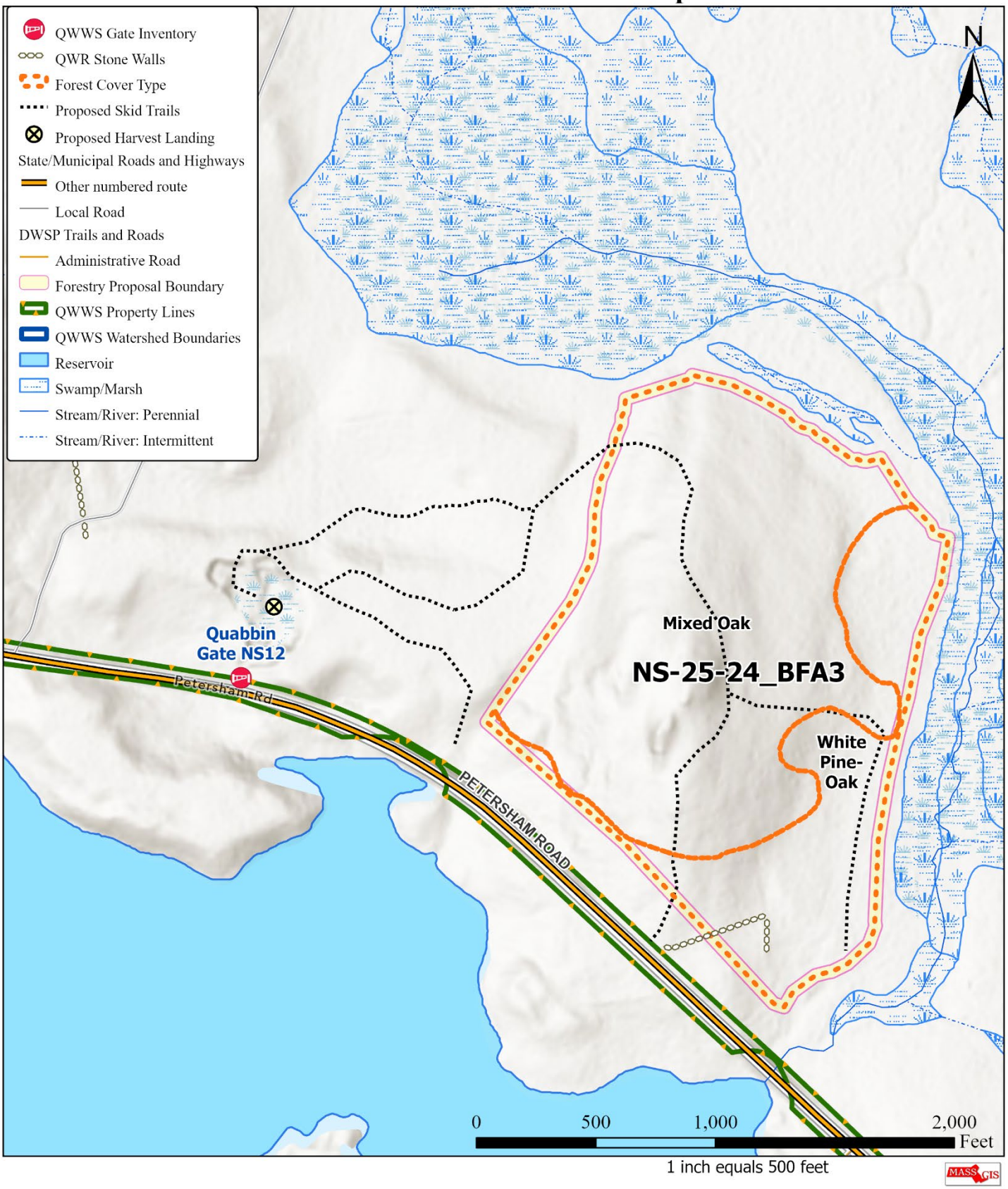
NS-25-24-BFA3 -- Stand Map



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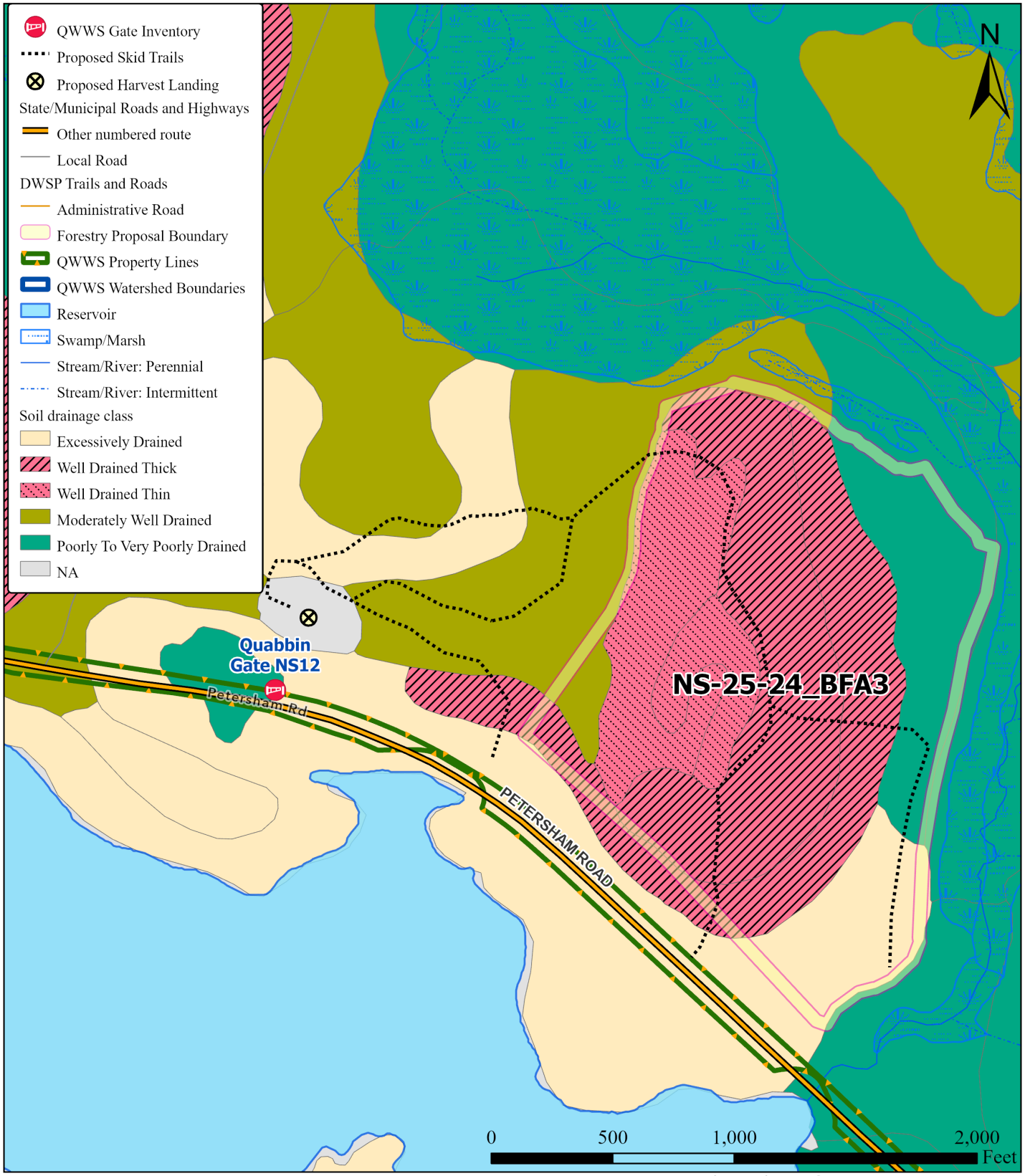
NS-25-24-BFA3 -- Soil Drainage Class



1 inch equals 500 feet

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NS-25-24-BFA3 -- Wetlands and Wildlife Resources

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NS-25-24-BFA3 -- Cultural Resources and Landscape Characteristics