# 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** | **WA-25-110** |
| **Fiscal Year** | 2025 |
| **Watershed** | **Wachusett** |
| **Town(s)** | **Leominster & Sterling** |
| **Forester** | Greg Buzzell |
| **Total Acres** | 52 |
| **Block** | n/a |
| **Compartment and/or Working Unit** | 110 |
| **Location and Boundary Description** | The west side is bound by Hastings Rd. (Sterling) and Wachusett St. (Leominster). All the rest is bound by private property, most of which runs through a wooded wetland. Some of the south end which abuts properties associated with Ridgewood Rd. is stone wall. |
| **Previous Proposal?** | None. |
| **Project Goals and Summary Description** | This 52-acre forest is part of two properties that were acquired, one in 1998, the other in 2021, for the protection of water quality. Forests provide exceptional water quality protection and yield high-quality water. Active forest management can increase the resistance and resilience of these watershed protection forests to disturbance by deliberately diversifying forest age structure and species composition.<br>The forest in this area is not sufficiently diverse, particularly in age structure with 98% greater than 40 years old and 0% less than 21 years old. This operation will result in up to 17 acres of young forest through the removal of the older overstory in patches. These patches will range in size up to 2 acres and will be located throughout the area taking advantage of where young seedlings and saplings of diverse species are already present.<br><br>Mature trees will be retained within nearly all of the patches, particularly those larger than ½-acre in size. This retention provides habitat diversity, ensuring the availability of snags, den trees and future downed woody debris for a variety of wildlife while more closely mimicking natural disturbance patterns than the complete removal of the forest overstory. It has the additional benefit of improving the visual aesthetics of the recently regenerated patches.<br><br>A small number of invasive species were found in the area where the landing is proposed to be. Some control effort will need to be made prior to any logging activity to avoid the spread of these species farther into the woods.<br><br>Dead snags and trees with large cavities will be retained for wildlife value. Old, non-active stick nests are present. If trees with active raptor nests are found, they will not be harvested. |

| Proposal Summary Item | Item Information/Description |
|---|---|
| **Project Goals and Summary Description (cont.)** | A cellar hole is present less than 100 yards from the entrance to this area. If any harvesting activity occurs in close proximity, the cellar hole will be flagged to avoid inadvertent impacts. This will also occur for any other cultural resources found. |

**Forest Cover Types and Acreages**

| Overstory Forest Types | Acres |
|---|---|
| White Pine - Oak | 23.2 |
| Red oak | 13 |
| Oak – Hardwoods | 3.2 |
| Red Maple | 3.1 |
| Mixed Oak | 2.4 |
| White pine | 2.5 |
| Mixed Hardwood | 2.3 |
| White Pine-Hardwood | 2.3 |

**Understory Cover Types and Relative Importance**

| Understory Cover Type | **Relative area covered** (Dominant, Secondary, Minor, None) |
|---|---|
| Tree seedlings and saplings | Dominant |
| Mountain laurel | Minor |
| Mesic site - witch hazel, highbush blueberry | Secondary |
| Dry site -Huckleberry, blueberry | Minor |
| Mesic site - cinnamon fern, mixed hardwood | Minor |
| Hayscented fern | None |
| Invasive shrubs/vines | None |
| Other | None |

**Forest Vegetation Description**

| Vegetation Topic | Description |
|---|---|
| **General Description, Forest Composition, Stand History, and Harvest History** | Most of this working unit is a north and northeast facing slope on the former Pellechia property that was purchased in 2020. The western half of this property is dominated by a white pine-oak stand comprised primarily of white pine, red oak, white oak, red maple and black birch along with a few scattered American beech. A red oak stand occupies most of the eastern half comprised of red oak, black oak, white pine and red maple along with white oak, black cherry, pignut hickory and a few remnant paper birch. At lower elevations in an area that has a couple of seeps there is red maple, black cherry, bigtooth aspen, white ash, sugar maple and red oak. The shrub layer is comprised primarily of witch-hazel along with maple-leaved viburnum and lowbush blueberry. At lower elevations and near the seeps there is also highbush blueberry, striped maple and hobblebush. There is evidence of a low level of harvesting roughly 30 years ago. In the southwestern corner there are scattered large pines that were girdled. |

| Vegetation Topic | Description |
|---|---|
| **General Description, Forest Composition, Stand History, and Harvest History (cont.)** | The rest of this working unit is the former Spaciapoli property that was purchased in 1998. Much of this property is wetland. The bulk of the upland is an approximately 7.8 acre area that is surrounded by wetland. This area is dominated by white pine, red oak, white and black oak. It was heavily logged in 1983 resulting in a significant understory of large sapling and pole-sized hardwoods. The shrub layer is primarily huckleberry, highbush blueberry and sweet pepperbush. |
| **Advance Regeneration description** | Sampling found adequate advance regeneration present in 37% of plots with marginal regeneration in another 24% of the plots. This regeneration is comprised of red maple, red oak, black birch and white pine along with white oak, black oak, hickory, white ash and black cherry. Oak of any species was present in 39% of the plots. |
| **Terrestrial Invasive Plants description** | Invasive species were found in just 1 of the 93 plots…in this case it was a small amount of Oriental bittersweet. However, there is a small amount of bittersweet and winged euonymus at the entrance to the property on Wachusett St. |

**Description of Wetland Resources Present**

| Resource Type | Description of resources present |
|---|---|
| **Wetlands** | There is a large wooded wetland that is effectively the northern and eastern border of most of this sale area. |
| **Streams** | A small stream flows through the narrow portion of the wetland separating the 7.8 acre upland area within the former Spaciopoli parcel from the Pellechia parcel. |
| **Vernal pools** | A small wetland in the far southwest corner of the property immediately off of Wachusett St. at the Leominster/Sterling town line appears to be a catch area for drainage from houses upstream and a culvert is present under the road here. |
| **Seeps** | There are two seeps near the far eastern end of the old skid trail in the southeast corner of this working unit. |

**Description of Soils by Hydric Class**

| Soil Hydric Classes | % of area | Soil series and any further comments |
|---|---|---|
| **Excessively Drained** | 0 | |
| **Well-drained Thin** | 8 | Chatfield-Hollis-Rock outcrop complex |
| **Well-drained thick** | 66 | Paxton and Canton fine sandy loams |
| **Moderately well-drained** | 2 | Woodbridge fine sandy loam |
| **Poorly to very poorly drained** | 24 | Ridgebury fine sandy loam |

**Proposed Silvicultural Activities**

| Topic | Description |
|---|---|
| **Site Selection and Silvicultural Objectives** | This working unit was selected due to both the lack of age diversity in the forests of this subwatershed and in this working unit itself. This area is within subwatershed #19 (North Stillwater/Justice Brook). Only 5% of the forest stands within this subwatershed are 20 years old or less. 69% of the stands are more than 80 years old.<br>Within the 52 manageable acres of this working unit, there are no stands 20 years old or less. The full age structure is as follows: 0%, 0-20 years old; 2%, 21-40 years; 0%, 41-60 years; 69%, 61-80 years; 29%, 81-100 years and 0%, >100 years old.<br>Given the lack of young stands in this area and given the presence of good advance regeneration comprised of species well suited to this site, the primary goal will be to increase the proportion of young forest stands in this area. |

| Topic | Description |
|---|---|
| **Silviculture Prescription** | With the overall goal of having a forest with a diverse age structure with at least 3 age-classes distributed throughout both the subwatershed and the 52 acres within this specific area, the older overstory will be removed in patches. These patches will total as many as 17 acres which is 1/3rd of the 52 manageable acres in this area. They will range in size from as small as 1/5th acre up to a maximum of about 2 acres. They will be as well distributed throughout the working unit as possible, taking advantage of where the advance regeneration is present. |

**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.**<br><br>**(*see page 3, Silvicultural Prescription, patch 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**:<br><br>• Increasing **structural diversity** improves resiliency by reducing the impact of age/size related disturbances.<br>• Extending regeneration periods minimizes short term impacts to groundwater and nutrient cycling.<br>• Partial stand overstory removals more closely align with **natural disturbance patterns**.<br>• 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.<br>• 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. |
| **General/other Climate Change Considerations** | The primary purpose of forest management by the DCR Division of Water Supply Protection is to maintain and improve the **watershed forest resilience**, i.e. the ability to resist and recover quickly from major disturbances, including climactic events such as hurricanes, tornados, microbursts, prolonged drought or excessive rainfall, as well as severe disease or insect infestations.<br><br>DCR-DWSP conducts timber harvests on <1% of the forest per year in order to achieve that objective, which is accomplished by **fostering forest health and diversity at all levels, resulting in communities of vigorous, healthy trees of multiple species and at various stages of development** (seedlings through large legacy trees). Species diversity improves resistance by reducing canopy loss in |

| | |
|---|---|
| **General/other Climate Change Considerations (cont.)** | the event of major disease or insect outbreaks, because most such forest health issues target a limited selection of species. Age diversity ensures that even if the taller trees are blown over by high force winds, younger trees will be present to continue to hold the soil.<br><br>These measures, taken for the purpose of maintaining high quality drinking water in perpetuity, are also **highly adaptive for climate change** in that they increase forest **carbon resilience**, the maintenance of both carbon sequestration and carbon storage over time, and **climate resilience,** the ability of a forested ecosystem to survive and thrive despite major disturbances.<br><br>Specifically, this harvest will improve carbon and climate resilience by:<br><br>**Enhancing carbon sequestration:**<br>○ Initiating regeneration (fast-growing young trees) by increasing sunlight to the forest floor.<br>○ Thinning to increase growth rates of mature trees.<br><br>**Protecting forest carbon:**<br>○ Retaining large legacy trees for their full lifespan.<br>○ Retaining the healthiest, most vigorous (fastest growing) trees.<br>○ Installing water bars to prevent loss of soil carbon to erosion.<br>○ Careful routing of skid trails to avoid sensitive soils.<br><br>**Sustaining forest hydrology:**<br>○ Protecting riparian areas with filter strips of increasing width based on slope, and avoiding steep slopes altogether.<br>○ Avoiding stream and wetland crossings, and using Best Management Practices to reduce impact when crossings are necessary.<br>○ Refraining from harvesting in wetlands, unless absolutely necessary to protect overall forest health.<br><br>**Maintaining native plant biodiversity:**<br>○ Minimizing new introductions of invasive plants on vehicles and equipment, and removing existing invasive plants.<br>○ Ensuring the diversity of the next generation of trees by creating canopy gaps large enough to support the full breadth of tree species diversity.<br>○ Retaining the healthiest trees of all native species.<br><br>**Protecting rare wildlife:**<br>○ Following NHESP guidance for preserving and enhancing habitat for species that are protected under the Massachusetts Endangered Species Act.<br>○ Creating/maintaining refugia for rare species.<br>○ Protecting uncommon and vulnerable habitats. |

| Proposed Activity | Alignment of Activity with Climate Oriented Strategies and Recommendations |
|---|---|
| **General/other Climate Change Considerations (cont.)** | **Preserving wildlife habitat:**<br>○ Retaining uncommon habitat features, such as large diameter logs, snags, and den trees.<br>○ Protecting current and potential nesting trees for raptors.<br>○ Maintaining 100 foot shade zones and 200 foot low ground disturbance zones around vernal pools.<br>○ Maintaining stream water temperature for aquatic species by preserving forested corridors along perennial streams and rivers.<br><br>**Reducing impacts of severe disturbances:**<br>○ Improving overall forest health.<br>○ Favoring the tree species that are expected to be best adapted to future climate conditions, such as oak and hickory.<br>Increasing age class diversity to allow rapid recovery after disruption of the forest canopy. |

**Equipment and Access Constraints and Considerations**

| Constraint Topic | Description and Considerations |
|---|---|
| **Proposed Equipment requirements** | Forwarding and mechanized felling will be required. |
| **Proposed wetland or stream crossings** | The stream and bordering wetland that separates the bulk of the working unit from the 7.8 acres of upland in the former Spaciopoli property will need to be crossed. There is an old decrepit bridge at the logical crossing location. |
| **Further wetland comments** | No comments. |
| **Vernal Pools** | None known. |
| **Access improvements needed** | None needed. |
| **Other EQ issues** | None. |
| **In-kind Services** | None. |
| **Other Access Concerns (parking, trails, etc.)** | None. |

**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 |
|---|---|---|---|---|
| 19/North Stillwater-Keyes Brook | 706 | 36 | 141 | 50 |

**Additional comments on Subwatershed analysis:**

**Wildlife and Habitat Observations and Considerations**

| Wildlife/Habitat | Observations and Considerations |
|---|---|
| **Natural Heritage Priority Habitats?** | None. |
| **State Listed species present:** | None known |
| **Rare Natural Communities:** | None known |
| **General Wildlife Comments** | Any stick nests that are present will be protected consistent will all relevant BMPs.<br>As many high wildlife value trees as possible will be retained. A particular focus will be paid to trees that are used for denning and nesting. |

**Cultural Resources Description and proposed protection measures**

| Cultural Resource | Description and proposed protection measures |
|---|---|
| **Historical features present; comments regarding protection** | At the entrance to this property directly off Wachusett St. there is what appears to be a pit of some kind that is full of boulders. However, there is no evidence of quarrying of the rock.<br>There is a cellar hole less that 100 yards to the east of the entrance. If any harvesting activity occurs in close proximity, the cellar hole will be flagged to avoid inadvertent impacts. |
| **Description of site characteristics in relation to Ancient sites modeling or other verified evidence** | Surface stone is prevalent.<br>Microtopography is not particularly pronounced.<br>Very little of this area is less than 7% sloped with the exception of much of the 7.8 acre area of upland that is surrounded by wetland.<br>If applicable, DWSP will follow the recommendations of DCR's Archeologist regarding protection of sensitive sites. |

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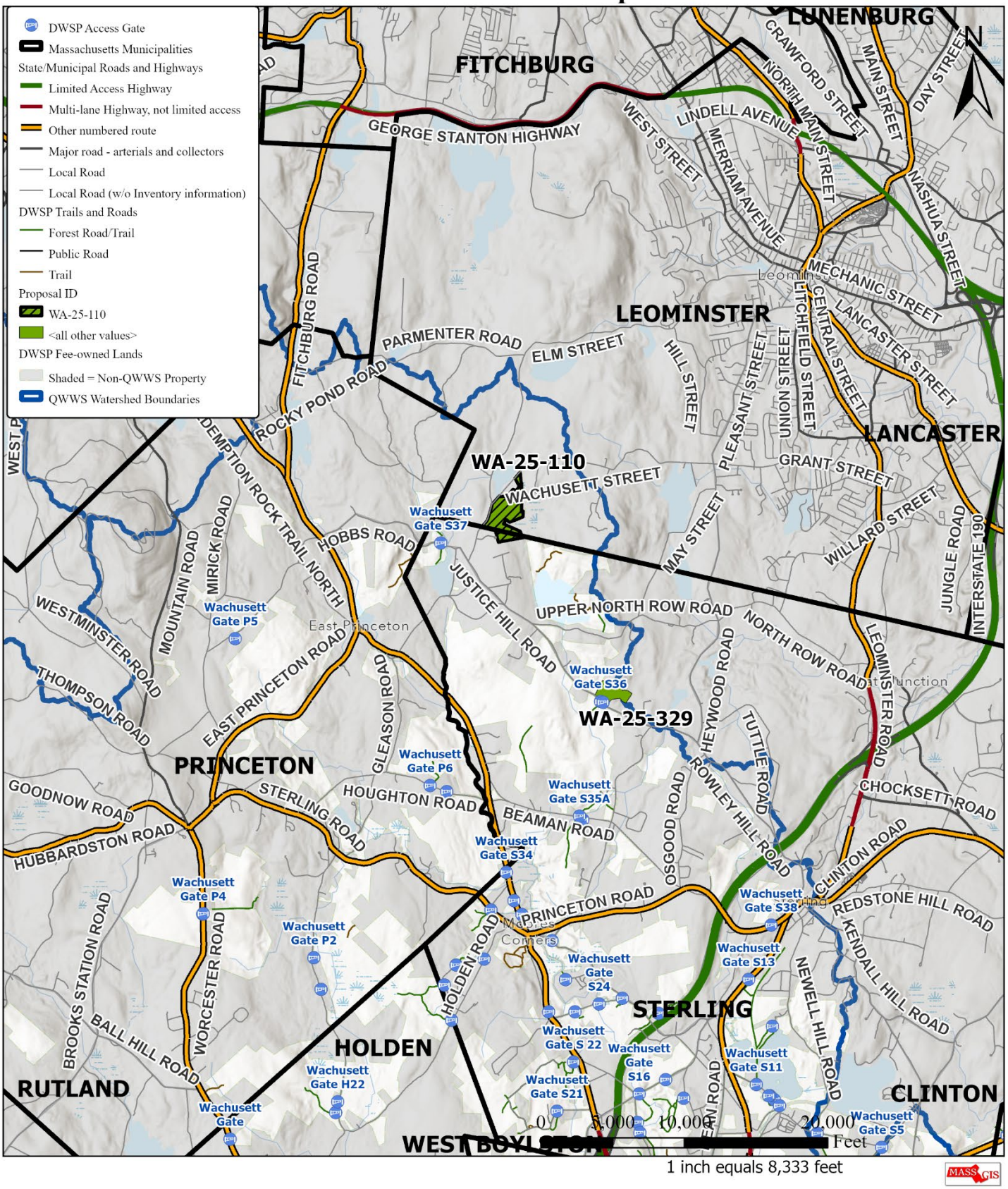
# WA-25-110 -- Locus Map



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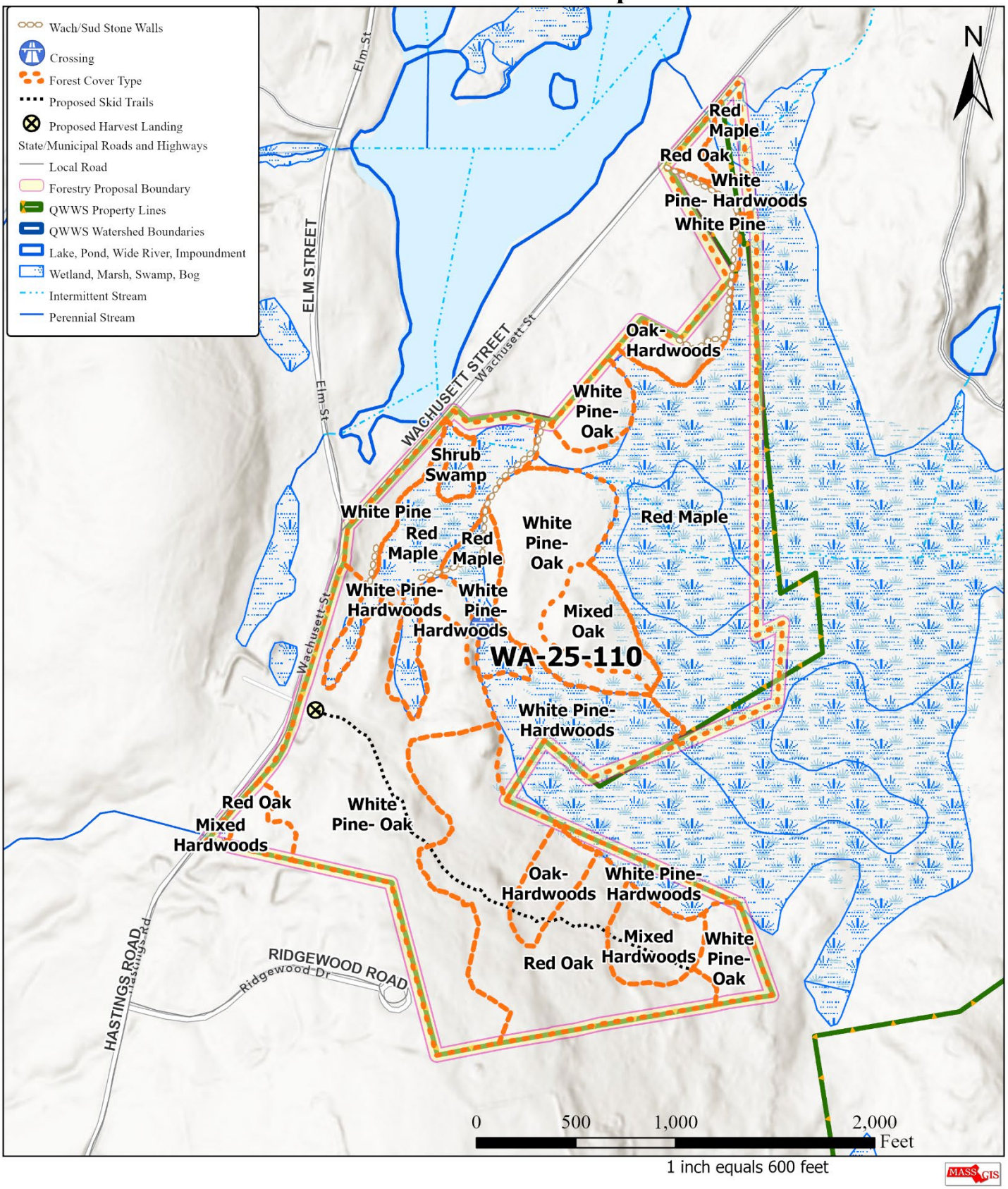
## WA-25-110 -- Stand Map



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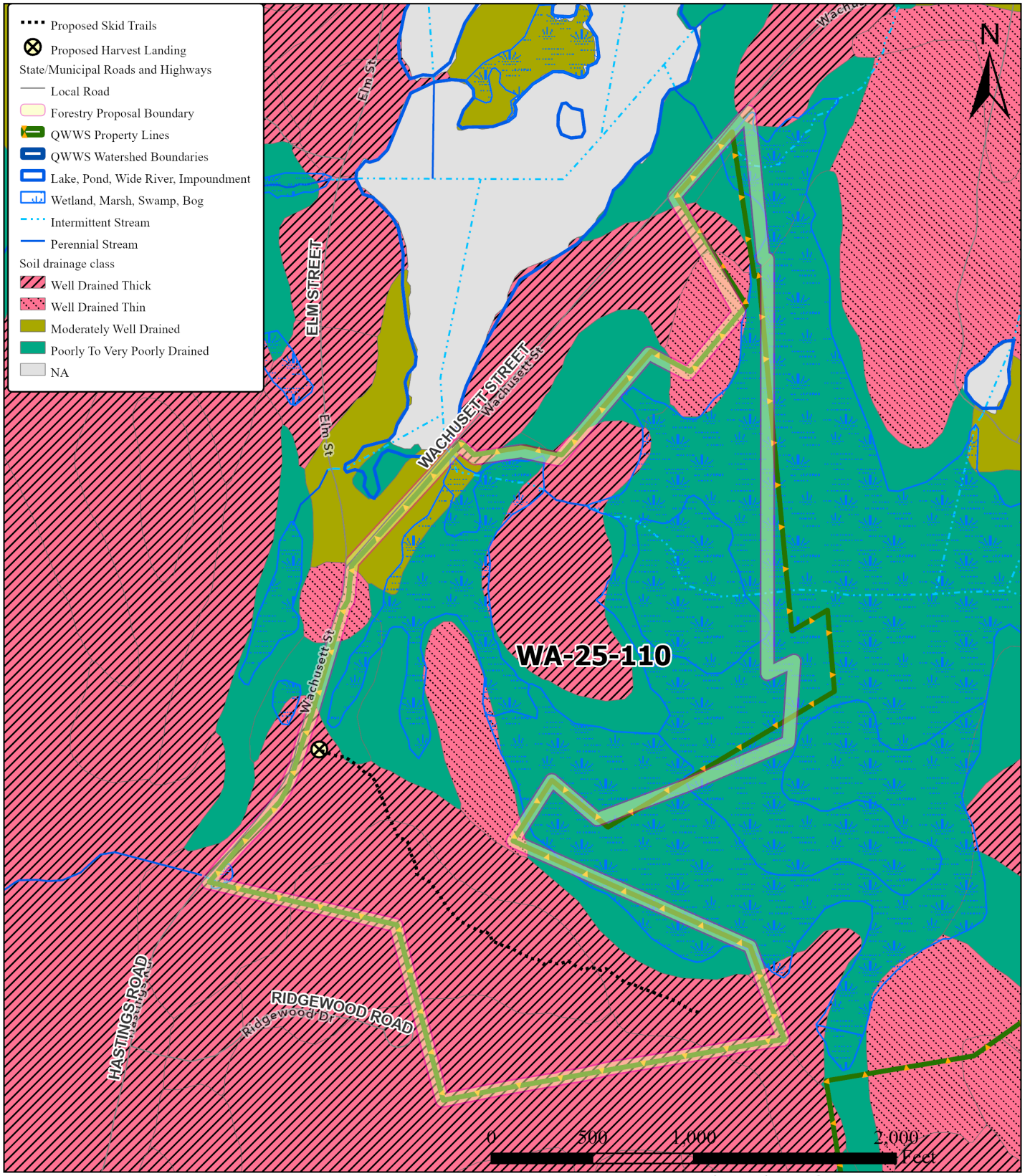
## WA-25-110 -- Soil Drainage Class




1 inch equals 600 feet

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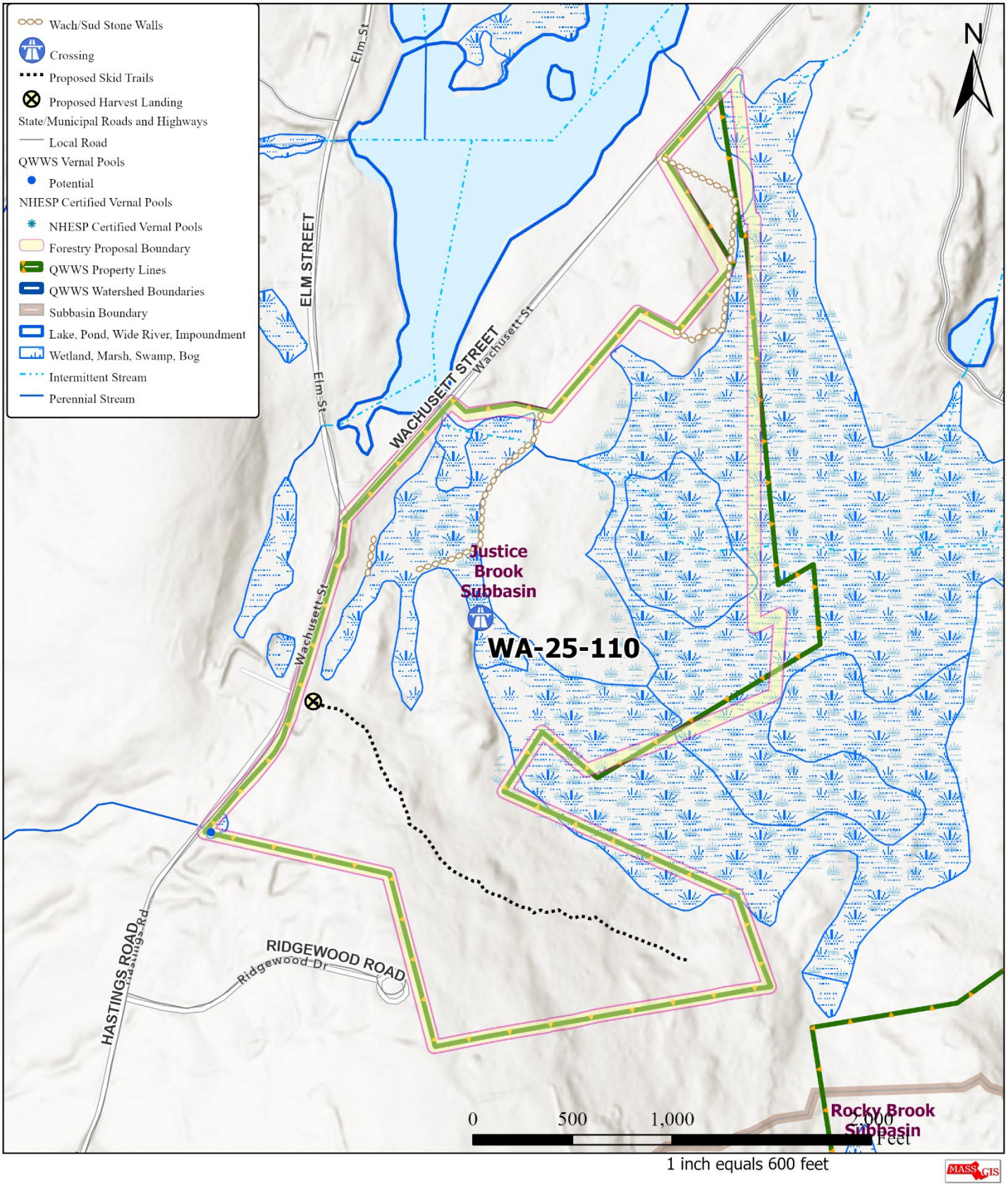
# WA-25-110 -- Wetlands and Wildlife Resources



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# WA-25-110 -- Cultural Resources and Landscape Characteristics