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# X178-2 TRANSMISSION LINE PHASE 1 REBUILD AND OPGW PROJECT EVERSOURCE ENERGY Woodstock, Easton, and Sugar Hill New Hampshire

NHDES Alteration of Terrain Permit Application

March 20, 2024

GZA File No. 04.0191410.39

**REVIEWED**

*By Ridgely Mauck at 1:15 pm, May 28, 2024*



**PREPARED FOR:**  
Eversource Energy  
Hooksett, New Hampshire

**GZA GeoEnvironmental, Inc.**

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March 20, 2024  
GZA File No. 04.0191410.39

Mr. Ridgely Mauck, P.E.  
NHDES Land Resources Management  
Alteration of Terrain Bureau  
29 Hazen Drive, P.O. Box 95  
Concord, New Hampshire 03302

Re: Alteration of Terrain Permit  
X178-2 Transmission Line Phase 1 Rebuild and OPGW Project  
Woodstock, Easton, and Sugar Hill, New Hampshire

Dear Mr. Mauck:

On behalf of Public Service Company of New Hampshire dba Eversource Energy (Eversource), GZA GeoEnvironmental, Inc. (GZA) is submitting this Alteration of Terrain (AoT) Permit Application for the proposed X178-2 Transmission Line Phase 1 Rebuild and OPGW Project in accordance with Terrain Alteration Law (RSA 485-A:17), Administrative Rules (Env-Wq 1500).

The rebuild of the X178-2 Transmission Line has been split into two phases referred to as X178-2 Phase 1 and X178-2 Phase 2. The subject of this application is the beginning and ending segments of the X178-2 Transmission Line referred to as X178-2 Phase 1 which includes proposed structure replacements outside of the White Mountain National Forest (WMNF). The proposed project includes the replacement of 106 existing utility structures along the X178-2 Transmission Line that exceed AoT impact thresholds. The proposed project extends approximately 11.2 miles through portions of Woodstock, Easton, and Sugar Hill. To more efficiently conduct routine maintenance of the existing X178-2 Transmission Line, work pad grading and access road improvements are proposed as part of this project in upland areas, and temporary grading for access along steep slope wetlands. The proposed project will require disturbance subject to AoT permitting through the NHDES as a result of impact areas cumulatively exceeding 100,000 square feet of contiguous disturbance in the project area or 50,000 square feet of contiguous disturbance within the protected shoreland as defined in RSA 483- B.

Included with this submittal is a copy of the application fee check, a completed AoT Permit Application Form, a detailed project overview narrative, required plans and figures, and additional supporting materials. In addition, a waiver request for the preparation of a stormwater drainage report, drainage area plans, and hydrologic soil group plans and from amendment requirements for shifting of access roads greater than 20 feet is enclosed as required by Env- Wq 1509.04. The proposed project is scheduled to commence in the summer of 2024 and continue through 2026. Eversource appreciates the efforts of the Alteration of Terrain Bureau in helping to maintain the anticipated construction schedule, which is dependent on scheduled outages dictated by regional outage planning.





Please feel free to contact Ms. Lindsey White at 603-232-8753 or [lindsey.white@gza.com](mailto:lindsey.white@gza.com) if you have any questions.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

A handwritten signature in black ink that reads 'Lindsey White' in a cursive script.

Lindsey White, CPSS  
Project Manager

A handwritten signature in black ink that reads 'Deborah M. Zarta Gier' in a cursive script.

Deborah M. Zarta Gier, CNRP  
Consultant Reviewer

A handwritten signature in black ink that reads 'Tracy Tarr' in a cursive script.

Tracy Tarr, CWS, CWB, CESSWI  
Associate Principal

LEW/DMZ/TLT:pca

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Attachments: Alteration of Terrain Permit Application

cc: Town of Woodstock, New Hampshire  
Town of Easton, New Hampshire  
Town of Sugar Hill, New Hampshire



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## 1.0 PROJECT BACKGROUND AND PURPOSE

The proposed project involves Phase 1 of the X178-2 Transmission Line, which includes the replacement of 106 existing utility structures through portions of Woodstock, Easton, and Sugar Hill, New Hampshire (i.e., "Site"). The existing X178 structures are old and worn and must be replaced in order for the transmission line to continue to function safely and reliably. Impacts have been minimized and avoided to the greatest extent practicable through Site evaluations of access routes and work pad placements. Where possible, existing gravel roads are utilized for access.

The project requires approximately 1,912,751 square feet (sq. ft.) of total disturbance, including 478,541 sq. ft. of temporary wetland matting and 1,434,210 sq. ft. of ground disturbance. The proposed project (to replace a total of 106 existing utility poles) is subject to the AoT disturbance threshold per Env-Wq 1500 and RSA 485-A:17 (See **Figure 4 – Alteration of Terrain Permitting Plans** and **Appendix A – Alteration of Terrain Application Form**). For purposes of presentation of details and consistency with other permitting efforts for this project, we have broken out project areas as follows:

TOWN	AREA ID	APPROXIMATE AOT IMPACT (SQ. FT.)	LINE	EXISTING STRUCTURES
Woodstock	Area A	255,131	X178	171-183
Easton	Area B	492,881	X178	292-294, 297-299, 315-339
Sugar Hill	Area C	686,198	X178	340-401

## 2.0 SITE INFORMATION

### 2.1 SITE LOCATION AND DESCRIPTION

Area A includes the portion of the X178 Transmission Line ROW on the west side of Woodstock Substation from Structure 171 continuing in a northwesterly direction to Structure 183 for a distance of approximately 1.3 miles. The ROW in this portion is approximately 225-ft in width.

Area B includes the portion of the X178 Transmission Line ROW on the south side of Easton Valley Road from Structure 292 continuing in a north/northwesterly direction to Structure 339 for a distance of approximately 4.1 miles. The ROW in this portion varies in width from approximately 225-ft to 150-ft.

Area C includes the portion of the X178 Transmission Line ROW on the north side of the Easton and Sugar Hill Town line from Structure 340 continuing in a northerly direction to Structure 401 for a distance of approximately 5.8 miles. The ROW in this portion varies in width from approximately 225-ft to 265-ft.

The total project area is approximately 11.2 miles in length and includes the replacement of 106 utility structures in total. The project area primarily crosses privately owned rural/residential properties (see **Figure 1 – USGS Topographic Map**). There are approximately 125 wetlands along the project route located in the towns of Woodstock, Easton, and Sugar Hill. The majority of ground disturbance resulting from the project will be related to access and work pad preparations.





## 2.2 TAX MAP AND LOT(S)

Eversource either holds easements across parcels along the ROW or owns parcels in-fee (see **Figure 4**). Eversource fee-owns 3 parcels, and there are approximately 87 abutting properties that contain existing Eversource easements for the ROW involved in the project. In those project locations, the easements are considered to be the "subject property" because Eversource is the applicant/owner and only has control over the easement. These abutting parcels have been identified and listed on the enclosed abutter's list. See **Appendix B** for Abutter's List.

## 2.3 IDENTIFICATION OF NATURAL AND CULTURAL RESOURCES

GZA GeoEnvironmental, Inc. (GZA) has been retained by Eversource to provide professional services on this project that relate to natural and cultural resources identification and assessment, as well as permit applications for natural resources and AoT impacts required to complete the project. GZA has conducted field evaluations and has corresponded with the appropriate agencies to identify natural and cultural resources present in the vicinity of the proposed project.

### 2.3.1 Identification of Jurisdictional Wetlands and Vernal Pools

GZA delineated and classified wetlands in the ROW in November, December 2022, and May 2023. The wetland delineation was conducted in accordance with the United States Army Corps of Engineers (USACE) Wetlands Delineation Manual using the Routine Determinations Method and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual as required by the New Hampshire Department of Environmental Services (NHDES) Wetlands Bureau and the USACE. The wetland delineation was conducted by GZA's New Hampshire Certified Wetland Scientists (CWS) Mr. James H. Long (CWS No. 007) and Peter Petkauskos (CWS No. 319).

GZA photographed resources and recorded data relevant to functions and values provided by these natural resources within the ROW in November, December 2022, and May 2023 (see Appendix B, Photo Log). GZA classified wetlands in accordance with the "Classification of Wetlands and Deepwater Habitats of United States" (Federal Geographic Committee, 2013). GZA completed a wetland function-value assessment in accordance with the Highway Methodology.

### 2.3.2 Identification of Surface Waters

Jurisdictional limits of surface waters of the State of New Hampshire were delineated by GZA in November and December 2022 and May 2023 in accordance with their definition in RSA 485-A:2 XIV, 482-A:4 II and rule Env-Wt. 104.33. Surface waters include wherever freshwater flows or stands and tidal waters. This includes, but is not limited to, rivers, perennial and intermittent streams, lakes, ponds, intertidal zones, and tidal waters. In addition, jurisdiction extends to the portion of any bank or shore which borders such surface waters and to any swamp or bog subject to periodic flooding by freshwater, including the surrounding shore. The limit of jurisdiction for surface water areas were confirmed as the top of bank, where a natural bank occurs, or its ordinary high-water mark where a natural bank is not present.

### 2.3.3 Identification of Rare, Threatened, and Endangered Species

In the Town of Easton, the New Hampshire Natural Heritage Bureau (NHB) and New Hampshire Fish and Game (NHFG) identified records of wood turtle (*Glyptemys insculpta*) in the vicinity of the X178-2 Transmission Line ROW (See **Appendix C** for the NHB Reports). Typical of similar Eversource projects, rare species best management practices have been incorporated into the design. Construction personnel will be made aware of the potential presence of sensitive turtle and snake species. Species information will be incorporated into project plans. GZA



will notify the NHFG and NHB of any rare species observations for inclusion in the statewide database. In addition, NHB identified presence of a high-elevation spruce-fir forest system natural community. However, this natural community is not located within the proposed project area.

Additionally, there are specific requirements for monitoring, time of year work limitations, and other items from NHFG summarized below:

1. Wood turtles (state species of special concern) occur within the vicinity of the project area. All operators and personnel working on or entering the site shall be made aware of the potential presence of these species and shall be provided flyers that help to identify these species, along with NHFG contact information. See Plan Sheet 4-5.
2. Rare species information (e.g. identification, observation and reporting of observations, when to contact NHFG immediately and NHFG contact information) shall be posted on site at all times and communicated during morning tailgate meetings prior to work commencement.
3. Turtles and snakes may be attracted to disturbed ground during nesting season. Turtle nesting season occurs approximately May 15<sup>th</sup> – June 30<sup>th</sup>. Nesting areas may include work pads and access roads that are not hard pack gravel and other sandy/gravel work areas. All turtle species nests are protected by NH laws. Be aware of the potential to encounter nesting wildlife in these areas.
4. If a nest is observed or suspected, operators shall contact Melissa Winters (603-479-1129) or Josh Megyesy (978-578-0802) at NHFG immediately for further consultation. The nest or suspected nest shall be marked (surrounding roped off or cone buffer) and avoided; this shall be communicated to all personnel onsite. Site activities shall not occur in the area surrounding the nest or suspected nest until further guidance is provided by NHFG.
5. Vernal pools and potential vernal pools (PVP) shall be flagged prior to work, and impacts shall be avoided with the following exceptions as described in the table embedded in the attached screenshot titled, "Vernal Pool Summary EVS X178":
  1. Wetland WS-75 and L/ET-16 contain vernal pools within the proposed work pad area for structures 180 and 269. The work pads may overlap these vernal pools to construct a safe work area. Temporary timber matting shall be utilized and restoration shall occur following impacts. Impacts to the vernal pools shall only occur December 1 to March 1. Work shall occur under frozen or dry conditions if possible. NHFG shall be notified prior to disturbance.
6. No disturb vegetative buffers of 50' shall be maintained around vernal pools wherever possible. NHFG acknowledges the following vernal pool buffer impacts as described in the table embedded in the attached screenshot titled, "Vernal Pool Summary EVS X178."
  1. Wetlands WS-64, WS-75, WS-117, L-73, L-66, L-42, L-41, L-40, L/ET-16, LW-1, ET-31, ET-37 contain vernal pools. Temporary timber matting will be utilized within 50-ft of these vernal pools.
7. All matting which will be placed in waterbodies deemed suitable for hibernating rare turtles will be placed prior to the start of the inactive season (October 16-March 31) so as to prevent accidental placement atop hibernating turtles. Areas identified as suitable hibernation habitat shall be identified on plan sheets and provided to NHFG at least two weeks prior to beginning work.
8. Immediately prior to the placement of matting in wetlands during the active season (April 1-October 15), the areas shall be cleared by a trained individual. A trained individual shall be defined as any contractor who has gone through project-species protection education conducted by the qualified biologist on rare wildlife species at the site. Contact NHFG if turtles in matting areas are observed or suspected.



9. For all work pads, staging areas, matting, and access roads, searches and sweeps shall be conducted by trained individuals immediately before the start of work and movement of equipment in order to minimize the chance of animals entering an area between the sweep and work. A trained individual shall be defined as any contractor who has gone through project-species protection education conducted by the qualified biologist on rare wildlife species at the site.
10. All work activities shall be restricted to the defined roads, construction areas, and staging areas, with no equipment or materials staged or stored outside of the defined areas as shown on plan sheets or equivalent document.
  1. Minor field changes to access roads and work pads including: shifting access from one side of the right of way to the other, shifting of work pads and staging areas forward or backwards, but not increasing the overall square footage of the work pads or staging areas, may be considered based on location. NHFG shall be notified of any proposed changes.
11. Work, pull pads, and access shall be minimized to the greatest extent possible.
12. Work pads shall be reduced post-construction to 30' x 60' and restored with a native vegetative seed mix.
13. All manufactured erosion and sediment control products, with the exception of turf reinforcement mats, utilized for, but not limited to, slope protection, runoff diversion, slope interruption, perimeter control, inlet protection, check dams, and sediment traps shall not contain plastic, or multifilament or monofilament polypropylene netting or mesh with an opening size of greater than 1/8 inches;
14. All observations of threatened or endangered species on the project site shall be reported immediately to the NHFG nongame and endangered wildlife environmental review program by phone at 603-271-2461 and by email at [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov), with the email subject line containing the NHB DataCheck tool results letter assigned number, the project name, and the term Wildlife Species Observation;
15. Photographs of the observed species and nearby elements of habitat or areas of land disturbance shall be provided to NHFG in digital format at the above email address for verification, as feasible;
16. In the event a threatened or endangered species is observed on the project site during the term of the permit, the species shall not be disturbed, handled, or harmed in any way prior to consultation with NHFG and implementation of corrective actions recommended by NHFG.
  1. Site operators or Trained Individuals shall be allowed to relocate wildlife encountered if discovered within the active work zone and if in direct harm from project activities. Wildlife shall be relocated in close proximity to the capture location but outside of the work zone and in the direction the individual was heading. NHFG shall be contacted immediately if this action occurs.
17. The NHFG, including its employees and authorized agents, shall have access to the property during the term of the permit.

If NHFG staff are unable to be reached, contact the Wildlife Administrator at 603-271-2461.

#### 2.3.4 Identification of Cultural and Historical Resources

SEARCH, Inc. (Search) and Victoria Bunker Inc. (VBI) completed Phase IA Archeological Assessments in 2014 and 2013, respectively, which combined cover the entirety of the X178 Transmission Line ROW. The Phase IA Assessments identified 27 Sensitivity Areas along the X178-2 Transmission Line ROW that required Phase IB Archeological Survey. A Phase IB Archeological Survey was completed by Independent Archaeological Consultants, LLC (IAC) for the 27 sensitivity areas in August 2022. The majority of the sensitivity areas were cleared through Phase IB survey, and where Archeological Sites were identified and could not be avoided during construction, Eversource agreed to utilize upland matting within Site Boundaries to avoid ground disturbance to



Archeological Sites. In addition, IAC completed a review of the New Hampshire Division of Historic Resources (NHDHR) Enhanced Mapping & Management Information Tool (EMMIT) Database to review potential visual impact assessments for previously recorded historic properties within a half mile of the structure replacement locations. IAC conducted the NHDHR EMMIT file review on June 8, 2023.

A Request for Project Review (RPR) was submitted to NHDHR on November 8, 2023. NHDHR is requesting an above-ground architectural survey be completed for the proposed project. The above-ground architectural survey will be completed by Preservation Company in the spring of 2024 and results of this survey will be incorporated into an updated RPR which will be submitted upon completion of this survey.

### 3.0 EXISTING CONDITIONS

The proposed project is located within the existing and maintained X178-2 Transmission Line ROW. The proposed project work areas subject to this Alteration of Terrain permit cross through portions of three towns. Existing dirt and/or grass access routes currently used for access to existing utility structures within the ROW are proposed to be improved using gravel and stone as a part of a routine structure maintenance project. Proposed access road improvements include 12- to 16-foot-wide gravel and stone roads with a 20-foot total width limit of disturbance. Based on NRCS soil mapping, existing upland soils are primarily fine sandy loams. Slopes are variable and generally range from 0 to 60%, with an average of approximately 20%.

The project area includes upland and wetland areas located in primarily rural and forested areas. Upland vegetation includes American beech (*Fagus grandifolia*), black raspberry (*Rubus occidentalis*), bracken fern (*Pteridium aquilinum*), goldenrod (*Solidago*), hay scented fern (*Dennstaedtia punctilobula*), quaking aspen (*Populus tremuloides*), sweet fern (*Comptonia peregrina*), and white pine (*Pinus strobus*). Wetlands in the ROW primarily consist of palustrine emergent (PEM) or palustrine scrub-shrub (PSS) systems that are seasonally saturated. Vegetation in the wetlands were dominated by balsam fir (*Abies balsamea*), cinnamon fern (*Osmundastrum cinnamomeum*), fringed sedge (*Carex crinita*), gray birch (*Betula populifolia*), interrupted fern (*osmunda clayoniana*), meadowsweet (*Spiraea alba*), red maple (*Acer rubrum*), reed canary grass (*Phalaris arundinacea*), sensitive fern (*Onoclea sensibilis*), speckled alder (*Alnus incana*), steeplebush (*Spiraea tomentosa*), and wool grass (*Scirpus cyperinus*).

Existing conditions along the X178-2 Transmission Line is discussed below by areas subject to jurisdiction under the AoT Law and Rules and consistent with discussions with the AoT Bureau for Eversource Line projects.

#### 3.1 AOT AREA A – TOWN OF WOODSTOCK

Area A includes the portion of the X178-2 Transmission Line ROW on the west side of Woodstock Substation from Structure 171 continuing in a northwesterly direction to Structure 183 for a distance of approximately 1.3 miles. The ROW in this portion is approximately 225-ft in width. This area includes upland and wetland areas with elevations ranging from approximately 678 fasl at the proposed access adjacent to Structure 178 to approximately 1,066 fasl at Structure 180. This portion of the ROW is located in a primarily forested undeveloped areas in the Town of Woodstock.

Land disturbance subject to AoT Law and Rules due to *Env-Wq 1502.58 (b) (2)* (see **Section 5.1.2** below) within Area A includes:

- Work pads associated with X178 Structures 171 through 183; and
- Access from East Side Road to the X178 Structure 183.





3.1.1 Surface and Groundwater Protection – Area A

Within this portion of the project area there are two unnamed streams associated with Wetlands WS-62 and WS- 63, and one named riverine system, The Pemigewasset River, associated with wetland WS-61 (see **Figure 3 – Surface Water and Groundwater Overlay Plans**). This portion of the project area includes temporary wetland matting in 15 wetland systems for access and work pad placement. A NHDES SDF permit has been submitted for temporary wetland impacts for the proposed project in the Town of Woodstock. Temporary wetland matting totals are summarized in the table below. AoT disturbance area is summarized in **Section 5.1.2**.

Temporary Impact	Impact (sq. ft.)
Wetland Matting	43,043

According to **Figure 3**, this area is located within AoT screening layers. These layers include “Outstanding Resource Waters”, “All Lakes with a Quarter Mile Buffer” and “Surface Water with Impairments Quarter Mile Buffer.”

3.1.2 FEMA 100-year Floodplain, Shoreland Protection, Designated Rivers – Area A

According to the FEMA Flood Insurance layer on **Figure 3**, a portion of this area is located within a mapped 100-year floodplain area. This includes access and workpads associated with Structures 172 through 174. However, the proposed work is located within an existing and maintained corridor. According to the Consolidated List of Water Bodies Subject to RSA 483-B (May 11, 2020), there is work proposed within 250 feet of Pemigewasset River Shoreland Protected Zone.

3.2 AOT AREA B – EASTON

Area B includes the portion of the X178 Transmission Line ROW on the south side of Easton Valley Road from Structure 292 continuing in a north/northwesterly direction to Structure 339 for a distance of approximately 4.1 miles. The ROW in this portion varies in width from approximately 225-ft to 150-ft. This area includes upland and wetland areas with elevations ranging from approximately 1,228 fasl at the proposed access between Structures 300 and 301, to approximately 1,820 fasl at Structure 325. This portion of the ROW is located in a primarily forested undeveloped areas and residential areas in the Town of Easton.

Land disturbance subject to Alteration of Terrain Law and Rules due to *Env-Wq 1502.58 (b) (2)* (see **Section 5.1.2** below) within this area includes:

- Work pads associated with X178 Structures:
  - 292-294,
  - 297-299, and
  - 315-339.
- Access from the south side of Easton Valley Road at Structure 292 to the Easton and Sugar Hill town line.

3.2.1 Surface and Groundwater Protection – Area B

Within this portion of the project area there are two unnamed streams associated with wetlands ET-52 and ET-83.1 (see **Figure 3 – Surface Water and Groundwater Overlay Plans**). This portion of the project area includes temporary wetland matting in 13 wetland systems for access and work pad placement. A NHDES SDF permit has been submitted for temporary wetland impacts for the proposed project in the Town of Easton. Temporary wetland matting totals are summarized in the table below. AoT disturbance area is summarized in **Section 5.1.2**.



Temporary Impact	Impact (sq. ft.)
Wetland Matting	56,278

According to **Figure 3**, Area B is located within AoT screening layers. These layers include “Outstanding Resource Waters,” and “Groundwater Classification Area GA2.”

3.2.2 FEMA 100-year Floodplain, Shoreland Protection, Designated Rivers – Area B

According to the FEMA Flood Insurance layer on **Figure 3**, this area is not located with a 100-year floodplain.

3.3 AOT AREA C – SUGAR HILL

Area C includes the portion of the X178 Transmission Line ROW on the north side of the Easton and Sugar Hill Town line from Structure 340 continuing in a northerly direction to Structure 401 for a distance of approximately 5.8 miles. The ROW in this portion varies in width from approximately 225-ft to 265-ft. This area includes upland and wetland areas with elevations ranging from approximately 884 fasl at Structure 400, to approximately 1,592 fasl at the off-ROW access at the Easton and Sugar Hill town line. This portion of the ROW is located in a primarily forested undeveloped areas and residential areas in the Town of Sugar Hill.

Land disturbance subject to Alteration of Terrain Law and Rules due to *Env-Wq 1502.58 (b) (2)* (see **Section 5.1.2** below) within Area C includes:

- Work pads associated with X178 Structures 340 through 401; and
- Access from the Easton and Sugar Hill town line to the Streeter Pond Tap.

3.3.1 Surface and Groundwater Protection – Area C

Within this portion of the project area there are four unnamed streams associated with wetlands SH-12, SH-13, SH-46.1, SH-56, SH-52, and SH-80, and two named riverine systems: Salmon Hole Brook (SH-108, SH-25, SH-16, SH-38), and Gale River (SH-83) (see **Figure 3 – Surface Water and Groundwater Overlay Plans**). This portion of the project area includes temporary wetland matting in 50 wetland systems for access and work pad placement. In addition, temporary grading is required along a steep slope wetland, identified as Wetland SH-46.1 for safe access. Temporarily graded wetlands will be restored to the greatest extent upon completion of work. A NHDES SDF permit has been submitted for temporary wetland impacts for the proposed project in the Town of Sugar Hill. Temporary wetland impacts totals are summarized in the table below. AoT disturbance area is summarized in **Section 5.1.2**.

Temporary Impact	Impact (sq. ft.)
Wetland Matting	378,863
Temporary Wetland Grading	400
<b>Total Temporary Impact</b>	<b>379,263</b>

According to **Figure 3**, Area C is not located within any AoT screening layers.

3.3.2 FEMA 100-year Floodplain, Shoreland Protection, Designated Rivers – Area C

According to the FEMA Flood Insurance layer on **Figure 3**, a portion of this area is located within a mapped 100-year floodplain area. This includes access and workpads between structures 354 and 355. However, the proposed work is located within an existing and maintained corridor area. According to the Consolidated List of Water Bodies Subject to RSA 483-B (May 11, 2020), there is work proposed within 250 feet of the Gale River Shoreland Protected Zone.



## 4.0 project description

### 4.1 STRUCTURE REPLACEMENT AND MAINTENANCE

As previously mentioned, the proposed project includes the replacement of 106 existing utility structures within AoT areas. The structures must be replaced due to environmental damage over time. The process for replacing structures typically consists of drilling approximately 4-foot diameter holes to install a caisson approximately 7 to 15-ft below the ground surface. New structures will be installed in caissons and backfilled with clean, suitable materials. Any disturbed upland and wetland areas will be restored or stabilized upon completion of work. Anchors will also be installed to stabilize new structures. Anchors will be installed by excavating trenches, installing the concrete block anchors, and backfilling trenches. Backfill for anchors in wetlands will consist of hydric soils to maintain hydric conditions in the soil.

Old structures will be typically removed in upland areas cut at the ground surface in wetlands. In addition to the removal of old structures, old cross-arms, wires, and accessory equipment will be removed off-Site and disposed. Old structure butts may be dug up and removed depending on field conditions and whether or not the remaining pole butt would impact the structural integrity of new structures.

#### 4.1.1 Access

The proposed Rebuild and OPGW Project utilizes existing access routes within the existing X178-2 ROW to the greatest extent practicable. Access into the existing ROW will be obtained from various state and local roadways and private properties where permission has been obtained. Proposed access routes, as shown on **Figures 3 and 4**, were identified to minimize ground disturbance to the greatest extent practicable while providing safe and efficient access to existing utility structures. Access through existing wetlands within the project area will be completed using temporary timber matting, with the exception of temporary grading access along a steep slope wetland identified as Wetland SH-46.1 in the Town of Sugar Hill. Temporary grading is required for safe access along steep slope wetlands and will be restored to the greatest extent upon completion of work.

##### 4.1.1.1 Road Construction

Proposed access road improvements include 12- to 16-foot-wide gravel and stone roads with a 20-foot total width limit of disturbance. The roads will provide access to existing utility structures for routine maintenance activities. Improved access will provide reliable, permanent, and quick, efficient access to utility structures for future maintenance activities and when emergency repairs are required (see **Appendix E – Photographic Log**). Where temporary grading is required in wetlands, geotextile fabric will be placed after grading is completed, followed by addition of stone. Upon completion of work, the stone and geotextile fabric will be removed and temporarily graded wetlands will be restored to pre-existing contours to the greatest extent.

##### 4.1.1.2 Wetland and Upland Temporary Matting

Access through existing wetlands in the project area will be completed using temporary timber matting to minimize and prevent rutting in the wetlands (see **Figure 4- Alteration of Terrain Permitting Plans**). In addition, upland matting may be used rather than improving access with gravel and stone if access is necessary through maintained property owner lawns or farm fields.



#### 4.1.2 Work Pad Construction

The proposed project includes the construction of up to 100-foot by 100-foot gravel work pads to stage construction equipment and vehicles necessary to replace utility structures. Work pads will be constructed using clean modified riprap (6-to-8-inch diameter) or equivalent stone. In addition, the work pad will be top-dressed with 1.5-to 3-inch diameter clean stone. Lastly, disturbed areas in proximity to the final work pad configuration will be stabilized with an upland seed mix. Upon completion of work, work pads will be reduced to a 30-foot by 60-foot gravel maintenance work pad. The restored portions of the larger gravel work pad will be seeded and mulched for restoration.

Proposed work pads in wetland areas will be constructed using temporary timber matting and removed upon completion of work.

#### 4.2 CONSTRUCTION SEQUENCE

This proposed project is scheduled to begin in 2024 with work activities completed through 2026. The work is proposed to be undertaken during the late fall and winter following the receipt of all regulatory approvals. The following is a description of the anticipated construction sequence for this type of routine maintenance work. Once contractor(s) are scheduled, a more finalized sequence and schedule will be determined.

1. Install sediment and erosion controls in proposed locations, as shown in **Figure 4**.
2. Upgrade access routes and build work pads. Timber matting to be used in uplands and wetlands as designated by **Figure 4**.
3. Conduct drilling activities, including drilling of approximately 4-ft diameter holes for caisson placement, approximately 7-15 ft below ground surface.
4. Conduct structure replacement activities, including installation of new structures, and removal of old structures.
5. Complete optical ground wire replacement work.
6. Reduce 100-foot by 100-foot gravel work pads to 30-foot x 60-foot gravel work pads to remain after construction and apply seed and mulch to restored portions of gravel work pad.
7. Remove temporary timber matting and stabilized exposed soils within the ROW and restore temporarily disturbed wetland areas with appropriate wetland seed mix, as necessary.
8. Remove erosion and sedimentation controls following stabilization.

#### 4.3 BEST MANAGEMENT PRACTICES

Work will be conducted in accordance with Eversource's standard Best Management Practices (BMPs) as designated by the NHDES Best Management Practices Manual for Utility Maintenance in and Adjacent to Wetlands and Waterbodies in New Hampshire, dated March 2019. By implementing these BMPs, impacts to both wetland and upland areas will be minimized and prevented to the greatest extent practicable.

Where necessary, perimeter protective measures consisting of a silt fence, straw wattle, mulch, and straw bales will be installed around the structures to minimize potential impacts to nearby resource areas. Water bars will be installed in areas of road improvements with steep slopes as identified by the Contractor. If necessary and based on localized Site conditions, a silt fence may be used. Disturbed soil will be seeded and mulched with hay or straw for stabilization as needed following completion of work. No equipment or material will be stored within wetland





areas. Erosion controls will be implemented during construction as detailed in Note sheets 1 through 3 of **Figures 3 and 4** to minimize potential impacts during construction (see **Figure 3 – Surface Water and Groundwater Overlay Plans** and **Figure 4 – Alteration of Terrain Permitting Plans**).

Timber matting will be used in wetlands and in some upland areas to minimize impacts and provide level work pads. Upon completion of work where timber matting is implemented in upland areas, those upland areas will be restored and stabilized to pre-existing conditions, and areas of exposed soils will be seeded and/or mulched. Additionally, should any removal of BMPs be necessary, it will occur during restoration activities.

## **5.0 REGULATORY COMPLIANCE**

### **5.1 ALTERATION OF TERRAIN**

The NHDES requires an AoT permit whenever a project proposes to disturb more than 100,000 sq. ft. of terrain (50,000 sq. ft. if within a protected shoreland). This NHDES requirement, which is found in Administrative Rule Env- Wq-1500, is intended to protect New Hampshire surface waters by controlling soil erosion and managing stormwater runoff from developed areas. The project contains three AoT-regulated areas (referred to respectively as Areas A, B, and C) along the X178-2 Transmission Line ROW based on continuous areas of disturbance. Details on impacts in each regulated area are provided below in **Section 5.1.2** Quantification of Impacts Subject to AoT.

#### **5.1.1 Waiver Request: Stormwater Drainage Report; Drainage Area Plan; Hydrologic Soil Group Plans (Env- WQ 1504.09)**

Per Env-Wq 1504.09, a waiver is being requested from the requirements to prepare a Stormwater Drainage Report, Drainage Area Plans, and Hydrologic Soil Group Plans because of the new impervious surface is limited to the footprint of new transmission line structures. It is not anticipated that the proposed structures will have a significant impact on- Site drainage patterns. Accordingly, stormwater treatment practices are not proposed. A formal waiver request is provided in **Appendix F**.

#### **5.1.2 Waiver Request: Measurement of Contiguous Area Disturbed; Inclusion of Plans (Env- WQ 1503.12)**

Per Env-Wq 1503.12, a waiver is being requested for including past terrain disturbance in the measurement of contiguous disturbed area included in this X178 Line AOT application. Existing terrain alteration associated with past transmission line maintenance within the X178 ROW is minimal. Any existing trails or access roads that may have been created within the last 10 years will be utilized and/or improved as part of this project and have been included in the current calculations within this application. Future disturbance beyond the scope of X178 Rebuild and OPGW Project described in this application is not known at this time. The project proposes to improve access routes and work pads around utility structures for the purpose of maintaining existing utility infrastructure. This project is necessary to maintain the safety and reliability of the electrical infrastructure. Project disturbances included in this application and subsequent permit approvals will be considered if future structure maintenance is proposed within the ROW. Eversource respectfully requests a waiver from including past disturbance in this application. A formal waiver request is provided in **Appendix F**.



5.1.3 Waiver Request: Deviation from the Approved Plans and Specifications (Env- WQ 1503.21)

Per Env-Wq 1503.21, a waiver is being requested for deviations from the approved plans without applying for an amended permit or a new permit if shifts in the proposed project layout occur. Changes in the project layout are frequently identified during construction by Eversource and their contractors and may be necessary to safely perform the work. Access shifts would be limited to the extent necessary for safety, would not impact new resources, and access would remain within the existing and maintained ROW. Eversource respectfully requests a waiver from limiting shifts of the project road centerlines and parking areas to 20 feet. A formal waiver request is provided in **Appendix F**.

5.1.4 Quantification of Impacts Subject to AOT

The project requires approximately 1,912,751 square feet (sq. ft.) of total impact, including 478,584 sq. ft. of temporary wetland matting and 1,434,210 sq. ft. of ground disturbance along the X178 Transmission Line ROW that requires an AoT permit in accordance with Env-Wq 1502.58. Specific areas and construction activities that significantly alter the terrain are detailed below. Additional details are shown in **Figure 4**.

<b><u>AoT Area A - Woodstock</u></b>	
Map Sheets 1 to 3	
<b>Disturbance Type</b>	<b>Impact (sq. ft)</b>
New Access	138,474
Gravel Work Pad	116,657
<b><u>Total AoT Disturbed Area</u></b>	<b><u>255,131</u></b>
-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area."	
-Work pad dimensions: Up to 100-ft x 100-ft; Access road width: 16-ft	

<b><u>AoT Area B - Easton</u></b>	
Map Sheets 4 to 10	
<b>Disturbance Type</b>	<b>Impact (sq. ft)</b>
New Access	183,583
Gravel Work Pad	309,298
<b><u>Total AoT Disturbed Area</u></b>	<b><u>492,881</u></b>
-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area."	
-Work pad dimensions: Up to 100-ft x 100-ft; Access road width: 16-ft	

<b><u>AoT Area C - Sugar Hill</u></b>	
Map Sheets 10 to 21	
<b>Disturbance Type</b>	<b>Impact (sq. ft)</b>
New Access	279,640
Gravel Work Pad	406,558
<b><u>Total AoT Disturbed Area</u></b>	<b><u>686,198</u></b>
-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area."	
-Work pad dimensions: Up to 100-ft x 100-ft; Access road width: 16-ft	



**5.2 OTHER REGULATORY PROGRAMS**

Other regulatory permits and notifications required for the proposed project are summarized below.

Agency	Permit/Notification	Status	
<i>Local</i>			
Town of Sugar Hill	Temporary Driveway Permits	<i>Pending</i>	
Town of Easton	Conditional Use Permits, Site Plan Review, Building Permit	<i>Pending</i>	
<i>State</i>			
NHDES	NHDES Wetlands Permit	<i>Pending</i>	
	Town/City		File No.
	Woodstock Easton Sugar Hill		NHDES 2024-00468
<i>Federal</i>			
EPA (Construction General Permit)	Stormwater Pollution Prevention Plan (SWPPP)	<i>Pending</i>	
USACE General Permit	Pre-Construction Notice	<i>Pending</i>	

The proposed project includes the replacement of 106 existing utility structures along the X178-2 Transmission Line that exceed AoT impact thresholds. This includes a total of approximately 1,434,210 sq. ft. of the impact associated with access improvements and work pad grading across three separate work areas.

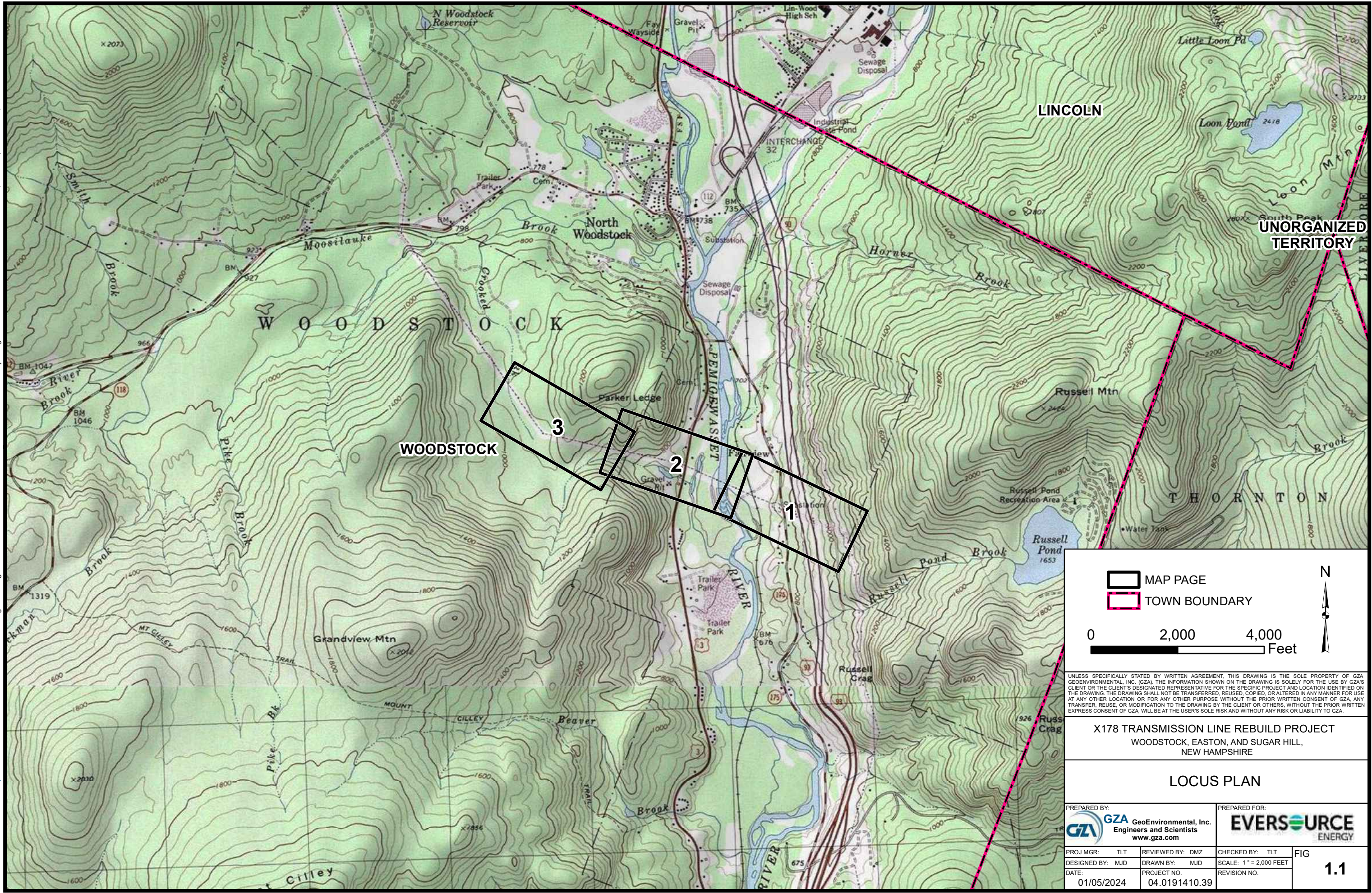
The proposed project is necessary for routine maintenance of the X178 Transmission Lines and to ensure the long- term safety and reliability of the electrical infrastructure.





**Figure 1 – USGS Topographic Map**




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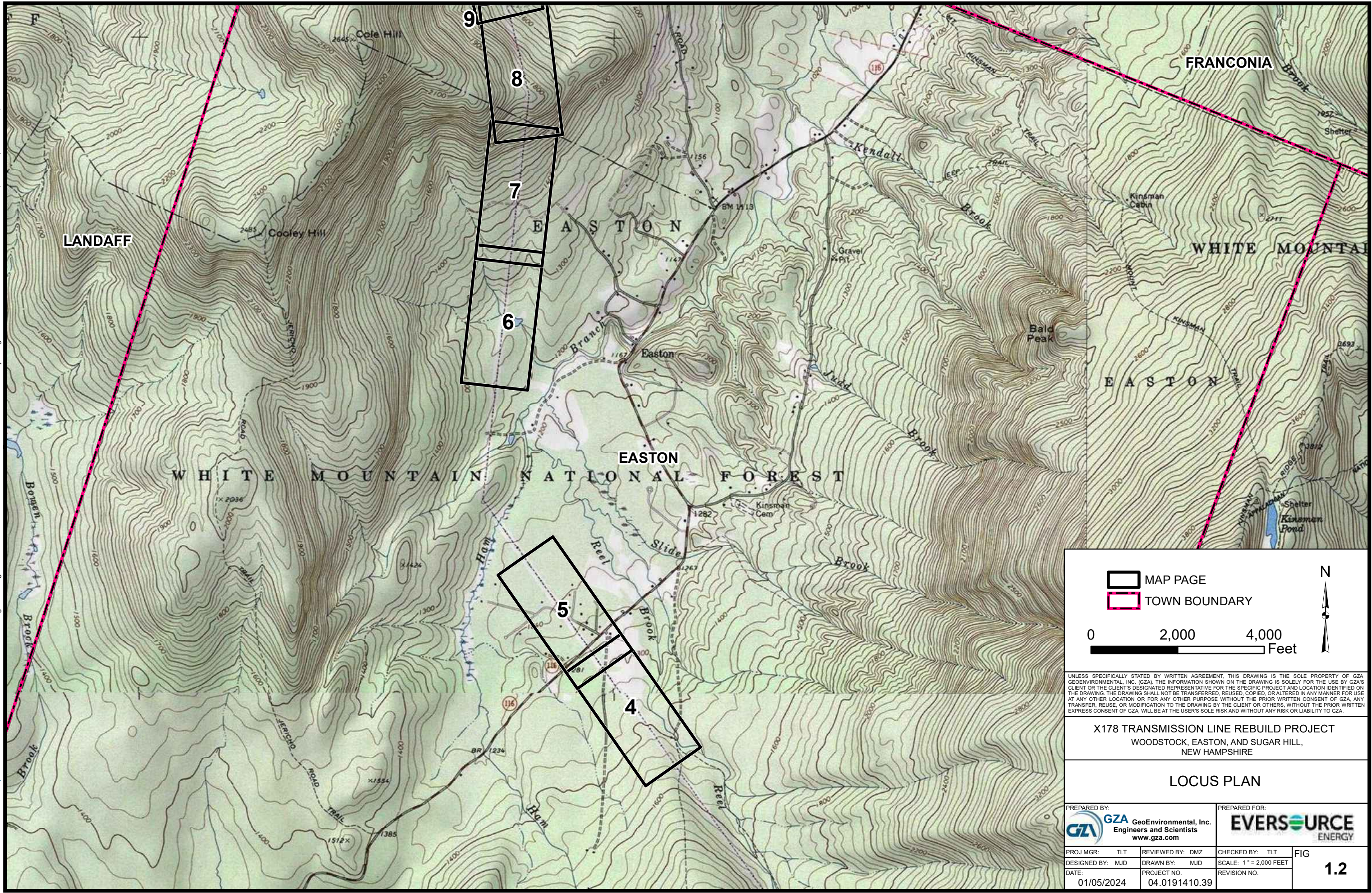
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WOODSTOCK, EASTON, AND SUGAR HILL,  
NEW HAMPSHIRE



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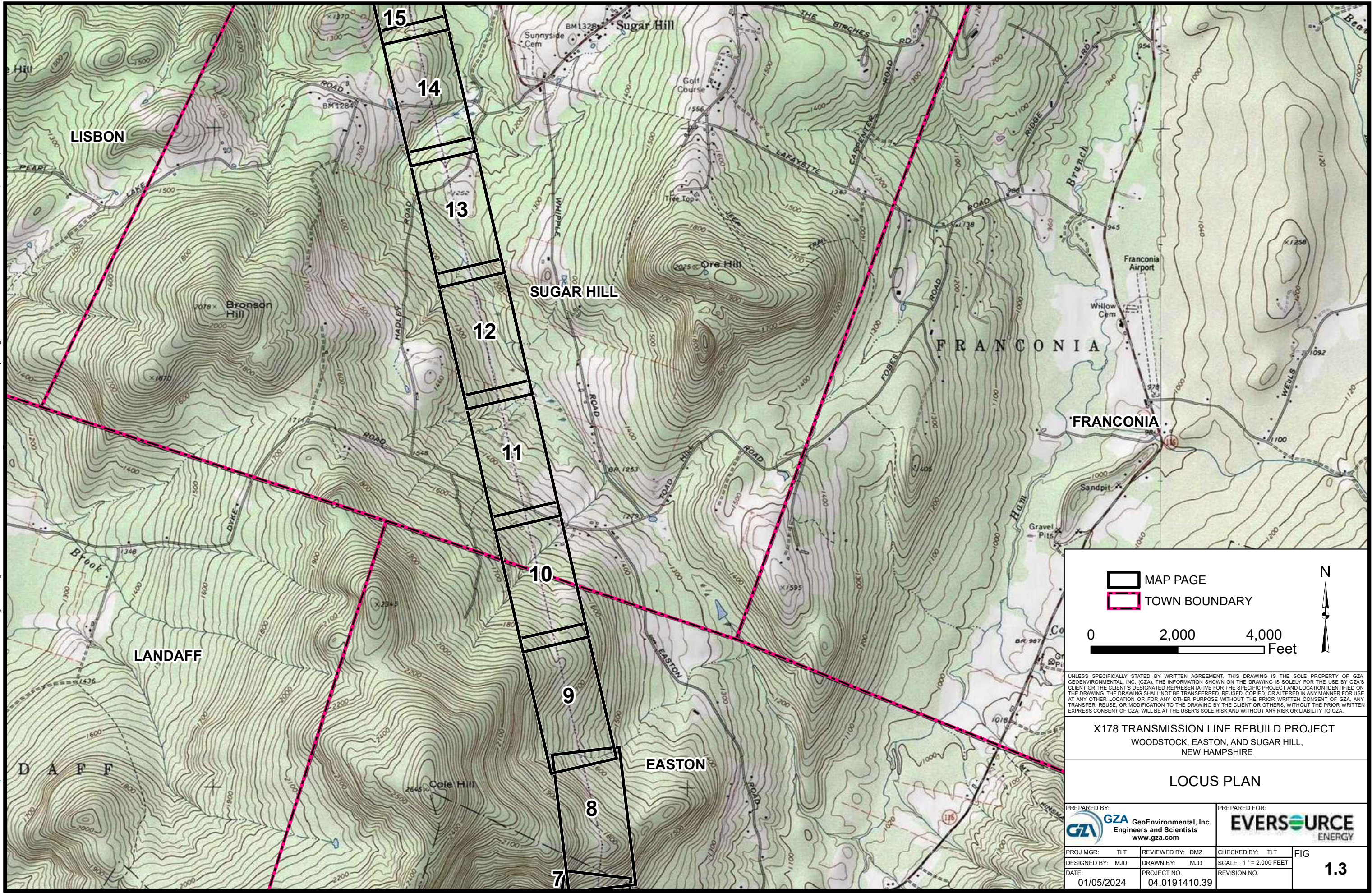
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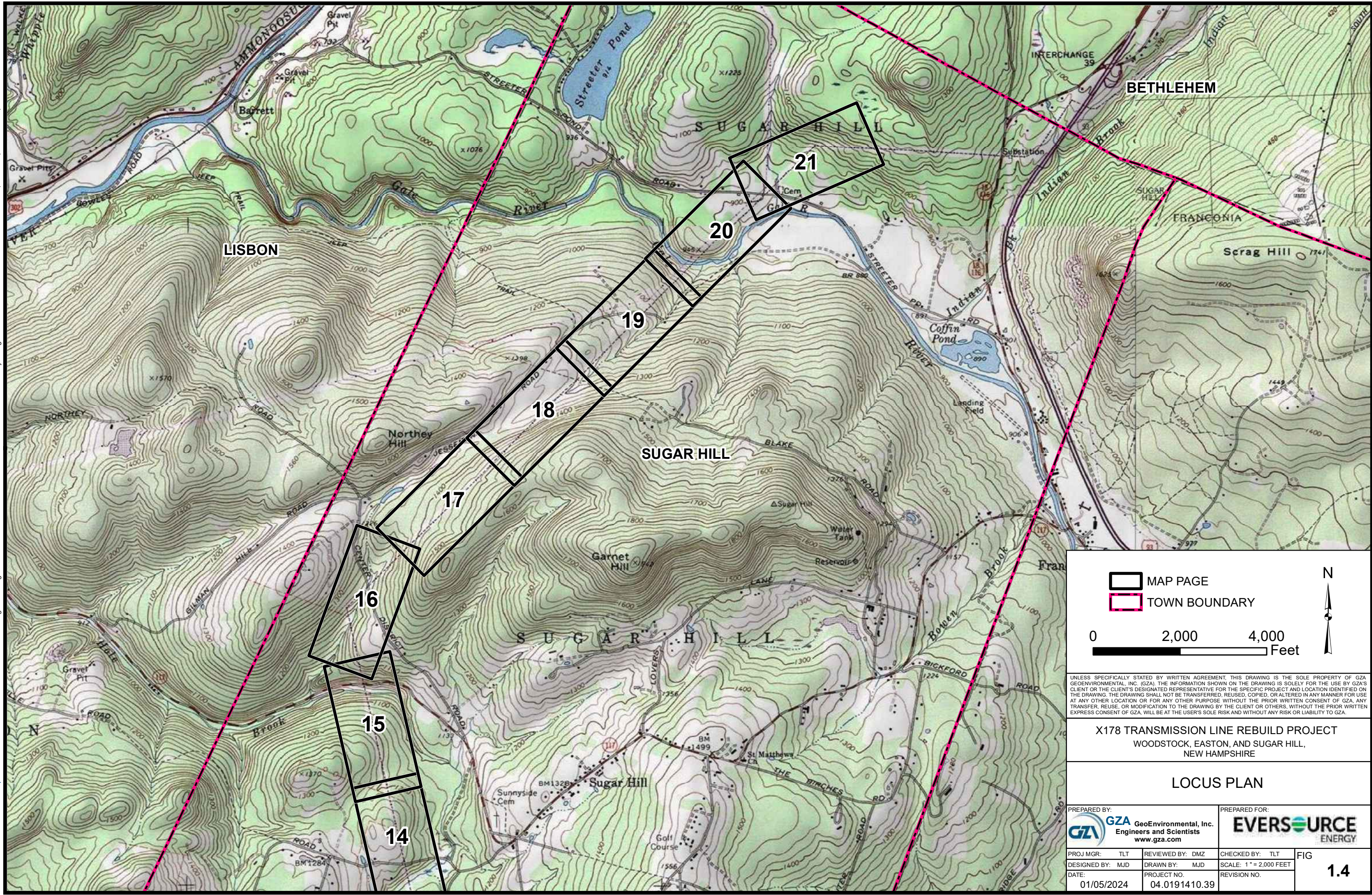
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FIG  
**1.3**







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**Figure 2 – Orthophotograph Site Map**



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North Arrow

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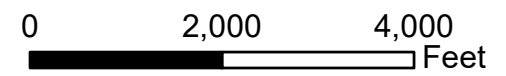
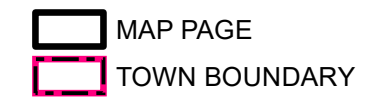


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LANDAFF

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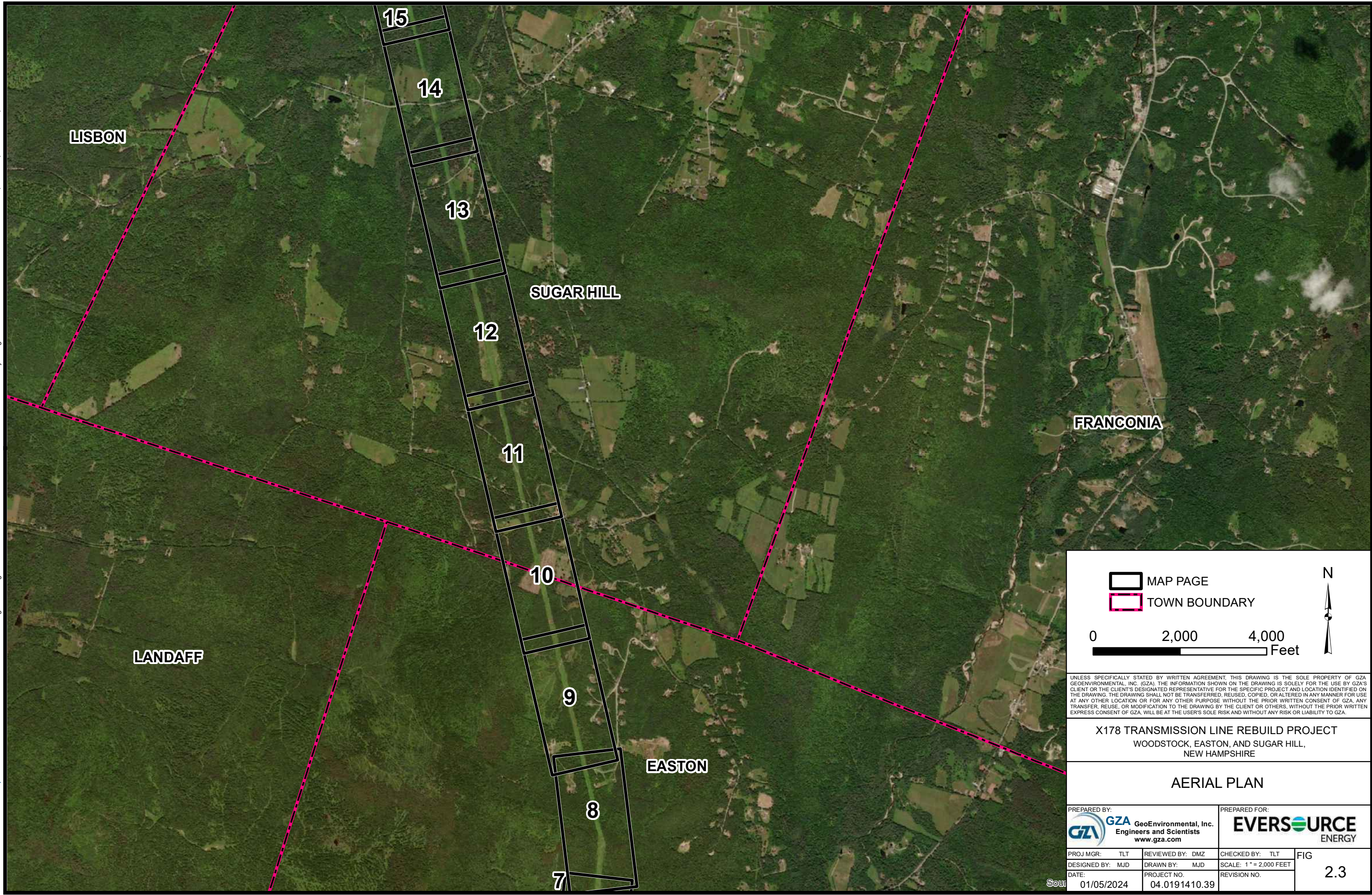
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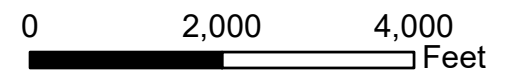
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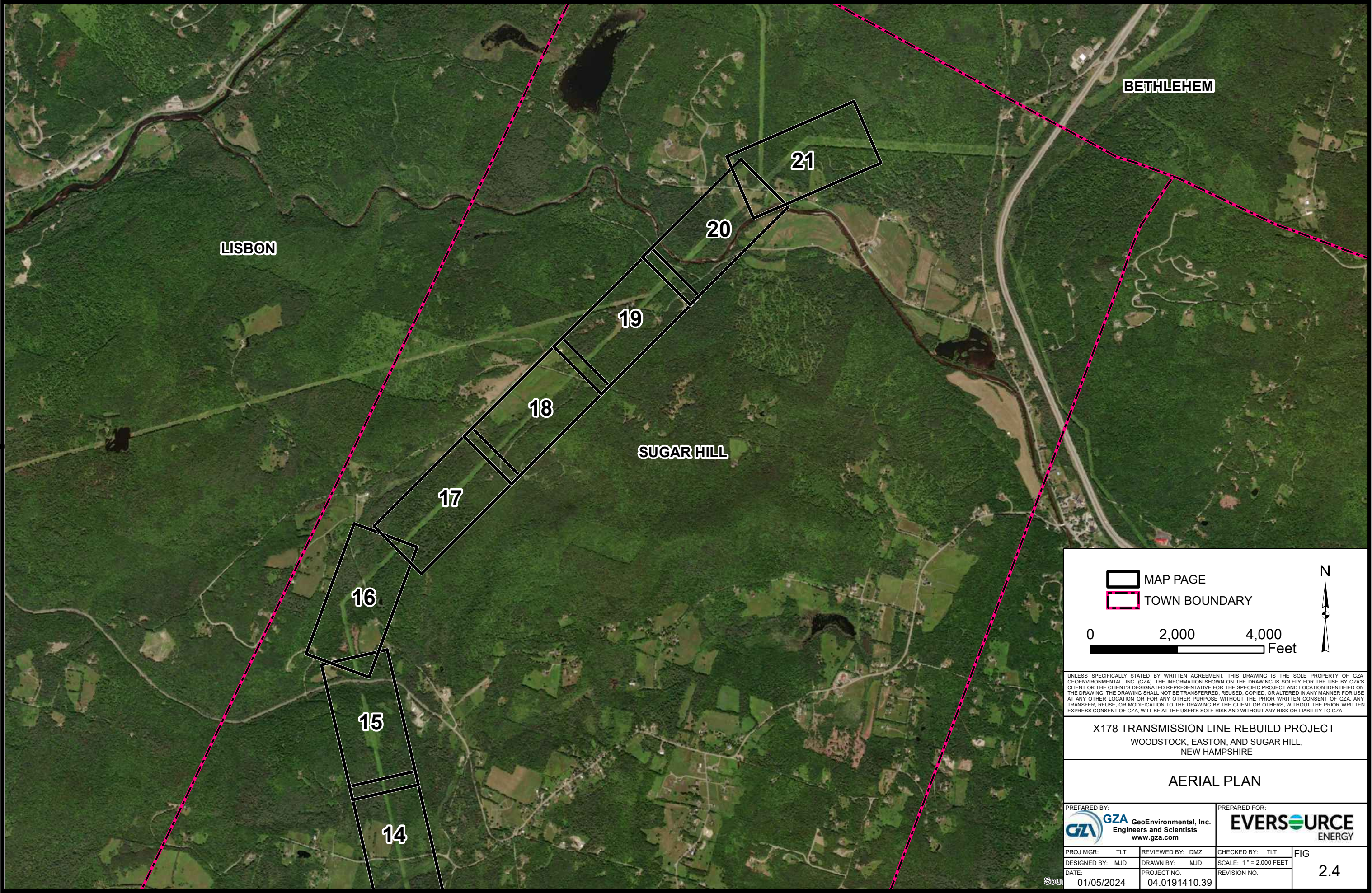
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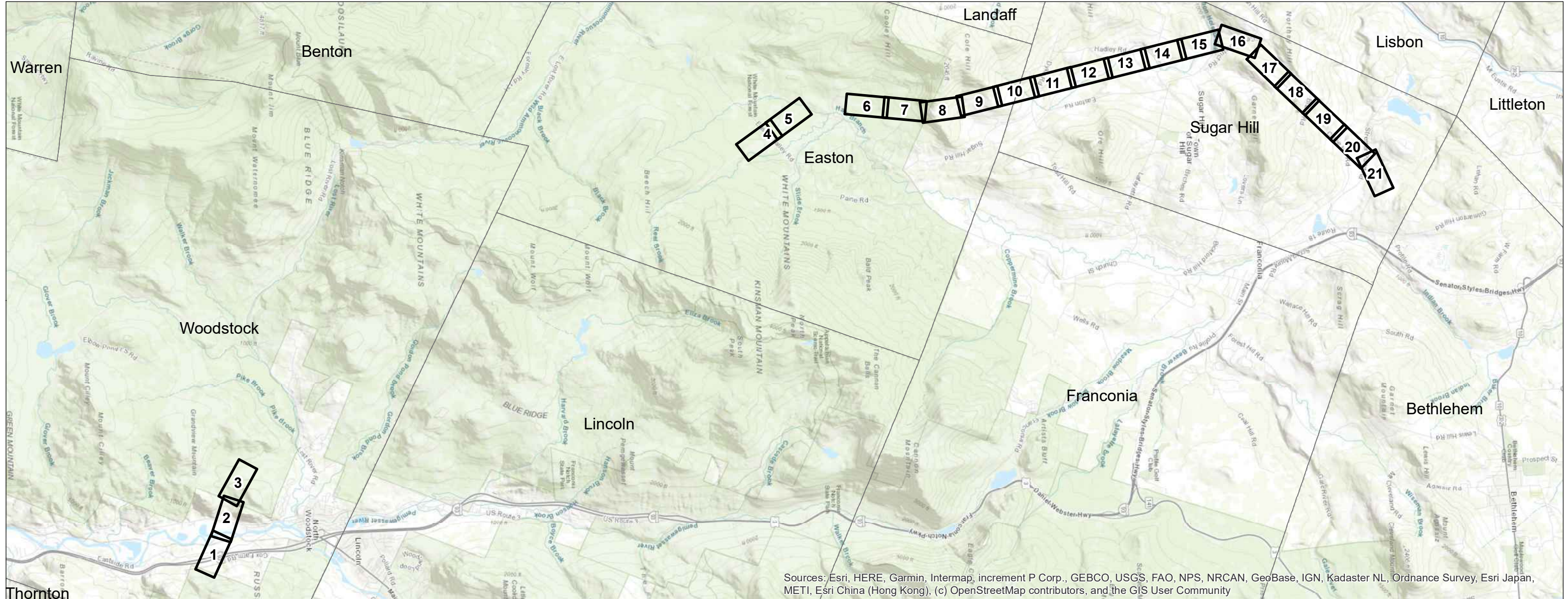


**Figure 3 – Surface Water and Groundwater Overlay Plans**

# X178-2 Transmission Line Structure Rebuild Project - Phase 1

WOODSTOCK, EASTON AND SUGAR HILL, NEW HAMPSHIRE  
Alteration of Terrain Water Resources Planset

Date: March 13, 2024

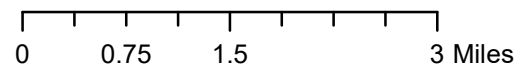
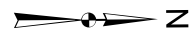


Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

PREPARED FOR:



13 Legends Drive  
Hooksett, NH 03106



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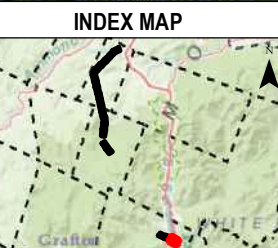


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| <ul style="list-style-type: none"> <li><span style="color: red;">▲</span> LOCAL POTENTIAL CONTAMINATION SOURCES</li> <li><span style="border: 1px solid red; padding: 2px;"> </span> DESIGNATED RIVER QUARTER MILE BUFFER</li> <li><span style="border: 1px solid green; padding: 2px;"> </span> GROUNDWATER CLASSIFICATION AREA GA2</li> <li><span style="border: 1px solid blue; padding: 2px;"> </span> OUTSTANDING RESOURCE WATER</li> <li><span style="border: 1px solid lightgreen; padding: 2px;"> </span> SURFACE WATERS WITH IMPAIRMENTS 2016 1/4 MI BUFFER</li> <li><span style="border: 1px solid lightblue; padding: 2px;"> </span> CLASS A SURFACE WATERS RSA 485A9</li> <li><span style="border: 1px solid lightcyan; padding: 2px;"> </span> ALL LAKES WITH A QUARTER MILE BUFFER</li> <li><span style="border: 1px solid lightblue; padding: 2px;"> </span> WATERSHEDS WITH CHLORIDE IMPAIRMENTS 2016 (NONE PRESENT)</li> <li><span style="border: 1px solid lightblue; padding: 2px;"> </span> WATER SUPPLY INTAKE PROTECTION AREAS</li> <li><span style="border: 1px solid lightblue; 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**X178 Transmission Line Structure Rebuild Project Phase 1**

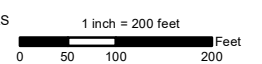
Woodstock, NH      MAP SHEET

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04.0191410.39

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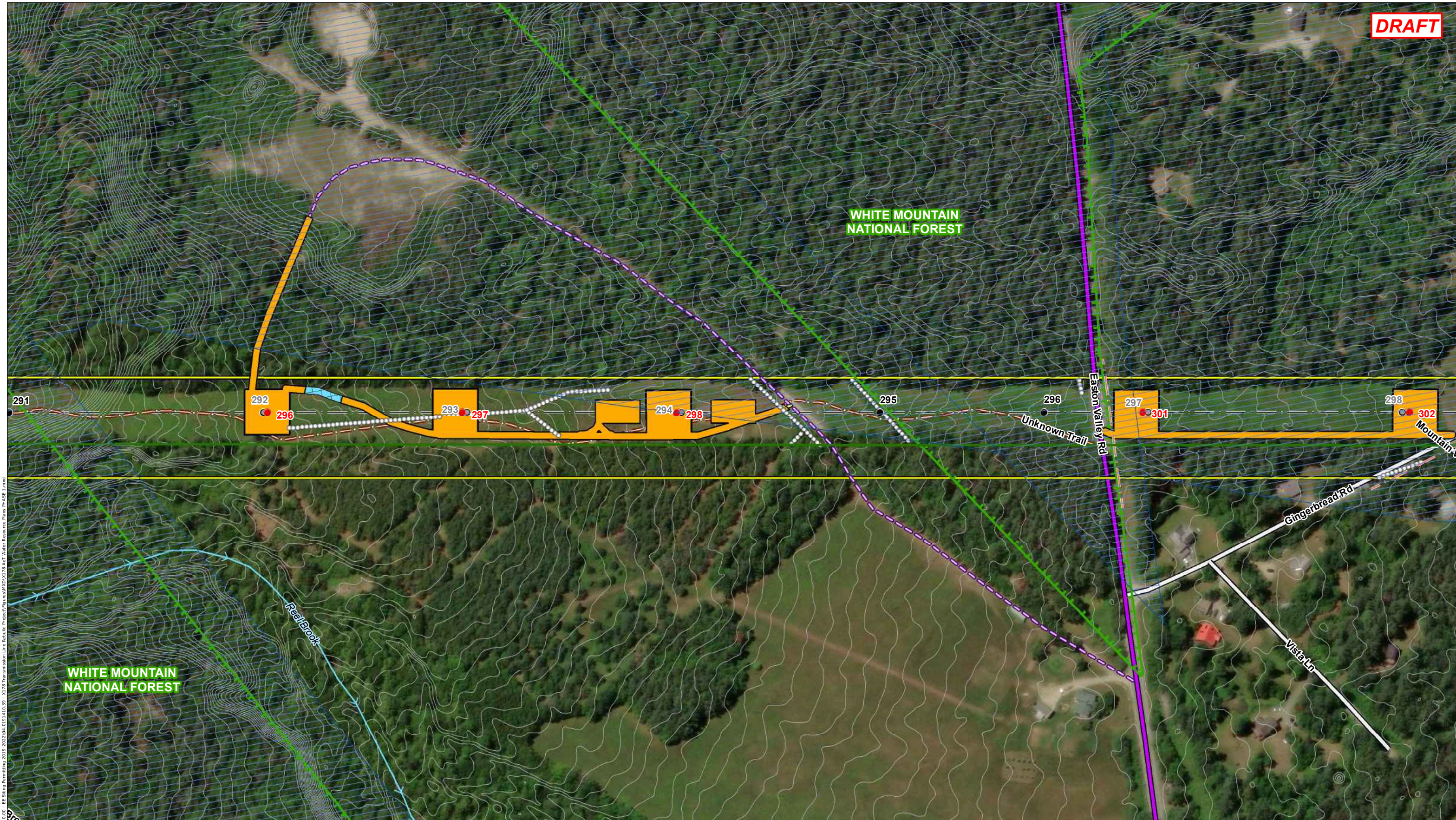
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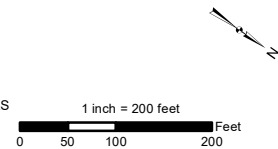
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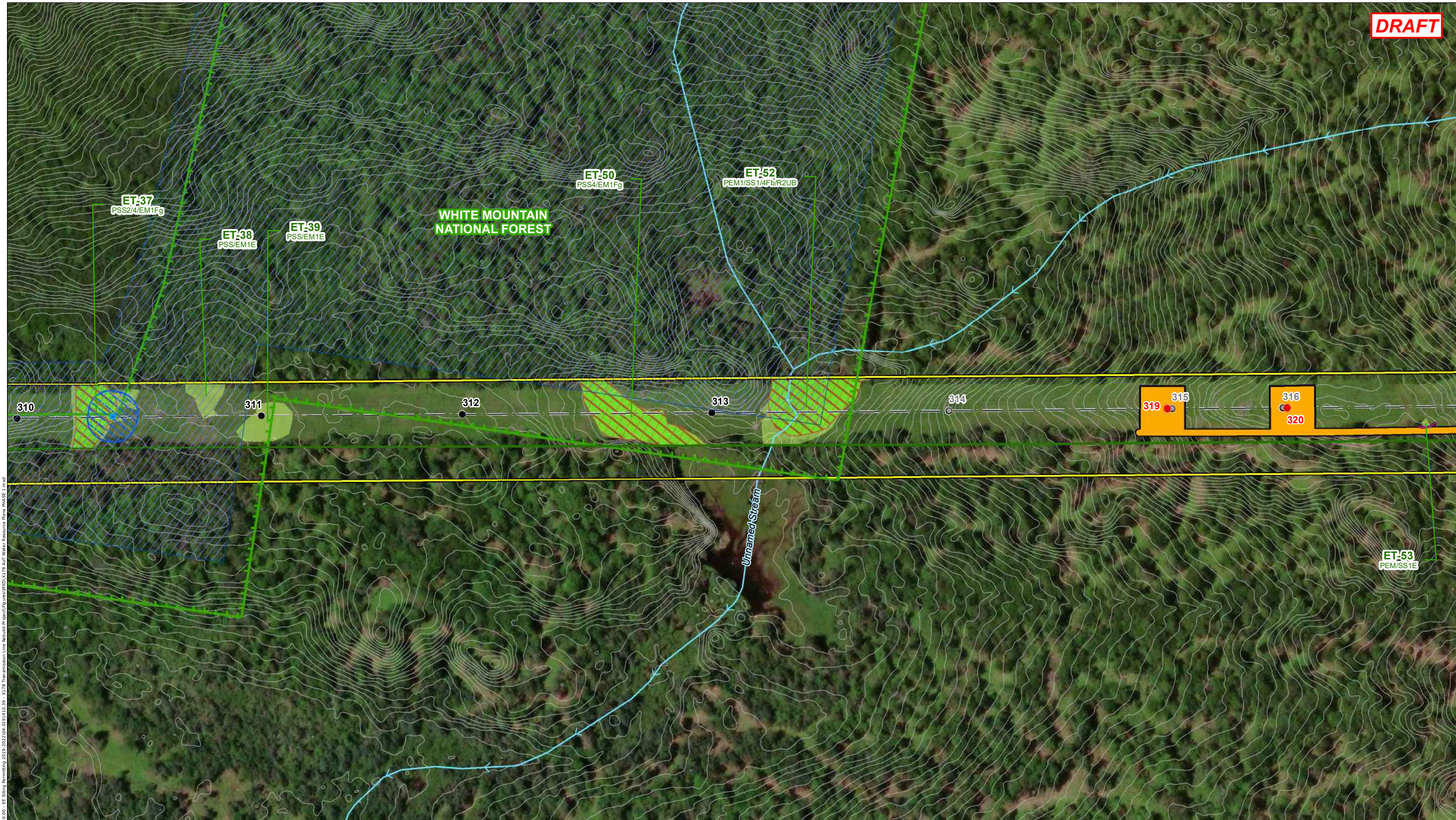
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**EVERSOURCE ENERGY**

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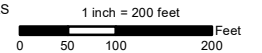
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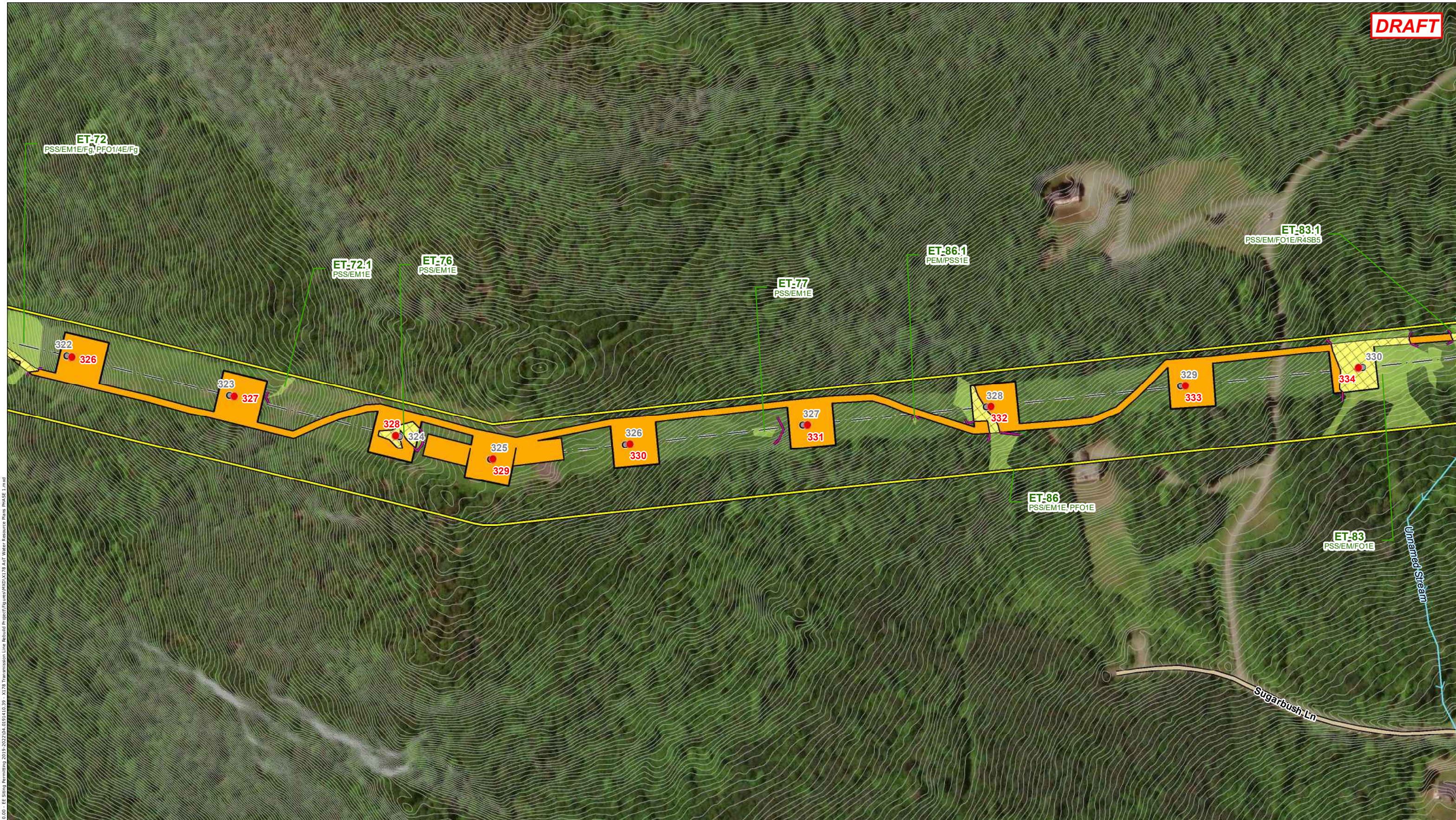
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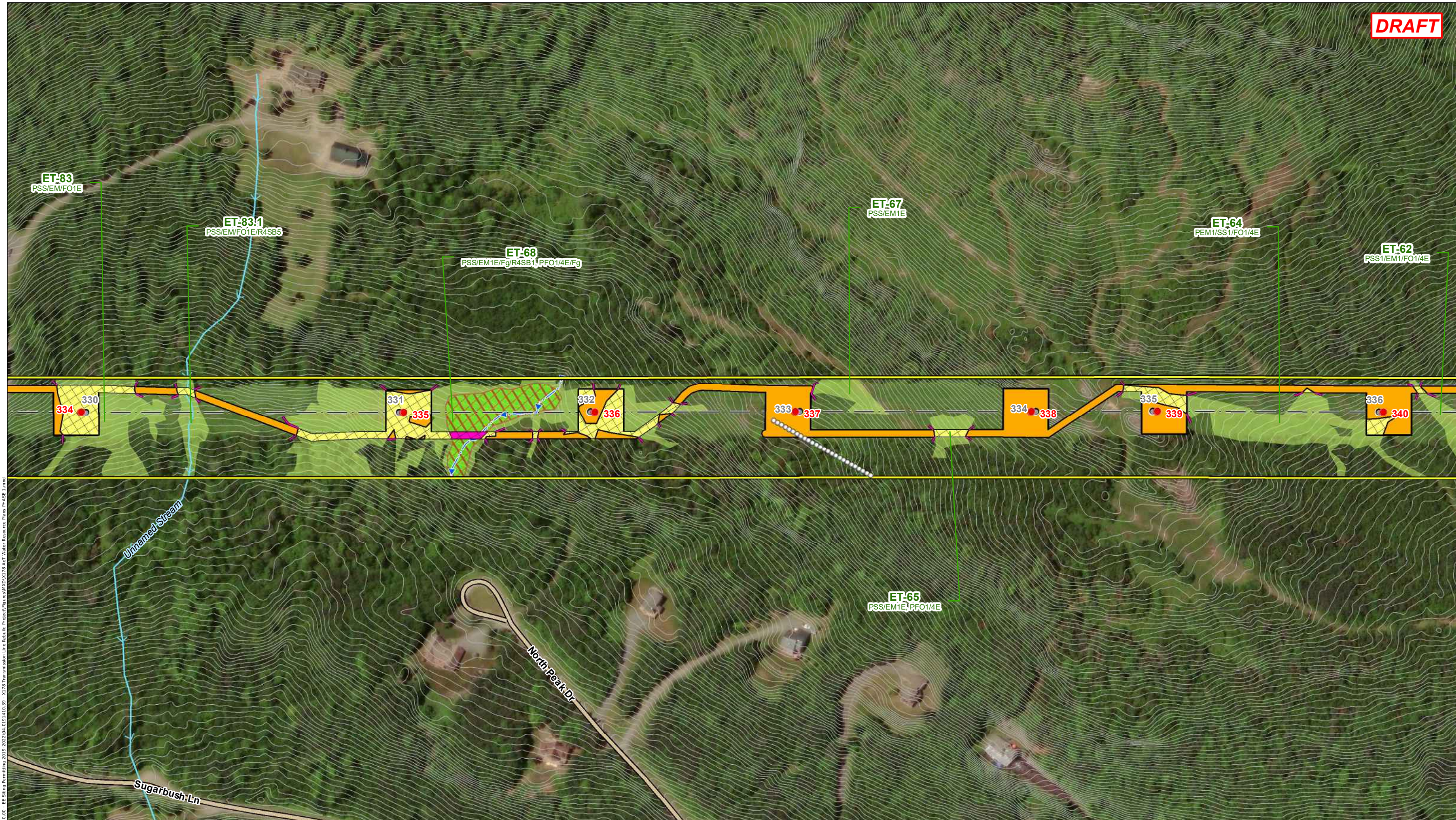
**EVERSOURCE ENERGY**

**X178 Transmission Line Structure Rebuild Project Phase 1**

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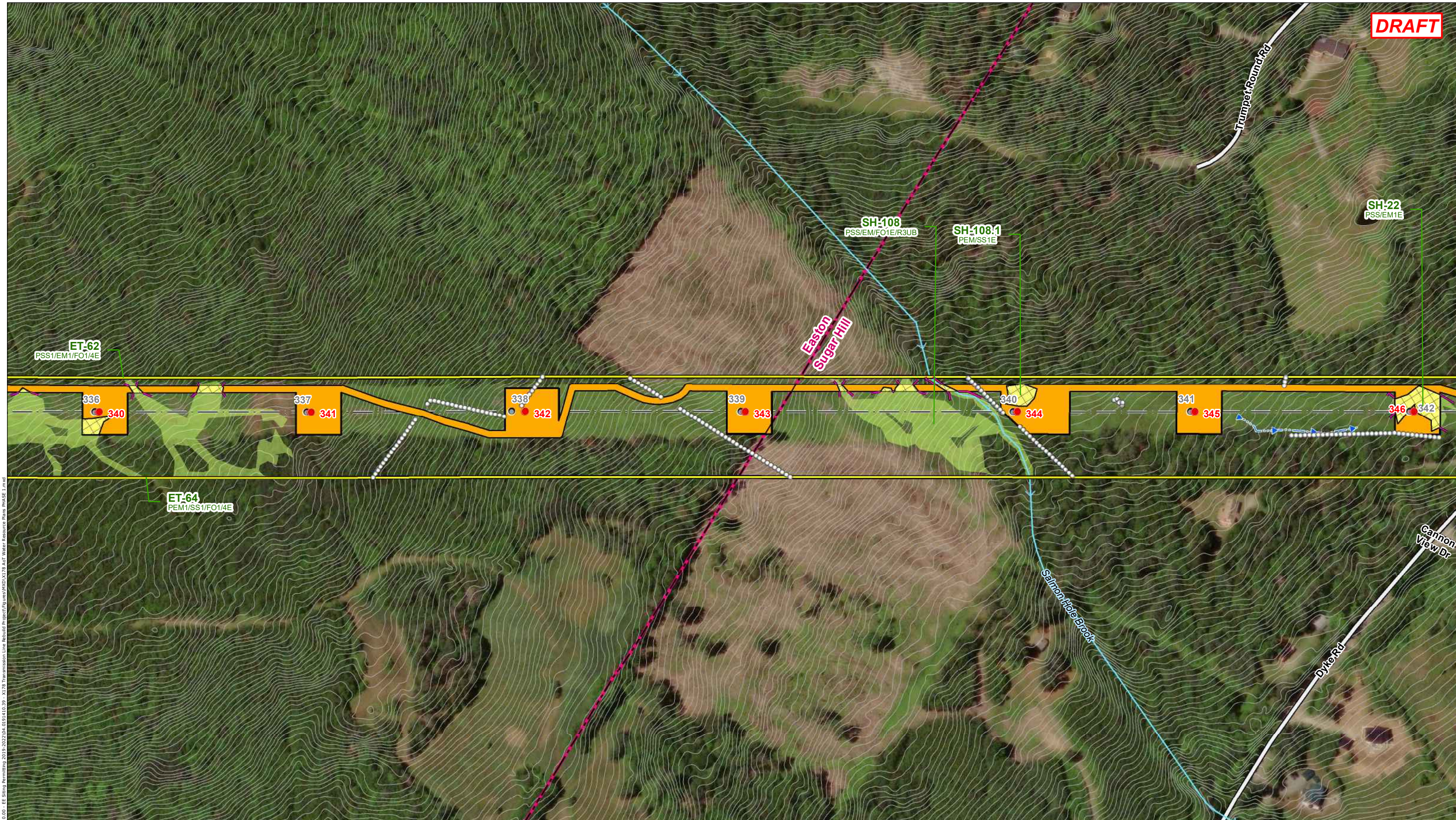




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| <ul style="list-style-type: none"> <li><span style="color: red;">▲</span> LOCAL POTENTIAL CONTAMINATION SOURCES</li> <li><span style="border: 1px solid red; padding: 2px;"> </span> DESIGNATED RIVER QUARTER MILE BUFFER</li> <li><span style="border: 1px solid green; padding: 2px;"> </span> GROUNDWATER CLASSIFICATION AREA GA2</li> <li><span style="border: 1px solid blue; padding: 2px;"> </span> OUTSTANDING RESOURCE WATER</li> <li><span style="border: 1px solid lightgreen; padding: 2px;"> </span> SURFACE WATERS WITH IMPAIRMENTS 2016 1/4 MI BUFFER</li> <li><span style="border: 1px solid lightblue; padding: 2px;"> </span> CLASS A SURFACE WATERS RSA 485A9</li> <li><span style="border: 1px solid lightcyan; padding: 2px;"> </span> ALL LAKES WITH A QUARTER MILE BUFFER</li> <li><span style="border: 1px solid lightblue; padding: 2px;"> </span> WATERSHEDS WITH CHLORIDE IMPAIRMENTS 2016 (NONE PRESENT)</li> <li><span style="border: 1px solid lightblue; padding: 2px;"> </span> WATER SUPPLY INTAKE PROTECTION AREAS</li> <li><span style="border: 1px solid lightblue; padding: 2px;"> </span> WELLHEAD PROTECTION AREAS</li> <li><span style="border: 1px solid lightblue; padding: 2px;"> </span> FEMA SPECIAL FLOOD HAZARD AREA</li> </ul> | <ul style="list-style-type: none"> <li><span style="border: 1px solid orange; padding: 2px;"> </span> APPROXIMATE AOT IMPACT AREA</li> <li><span style="color: purple;">●</span> U199 TEMPORARY TAP POLE</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;"> </span> EXISTING STRUCTURE - NO WORK</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;"> </span> STRUCTURE TO BE REMOVED</li> <li><span style="color: red;">●</span> PROPOSED STRUCTURE</li> <li><span style="border: 1px solid yellow; padding: 2px;"> </span> TEMPORARY WETLAND MATTING</li> <li><span style="border: 1px solid yellow; padding: 2px;"> </span> TEMPORARY WETLAND GRADING</li> <li><span style="border: 1px solid purple; padding: 2px;"> </span> EROSION CONTROLS</li> <li><span style="border: 1px solid black; padding: 2px;"> </span> PULL PADS</li> <li><span style="border: 1px solid black; padding: 2px;"> </span> WORK PADS</li> <li><span style="border: 1px solid black; padding: 2px;"> </span> TRANSMISSION LINE ROW</li> </ul> | <ul style="list-style-type: none"> <li><span style="border-bottom: 1px solid black; width: 20px; display: inline-block;"></span> TRANSMISSION LINE</li> <li><span style="border-bottom: 1px dashed blue; width: 20px; display: inline-block;"></span> DELINEATED INTERMITTENT STREAM</li> <li><span style="border-bottom: 1px solid blue; width: 20px; display: inline-block;"></span> DELINEATED PERENNIAL STREAM</li> <li><span style="color: blue;">→</span> NHD FLOWLINES</li> <li><span style="background-color: red; width: 10px; height: 10px; display: inline-block;"></span> VERY POORLY DRAINED SOILS</li> <li><span style="background-color: lightgreen; width: 10px; height: 10px; display: inline-block;"></span> FIELD DELINEATED WETLAND</li> <li><span style="background-color: lightblue; 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NO.	DATE	REVISIONS

**EVERSOURCE**  
ENERGY

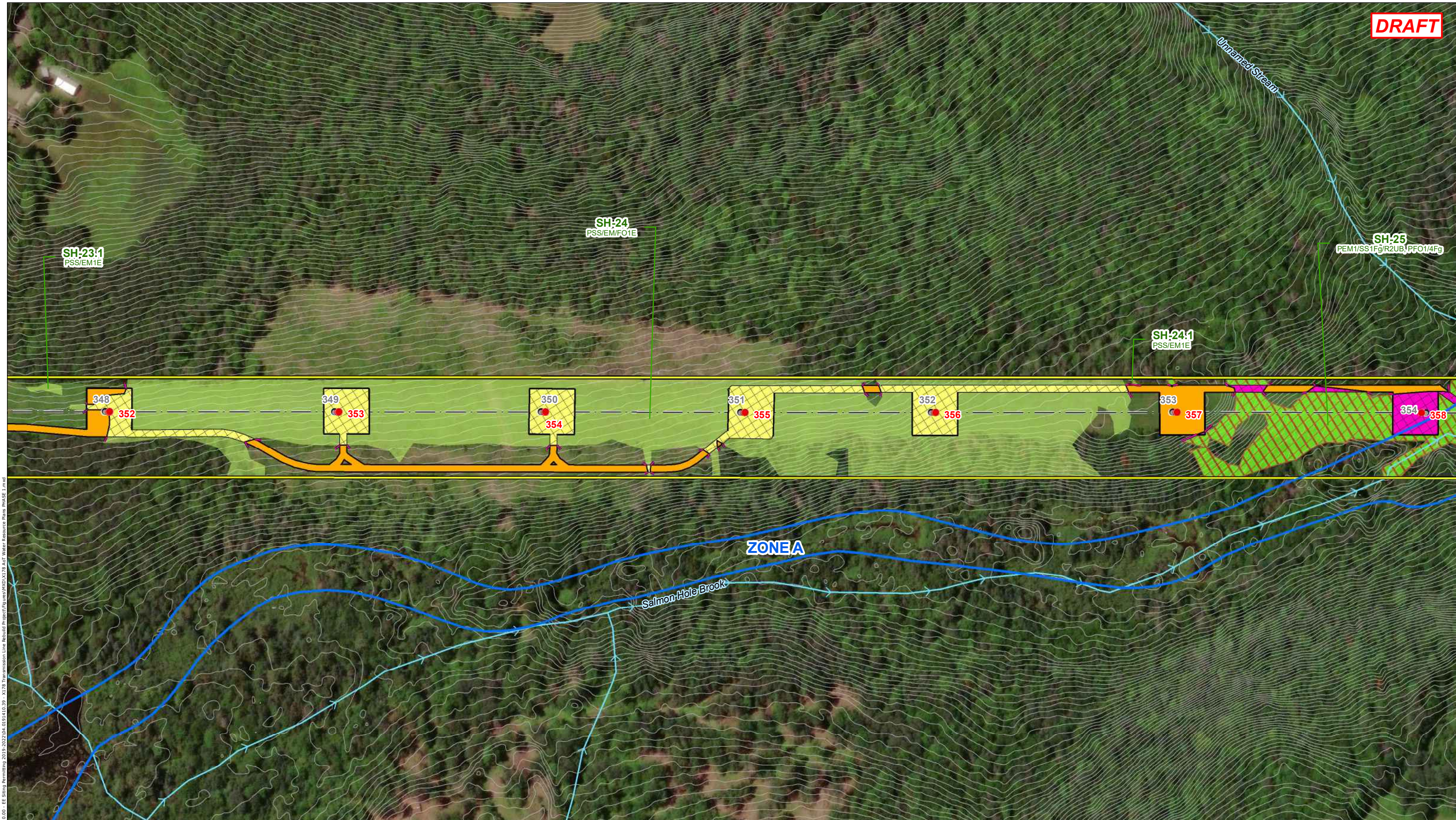
**X178 Transmission Line  
Structure Rebuild Project  
Phase 1**

Easton/Sugar Hill, NH	MAP SHEET
March 13, 2024	10 OF 21
04.0191410.39	









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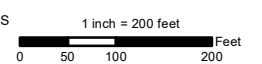
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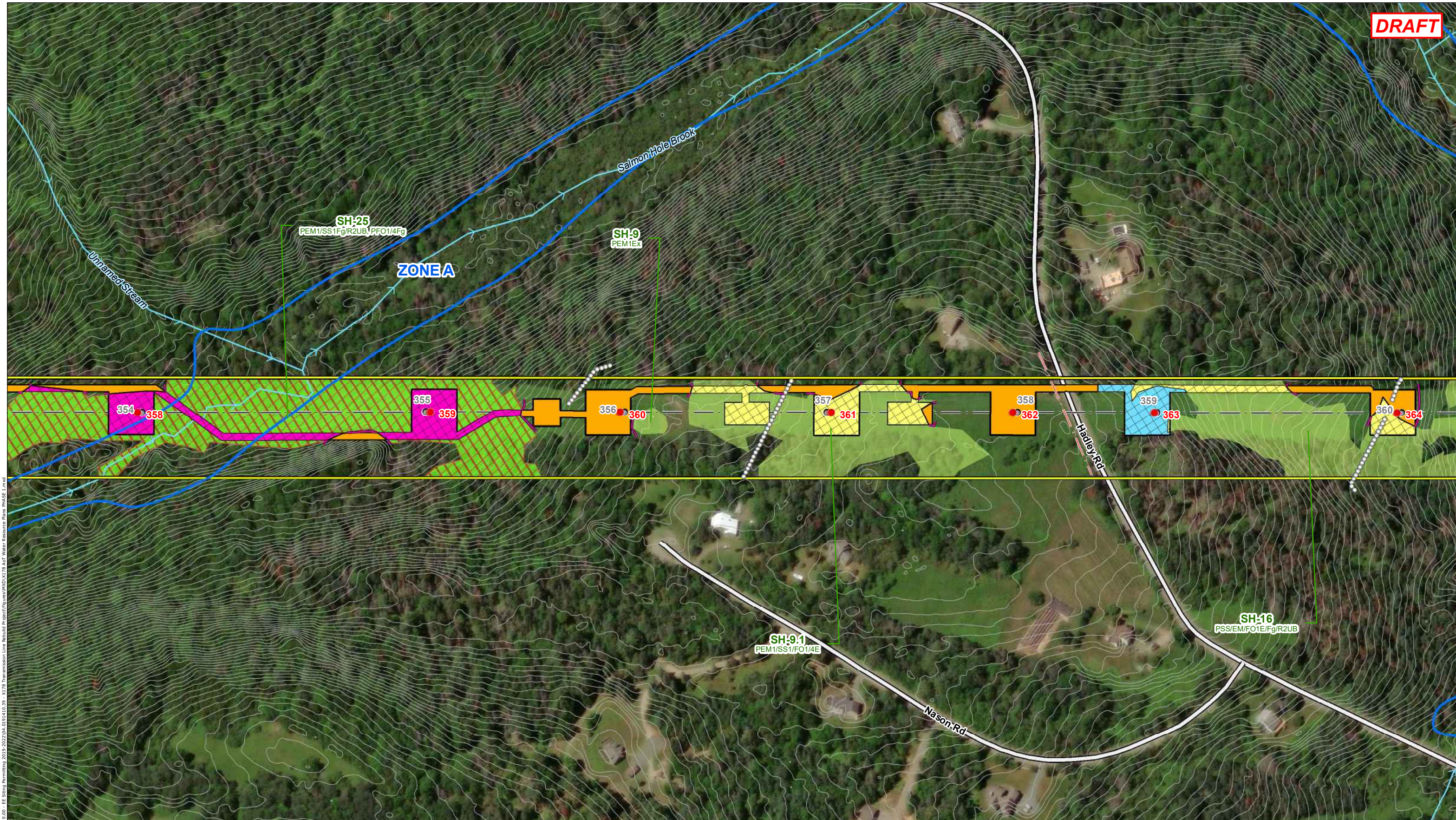
**EVERSOURCE ENERGY**

**X178 Transmission Line Structure Rebuild Project Phase 1**

Sugar Hill, NH	MAP SHEET
March 13, 2024	12 OF 21
04.0191410.39	







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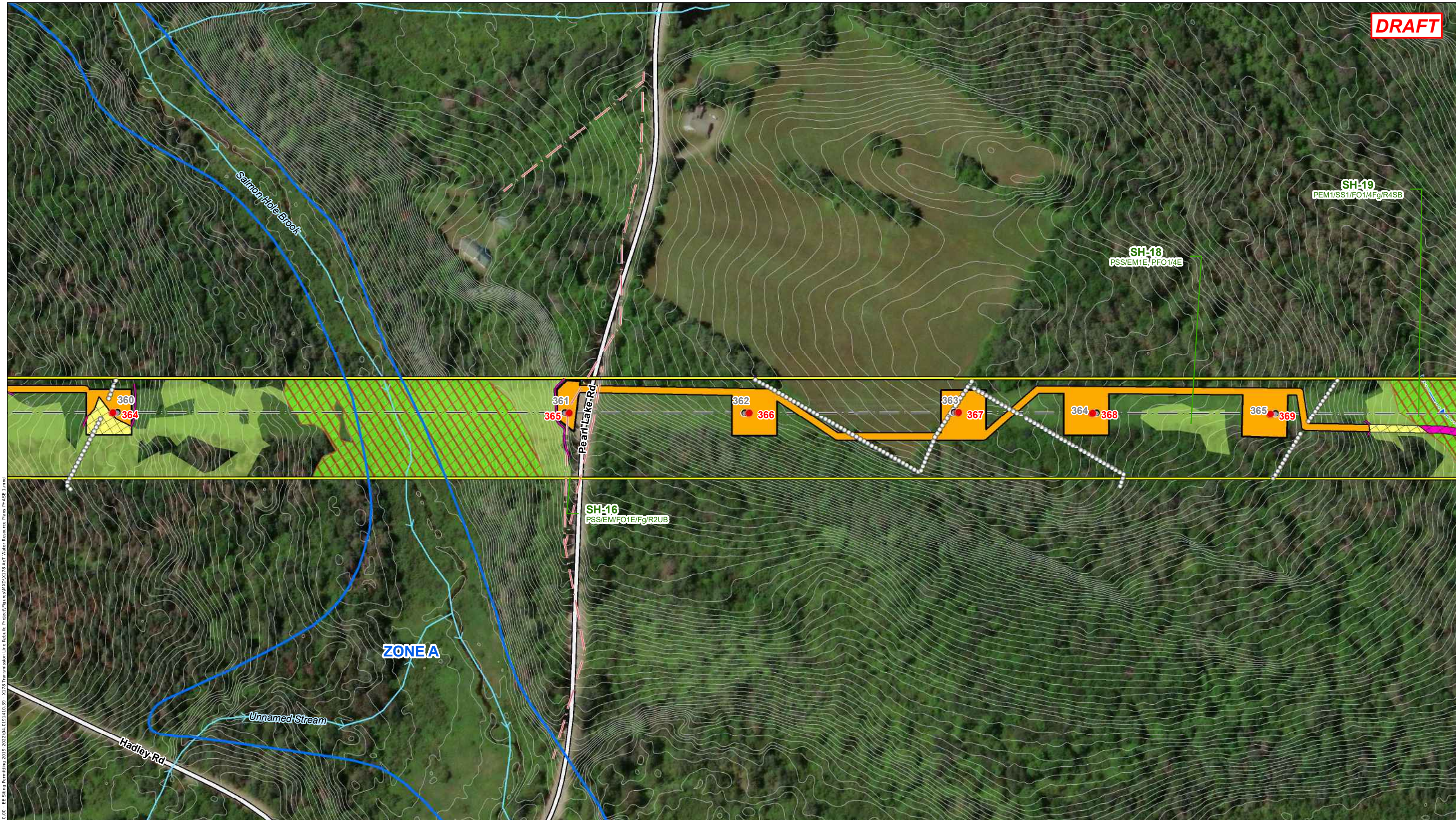
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NO.	DATE
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**EVERSOURCE ENERGY**

**X178 Transmission Line Structure Rebuild Project Phase 1**

Sugar Hill, NH	MAP SHEET
March 13, 2024	13 OF 21
04.0191410.39	





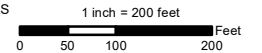
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<b>EVERSOURCE ENERGY</b> <b>X178 Transmission Line Structure Rebuild Project Phase 1</b>	
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March 13, 2024	14 OF 21
04.0191410.39	







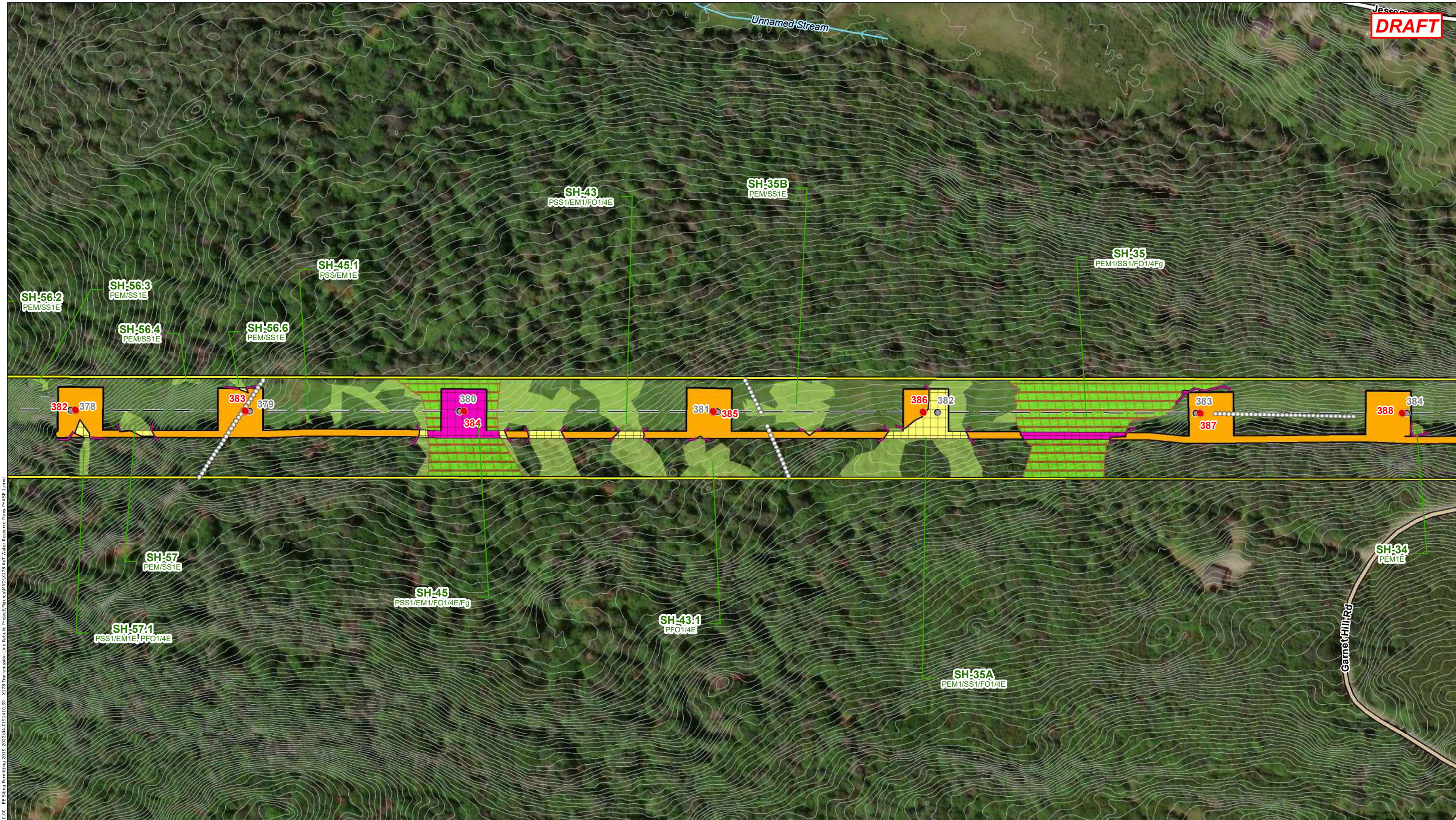




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<p><b>INDEX MAP</b></p>	<p><b>LOCAL POTENTIAL CONTAMINATION SOURCES</b></p> <ul style="list-style-type: none"> <li>▲ LOCAL POTENTIAL CONTAMINATION SOURCES</li> <li>■ DESIGNATED RIVER QUARTER MILE BUFFER</li> <li>■ GROUNDWATER CLASSIFICATION AREA GA2</li> <li>■ OUTSTANDING RESOURCE WATER</li> <li>■ SURFACE WATERS WITH IMPAIRMENTS 2016 1/4 MI BUFFER</li> <li>■ CLASS A SURFACE WATERS RSA 485A9</li> <li>■ ALL LAKES WITH A QUARTER MILE BUFFER</li> <li>■ WATERSHEDS WITH CHLORIDE IMPAIRMENTS 2016 (NONE PRESENT)</li> <li>■ WATER SUPPLY INTAKE PROTECTION AREAS</li> <li>■ WELLHEAD PROTECTION AREAS</li> <li>■ FEMA SPECIAL FLOOD HAZARD AREA</li> </ul>	<p><b>APPROXIMATE AOT IMPACT AREA</b></p> <ul style="list-style-type: none"> <li>● U199 TEMPORARY TAP POLE</li> <li>● EXISTING STRUCTURE - NO WORK</li> <li>● STRUCTURE TO BE REMOVED</li> <li>● PROPOSED STRUCTURE</li> <li>■ TEMPORARY WETLAND MATTING</li> <li>■ TEMPORARY WETLAND GRADING</li> <li>■ EROSION CONTROLS</li> <li>■ PULL PADS</li> <li>■ WORK PADS</li> <li>■ TRANSMISSION LINE ROW</li> </ul>	<p><b>TRANSMISSION LINE</b></p> <ul style="list-style-type: none"> <li>— TRANSMISSION LINE</li> <li>— DELINEATED INTERMITTENT STREAM</li> <li>— DELINEATED PERENNIAL STREAM</li> <li>— NHD FLOWLINES</li> <li>■ VERY POORLY DRAINED SOILS</li> <li>■ FIELD DELINEATED WETLAND</li> <li>■ CONFIRMED VERNAL POOL</li> <li>○ NH RECREATIONAL TRAILS</li> <li>— WHITE MOUNTAIN NATIONAL FOREST BOUNDARY</li> </ul>	<p><b>TEMPORARY WETLAND MATTING IN VPD SOILS</b></p> <ul style="list-style-type: none"> <li>■ TOWN MAINTAINED ROAD</li> <li>■ NHDOT ROAD</li> <li>■ FEDERAL ROAD</li> <li>■ PRIVATE ROAD</li> <li>■ TEMPORARY UPLAND MATTING</li> <li>■ PROPOSED ACCESS</li> <li>■ SECONDARY ACCESS</li> <li>■ EXISTING ACCESS</li> <li>■ TOWN BOUNDARY</li> <li>■ WORK PADS</li> <li>■ 2FT CONTOURS</li> </ul>	<p><b>EXTENT OF WETLAND DELINEATION</b></p> <ul style="list-style-type: none"> <li>■ 50-FT VERNAL POOL BUFFER</li> <li>● CULVERT</li> <li>— DISTRIBUTION LINE</li> <li>— RAILROADS</li> <li>○ STONEWALL</li> <li>■ GATE</li> </ul>	<p>This mapping product has been created to comply with submittal requirements to obtain certain regulatory approvals and, as such, there is no reliance on the information contained herein for any other purpose.</p> <p align="right"> <b>EVERSOURCE ENERGY</b>  <b>X178 Transmission Line Structure Rebuild Project Phase 1</b>                  Sugar Hill, NH                  March 13, 2024                  04.0191410.39             </p> <p align="right">                 MAP SHEET  <b>16 OF 21</b> </p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>REVISIONS</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	REVISIONS			
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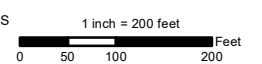
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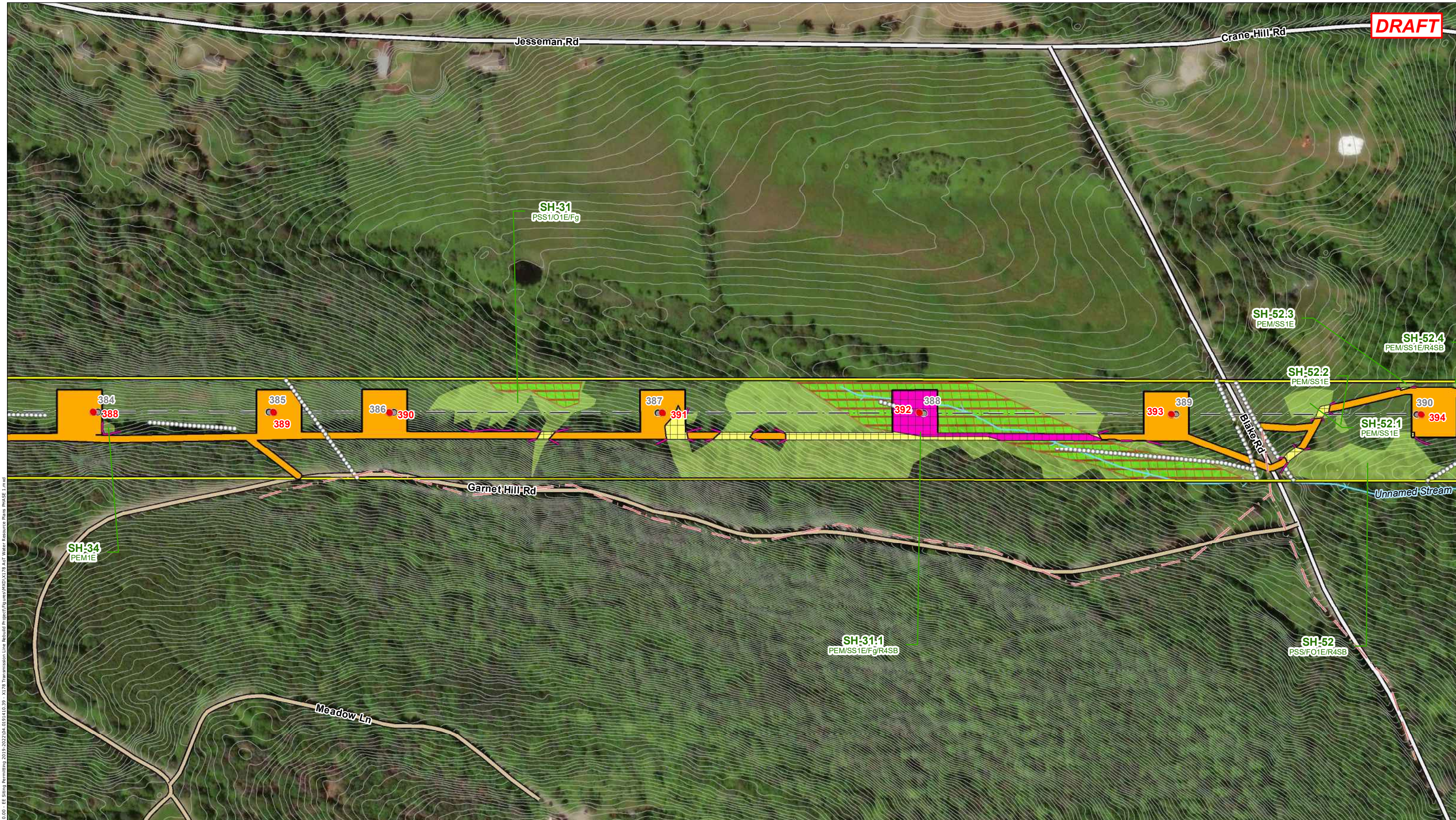
**EVERSOURCE**  
 ENERGY

**X178 Transmission Line  
 Structure Rebuild Project  
 Phase 1**

Sugar Hill, NH	MAP SHEET
March 13, 2024	17 OF 21
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<p><b>INDEX MAP</b></p> <ul style="list-style-type: none"> <li>DESIGNATED RIVER QUARTER MILE BUFFER</li> <li>GROUNDWATER CLASSIFICATION AREA GA2</li> <li>OUTSTANDING RESOURCE WATER</li> <li>SURFACE WATERS WITH IMPAIRMENTS 2016 1/4 MI BUFFER</li> <li>CLASS A SURFACE WATERS RSA 485A9</li> <li>ALL LAKES WITH A QUARTER MILE BUFFER</li> <li>WATERSHEDS WITH CHLORIDE IMPAIRMENTS 2016 (NONE PRESENT)</li> <li>WATER SUPPLY INTAKE PROTECTION AREAS</li> <li>WELLHEAD PROTECTION AREAS</li> <li>FEMA SPECIAL FLOOD HAZARD AREA</li> </ul>	<ul style="list-style-type: none"> <li>LOCAL POTENTIAL CONTAMINATION SOURCES</li> <li>U199 TEMPORARY TAP POLE</li> <li>EXISTING STRUCTURE - NO WORK</li> <li>STRUCTURE TO BE REMOVED</li> <li>PROPOSED STRUCTURE</li> <li>PULL PADS</li> <li>WORK PADS</li> <li>TRANSMISSION LINE ROW</li> <li>APPROXIMATE AOT IMPACT AREA</li> <li>DELINEATED INTERMITTENT STREAM</li> <li>DELINEATED PERENNIAL STREAM</li> <li>NHD FLOWLINES</li> <li>VERY POORLY DRAINED SOILS</li> <li>FIELD DELINEATED WETLAND</li> <li>CONFIRMED VERNAL POOL</li> <li>NH RECREATIONAL TRAILS</li> <li>TRANSMISSION LINE</li> <li>DELINEATED INTERMITTENT STREAM</li> <li>DELINEATED PERENNIAL STREAM</li> <li>NHD FLOWLINES</li> <li>VERY POORLY DRAINED SOILS</li> <li>FIELD DELINEATED WETLAND</li> <li>CONFIRMED VERNAL POOL</li> <li>NH RECREATIONAL TRAILS</li> <li>TEMPORARY WETLAND MATTING IN VPD SOILS</li> <li>TOWN MAINTAINED ROAD</li> <li>NHDOT ROAD</li> <li>FEDERAL ROAD</li> <li>PRIVATE ROAD</li> <li>TEMPORARY UPLAND MATTING</li> <li>PROPOSED ACCESS</li> <li>SECONDARY ACCESS</li> <li>EXISTING ACCESS</li> <li>TOWN BOUNDARY</li> <li>WHITE MOUNTAIN NATIONAL FOREST BOUNDARY</li> <li>EXTENT OF WETLAND DELINEATION</li> <li>50-FT VERNAL POOL BUFFER</li> <li>CULVERT</li> <li>DISTRIBUTION LINE</li> <li>RAILROADS</li> <li>STONEWALL</li> <li>GATE</li> <li>WORK PADS</li> <li>2FT CONTOURS</li> </ul>	<p>1 inch = 200 feet</p>
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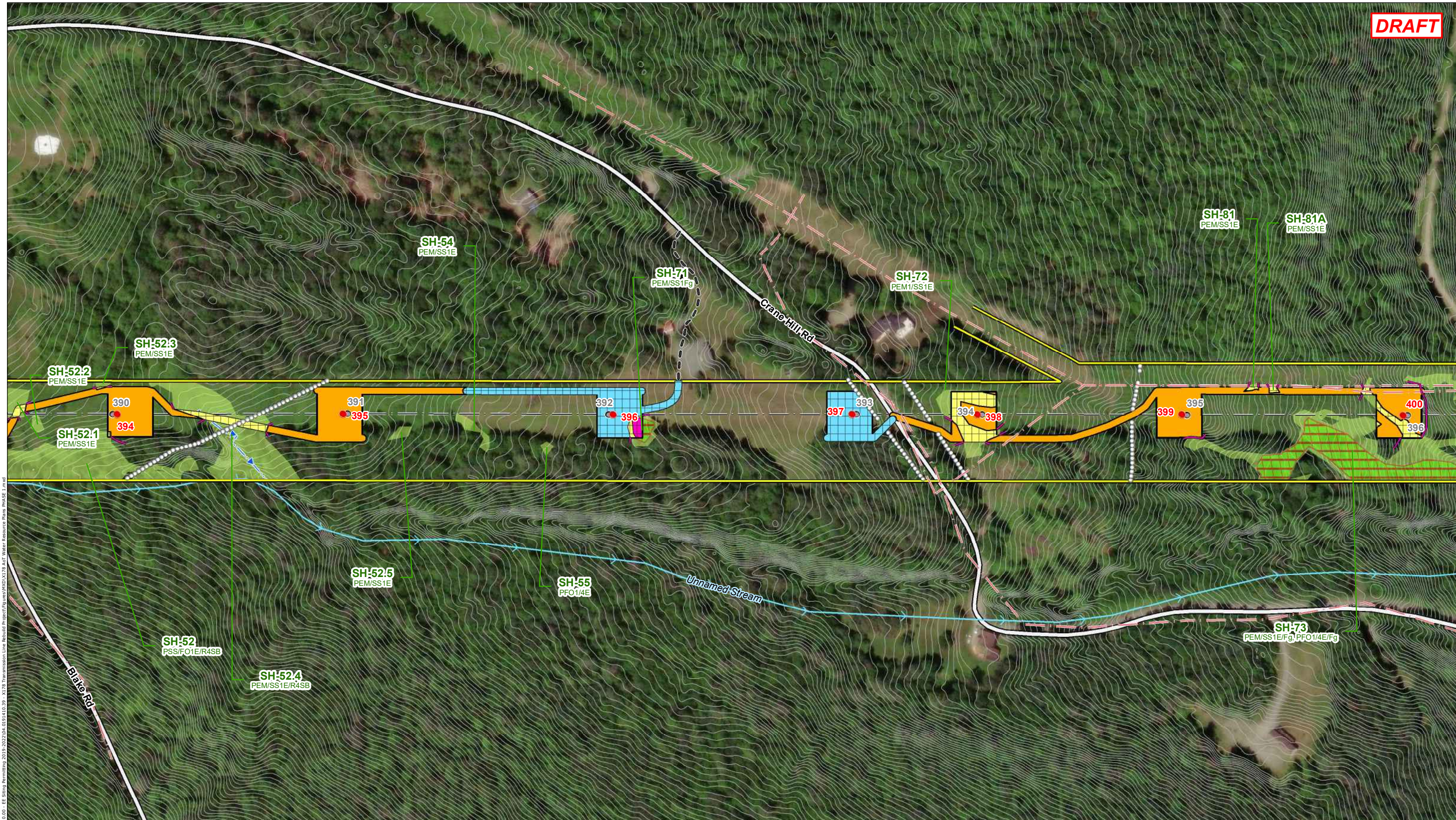
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**X178 Transmission Line  
Structure Rebuild Project  
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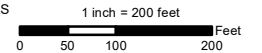
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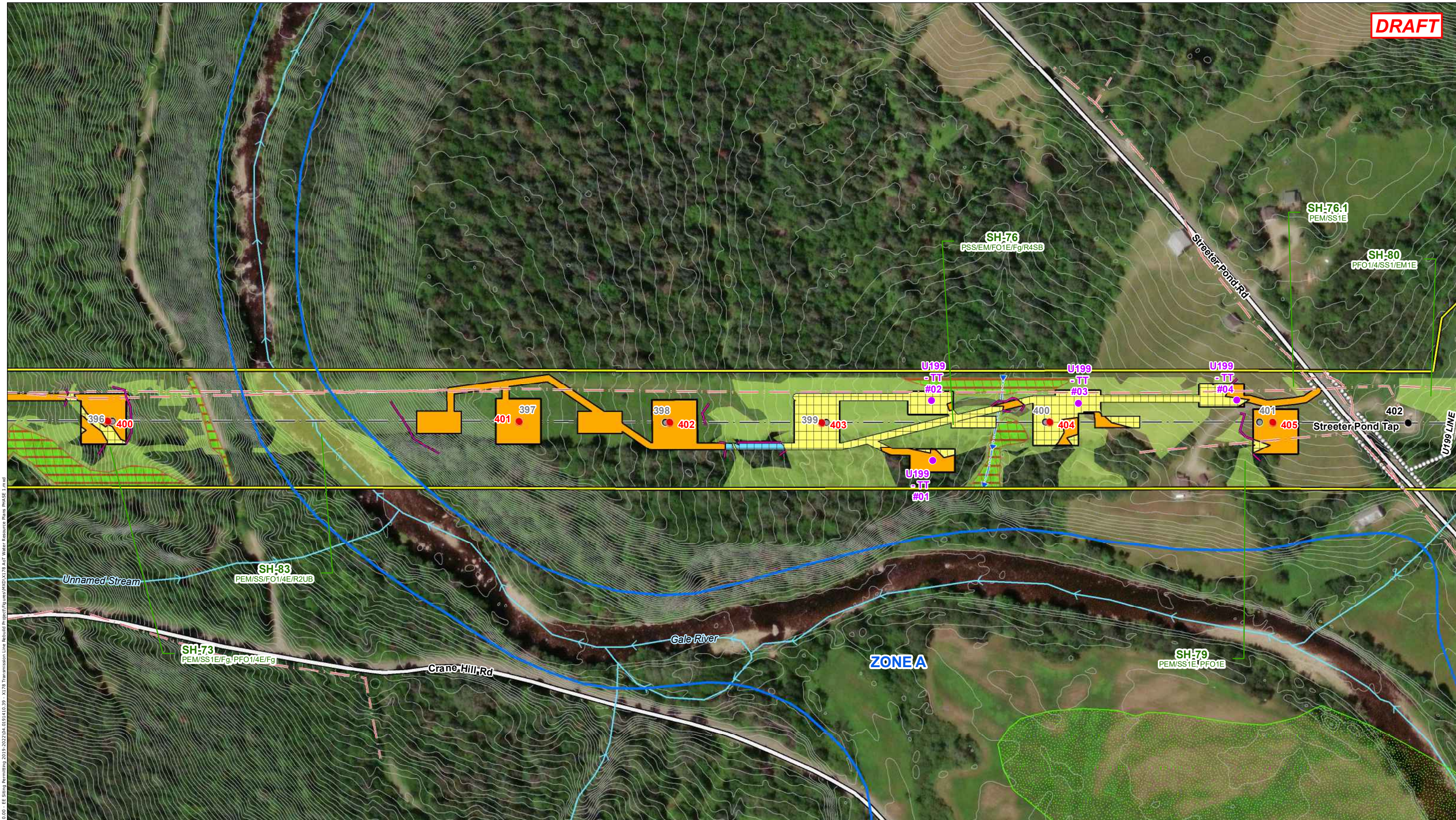
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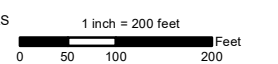
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**CONSTRUCTION SEQUENCE:**

1. WETLAND BOUNDARIES TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.
2. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAIL PROVIDED, AS NECESSARY, AND CONSISTENT WITH THE NHDES MARCH 2019 BMP MANUAL FOR UTILITY MAINTENANCE.
3. WETLAND IMPACTS ASSOCIATED WITH WETLAND CROSSINGS ARE REQUIRED FOR ACCESS BETWEEN STRUCTURES WITHIN THE RIGHT OF WAY. LOOK FOR FIELD FLAGGING AND REFER TO PROJECT PLANS FOR THESE LOCATIONS.
4. ADEQUATE PRECAUTION SHALL BE EXERCISED TO AVOID SPILLAGE OF FUEL OILS, CHEMICALS, OR SIMILAR SUBSTANCES. NO FUELS, LUBRICANTS, CHEMICALS OR SIMILAR SUBSTANCES SHALL BE STORED BENEATH TREES OR IN THE VICINITY OF ANY WETLANDS, RIVER, STREAM OR OTHER BODY OF WATER; OR IN THE VICINITY OF NATURAL OR MAN-MADE CHANNELS LEADING THERETO. NO POWER EQUIPMENT SHALL BE STORED, MAINTAINED, OR FUELED IN ANY AREA ADJACENT TO A WETLAND, RIVER, STREAM OR OTHER BODY OF WATER.
5. REMOVE COMPLETELY ALL CONTAMINATION FROM ANY SPILLAGE OF CHEMICALS OR PETROLEUM PRODUCT AND COMPLETE REHABILITATION OF THE AFFECTED AREA.
6. ACCESS ROUTES HAVE BEEN SELECTED TO PREVENT DEGRADATION OF THE RIGHT-OF-WAY AND MINIMIZE ENVIRONMENTAL IMPACT. OPERATIONS SHALL BE CONFINED TO THE SPECIFIED ACCESS ROUTES WITHIN THE PROPOSED WETLAND IMPACT AREA. ACCESS ROUTES SHALL NOT EXCEED A 16 FOOT-WIDTH.
7. IMPACT TO VEGETATION WITHIN WETLANDS WILL BE LIMITED TO THE EXTENT NECESSARY TO PLACE THE TIMBER MATS WHERE REQUIRED.
8. LOW GROWING VARIETIES OF VEGETATION ADJACENT TO WETLANDS SHALL BE PRESERVED TO THE EXTENT POSSIBLE. STUMPS SHALL NOT BE REMOVED, AND THERE SHALL BE NO EXCAVATIONS, FILLS OR GRADING DONE ADJACENT TO WETLANDS, UNLESS MINOR EXCAVATIONS OR GRADING IS NEEDED FOR ACCESS OR WORK PADS AND THEN ONLY WITHIN LIMITS SHOWN ON PROJECT PLANS.
9. TIMBER MATS AND PERIMETER CONTROLS WILL BE USED ALONG ACCESS ROUTES AND WORK PADS WITHIN WETLAND AREAS. THESE MATS ARE CONSTRUCTED OF HEAVY TIMBERS OR COMPOSITE MATERIAL, BOLTED TOGETHER, AND ARE PLACED END-TO-END IN THE WETLAND TO SUPPORT HEAVY EQUIPMENT. ALL TIMBER MATS SHALL BE PLACED AND REMOVED SO AS NOT TO CAUSE ANY RUTS, CHANNELS OR DEPRESSIONS, OR OTHERWISE CAUSE ANY UNDUE DISTURBANCE TO WETLANDS.
10. IN UPLANDS, ADDITIONAL BMP'S MAY INCLUDE THE PLACEMENT OF GEOTEXTILE FABRIC, 3"-4" STONE, AND GRAVEL TO PROVIDE A SUITABLE ROAD BED. MATTING SHALL BE INSTALLED IN A MANNER TO BRIDGE STREAM CHANNELS. TEMPORARY CULVERTS MAY BE REQUIRED IN AREAS OF HIGH FLOW TO MAINTAIN HYDROLOGIC CONNECTIVITY. ALL MATERIAL WILL BE REMOVED FROM JURISDICTIONAL AREAS AFTER CONSTRUCTION COMPLETION.
11. NO MATERIAL SHALL BE PLACED IN ANY LOCATION OR IN ANY MANNER SO AS TO IMPAIR SURFACE WATER FLOW INTO, THROUGH OR OUT OF ANY WETLAND AREA. NO INSTALLATION SHALL CREATE AN IMPOUNDMENT THAT WILL IMPEDE THE FLOW OF WATER OR CAUSE FLOODING.
12. BIOLOGICAL MONITORING OF PROJECT SPECIES MAY REQUIRE THAT WORK AREAS ARE CLEARED PRIOR TO WORK OR PLACEMENT OF MATERIALS.
13. NO MATERIAL SHALL BE TAKEN FROM THE WETLANDS AREA EXCEPT THAT WHICH MUST NECESSARILY BE REMOVED FOR THE STRUCTURE OR FOUNDATION PLACEMENT OR STABILIZATION. ALL EXCESS MATERIAL TAKEN FROM THE WETLAND WILL BE REMOVED FROM THE SITE.
14. DISCHARGE OF DEWATERING WATER SHOULD NOT BE DIRECTED TOWARDS SURFCE WATERS IDENTIFIED BY NHDES AS TIER 2, TIER 2.5, OR TIER 3 WITHOUT PRIOR AUTHORIZATION FROM EVERSOURCE. SUCH ACTIVITIES TRIGGER TURBIDITY MONITORING AND REPORTING REQUIREMENTS AS OUTLINED IN SECTION 3.3 OF THE 2022 EPA CONSTRUCTION GENERAL PERMIT, TIER 2, TIER 2.5, AND TIER 3 SURFACE WATERS ARE CONSIDERED ALL SURFACE WATERS INCLUDING LAKES, PONDS, MARCHES, AND TIDAL WATERS AS DEFINED BY ENV-WT 104.33. DEWATERING WATER SHOULD BE DIRECTED AWAY FROM SURFACE WATERS, OR BE DISCHARGED TO A VAC TRUCK, POLY TANK OR UPLAND BASIN, AS APPROVED BY EVERSOURCE. OTHERWISE, TURBIDITY MONITORING DURING DEWATERING ACTIVITIES WILL BE REQUIRED.
15. ANY PROPOSED SUPPORT FILLS SHALL BE CLEAN GRAVEL AND STONE, FREE OF WASTE METAL PRODUCTS, ORGANIC MATERIALS AND SIMILAR DEBRIS AND SHALL NOT EXCEED THE AMOUNT PERMITTED. THIS ALLOWABLE FILL IS THE ONLY FILL THAT MAY REMAIN IN THE WETLAND AFTER CONSTRUCTION. ALL CUT AND FILLS SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
16. INSTALL NEW POLES IN THE LOCATIONS DESIGNATED ON THE PERMITTING PLANS.
17. WIRE INSTALLATION WILL BE PERFORMED IN A MANNER SO AS TO AVOID, OR LIMIT TO THE MAXIMUM EXTENT POSSIBLE, TRAVERSING WETLANDS WITH HEAVY EQUIPMENT. IN SOME CASES, A HELICOPTER MAY BE USED DURING THE INSTALLATION TO MINIMIZE IMPACTS.
18. REMOVAL OF THE OLD POLE WILL OCCUR ONCE THE WIRE HAS BEEN INSTALLED ON THE NEW STRUCTURE. THE OLD STRUCTURES WILL BE REMOVED FROM THE SITE. POLES WILL BE CUT AT THE GROUND SURFACE. FOOTINGS WILL BE ABANDONED IN PLACE TO MINIMIZE IMPACTS.
19. ALL TIMBER MATS, MATERIAL, AND DEBRIS WILL BE REMOVED FROM THE WORK AREA UPON THE COMPLETION OF CONSTRUCTION.
20. UNLESS APPROVED AS PERMANENT IMPACT, TIMBER MATS MUST ONLY BE INSTALLED FOR ONE GROWING SEASON. TIMBER MATS INSTALLED DURING THE ACTIVE GROWING SEASON (MAY 1 TO OCTOBER 1) MUST BE REMOVED PRIOR TO THE START OF THE FOLLOWING GROWING SEASON (BY APRIL 30 LATEST).
21. UPLAND DISTURBED AREAS SHALL BE RESTORED AND STABILIZED UPON COMPLETION OF CONSTRUCTION. WORK PAD RESTORATION SHOULD INCLUDE REDUCING THE WORK PAD TO A 30 BY 60 FOOT AREA, AND REDUCING SLOPES TO A MAXIMUM OF 25%. STOCKPILED MATERIAL SHOULD BE SPREAD TO REDUCE ANY UNNECESSARY SLOPES. GRAVEL WORK PADS AND SLOPES SHOULD BE SCARIFIED TO A MINIMUM OF 3" BEFORE SPREADING TOPSOIL/LOAM. DISTURBED UPLANDS SHALL BE SEEDED WITH A GRASS MIX.
22. TEMPORARY WETLAND IMPACTS WILL BE RE-GRADED TO ORIGINAL CONTOURS TO THE GREATEST EXTENT PRACTICABLE FOLLOWING CONSTRUCTION. EROSION CONTROL/RESTORATION SEED MIX WILL BE APPLIED AS NECESSARY IF THE SURROUNDING NATIVE SEED BANK DOES NOT RESULT IN ADEQUATE VEGETATIVE COVER.
23. MULCH USED FOR STABILIZATION SHALL CONSIST OF SEEDLESS STRAW.
24. SEDIMENT AND EROSION CONTROL MEASURES WILL BE EVALUATED AND REMOVED IF NECESSARY UPON THE COMPLETION OF CONSTRUCTION.
25. UNLESS OTHERWISE REQUESTED BY UNDERLYING PROPERTY OWNERS AND APPROVED BY EVERSOURCE, COMMERCIAL LOAM WILL NOT BE USED AS PART OF RESTORATION. ONLY IN-SITU TOPSOIL WILL BE USED TO RESTORE DISTURBED AREAS.
26. RESTORATION REQUIREMENTS MAY INLCUDE A PERCENT COVER GOAL AND EXTEND BEYOND THE FINAL CONSTRUCTION ACTIVITIES.

**WINTER CONSTRUCTION NOTES:**

1. PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED. STABILIZATION METHODS SHALL INCLUDE SEEDING AND MULCH, AND INSTALLATION OF EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING. ELSEWHERE, THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
2. DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE TEMPORARILY STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
3. AFTER NOVEMBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL (NH DOT 304.3).
4. PROJECTS IN WHICH THERE IS AN ACTIVE NOI AND CONSTRUCTION IS COMPLETED BETWEEN OCTOBER 15 AND APRIL 31 MUST BE MONITORED FOR A MINIMUM OF 70% VEGETATIVE GROWTH IN ORDER TO SUBMIT A NOT THROUGH THE EPA.

**GENERAL NOTES:**

OWNER: EVERSOURCE ENERGY  
13 LEGENDS DRIVE  
HOOKSETT, NH 03106

1. BASE PLAN PROVIDED BY EVERSOURCE ENERGY. EVERSOURCE ENERGY PROVIDED THE UTILITY DESIGN.
2. JURISDICTIONAL WETLANDS WERE DELINEATED BY OTHERS AND CONFIRMED BY GZA GEOENVIRONMENTAL, INC. IN 2023. IN ACCORDANCE WITH THE 1987 U.S. ARMY CORPS OF ENGINEERS' "WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1," AND REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTHEAST REGION," JANUARY 2012. WETLANDS WILL BE REVIEWED BY GZA GEOENVIRONMENTAL, INC. PRIOR TO START OF WORK.
3. GZA EVALUATED WETLANDS AS POTENTIAL VERNAL POOLS IN 2023 IN ACCORDANCE WITH "IDENTIFICATION AND DOCUMENTATION OF VERNAL POOLS IN NEW HAMPSHIRE," 2016, NEW HAMPSHIRE FISH AND GAME DEPARTMENT, NONGAME AND ANDANGERED WILDLIFE PROGRAM.
4. SITE PLAN IS FOR PERMITTING PURPOSES ONLY AND DOES NOT REPRESENT A PROPERTY BOUNDARY SURVEY.
5. THE PROJECT WILL BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800, AS WELL AS SECTION 2.10 OF THE NHDES BEST MANAGEMENT PRACTICES MANUAL FOR UTILITY MAINTENANCE IN AND ADJACENT TO WETLANDS AND WATERBODIES IN NEW HAMPSHIRE RELATIVE TO INVASIVE SPECIES.
6. IN ACCORDANCE WITH ENV-WQ 1505.02, THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
  - A MINIMUM 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED
  - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL HAS BEEN INSTALLED
  - OR, EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

**EROSION CONTROL/RESTORATION NOTES:**

1. INSTALLATION OF EROSION CONTROL GRINDINGS AND/OR SILT FENCES SHALL BE COMPLETE PRIOR TO THE START OF WORK IN ANY GIVEN AREA. EROSION CONTROLS SHALL BE USED DURING CONSTRUCTION AND REMOVED WHEN ALL SLOPES HAVE A HEALTHY STAND OF VEGETATION COVER. EROSION CONTROL MEASURES SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER .25" OR GREATER RAINFALL EVENTS.
2. AS REQUIRED, CONSTRUCT TEMPORARY BERMS, SILTATION FENCES, SEDIMENT TRAPS, ETC. TO PREVENT EROSION & SEDIMENTATION OF WETLANDS.
3. THE WORK AREA SHALL BE GRADED AND OTHERWISE SHAPED IN SUCH A MANNER AS TO MINIMIZE SOIL EROSION, SILTATION OF DRAINAGE CHANNELS, DAMAGE TO EXISTING VEGETATION, AND DAMAGE TO PROPERTY OUTSIDE LIMITS OF THE WORK AREA. EROSION CONTROL GRINDINGS WILL BE NECESSARY TO ACCOMPLISH THIS END.
4. ANY STRIPPED TOPSOIL SHALL BE STOCKPILED, WITHOUT COMPACTION, AND STABILIZED WITH BMPS.
5. PERMANENT OR TEMPORARY COVER MUST BE IN PLACE BEFORE THE GROWING SEASON ENDS. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 15 TO SEPTEMBER 15. NO DISTURBED AREA SHALL BE LEFT EXPOSED DURING WINTER MONTHS, PLANT SUITABLE GRASS MIX PRIOR TO OCTOBER 15TH.
6. EROSION CONTROL MATTING, IF REQUIRED, WILL CONSIST OF JUTE MATTING. MATTING WITH WELDED PLASTIC OR 'BIODEGRADABLE PLASTIC' NETTING OR THREAD IS NOT PERMITTED.
7. PER ENV-WT 307.03(C)(6), WATER QUALITY CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL DISTURBED SURFACES ARE STABILIZED TO A CONDITION IN WHICH SOILS ON THE SITE WILL NOT EXPERIENCE ACCELERATED OR UNNATURAL EROSION, SUCH AS ACHIEVING 85% OF GREATER VEGETATIVE COVER USIN AN EROSION CONTROL SEED MIX.

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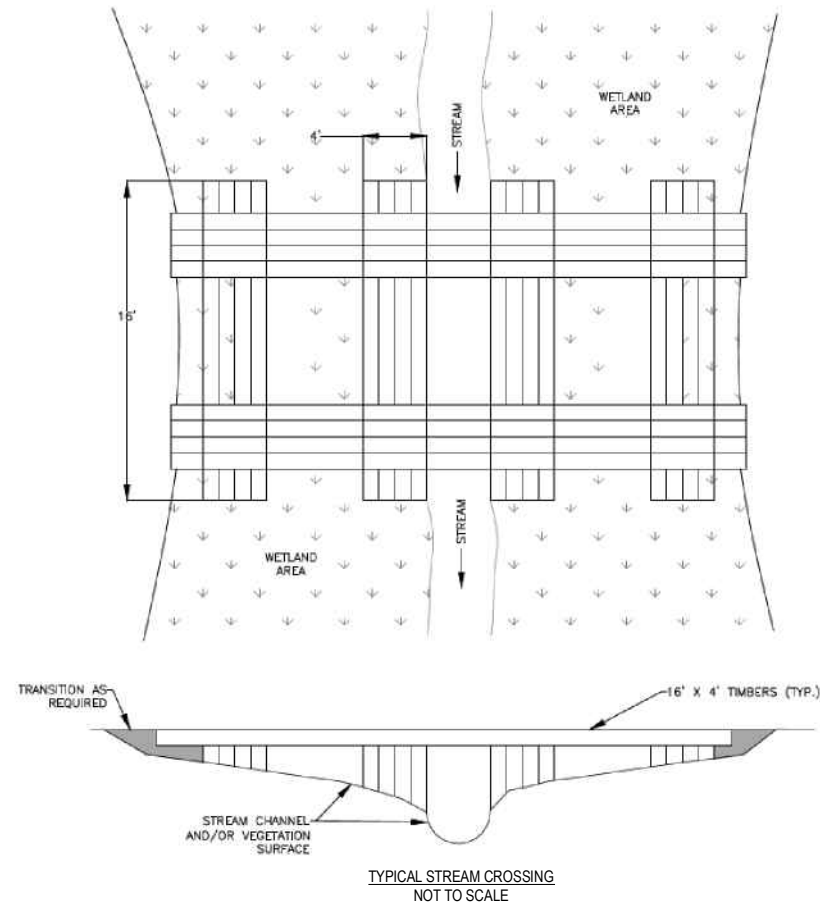
**X178-2 TRANSMISSION LINE REBUILD  
AND OPGW PROJECT**  
SUGAR HILL, EASTON, AND WOODSTOCK, NEW HAMPSHIRE

**NOTES**

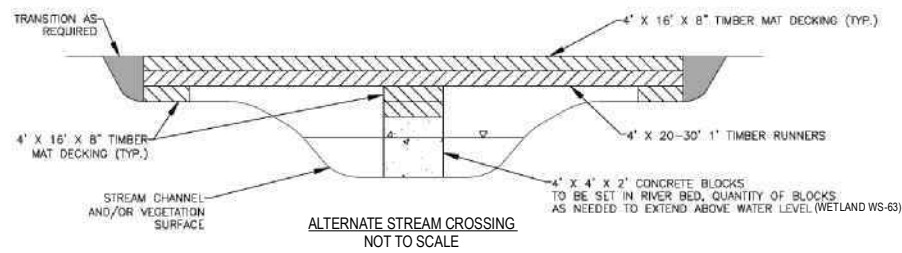
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PROJ MGR: LEW	REVIEWED BY: TLT	CHECKED BY: DMZ	SHEET
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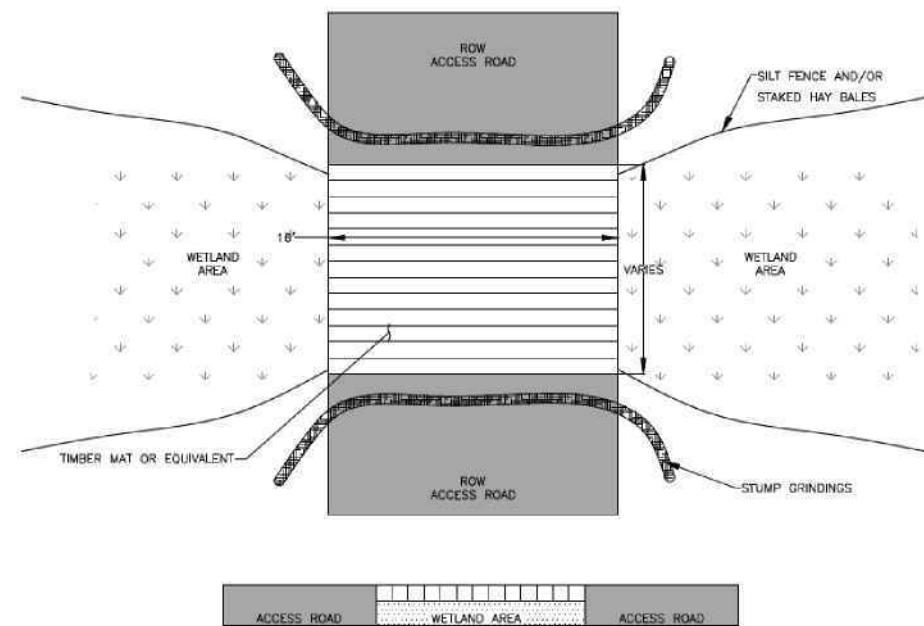
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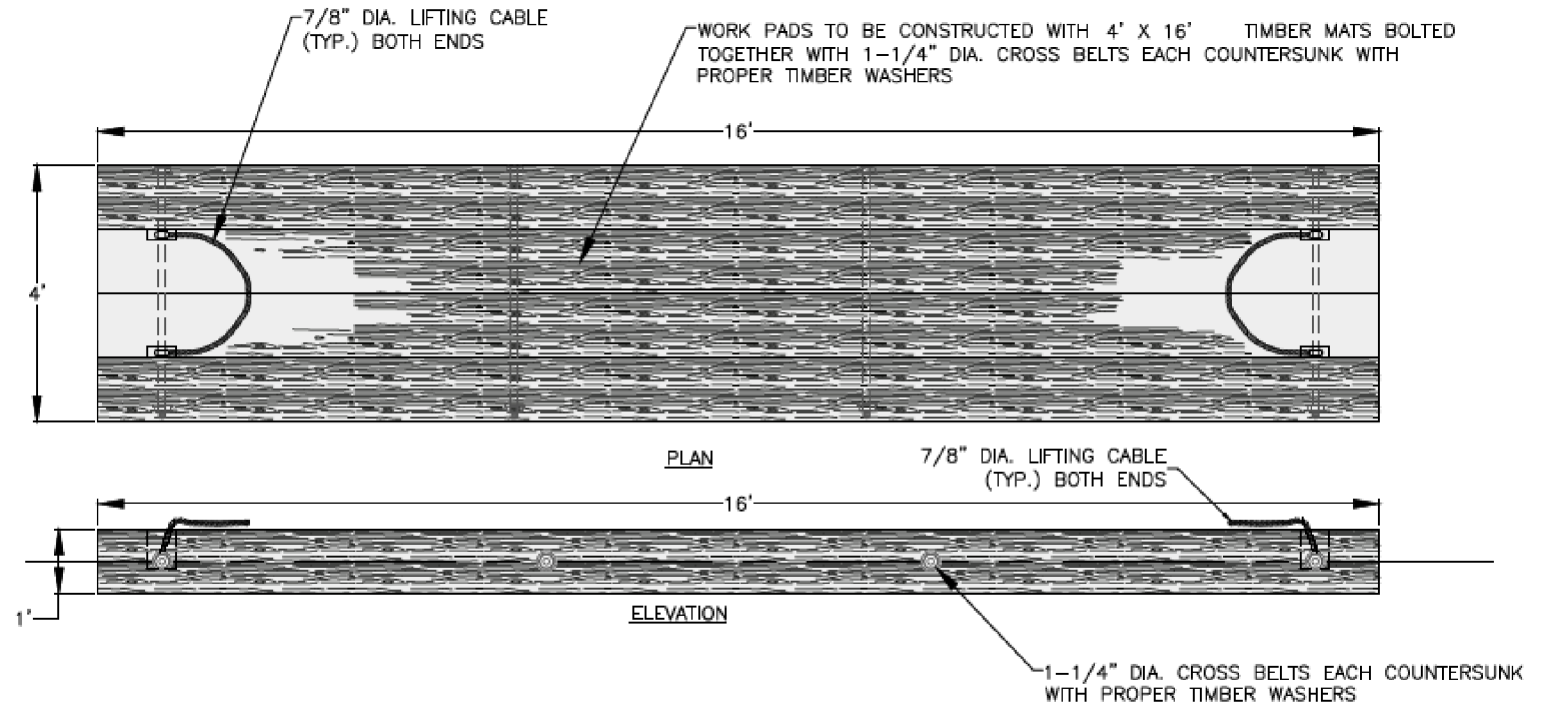
TYPICAL STREAM CROSSING  
NOT TO SCALE



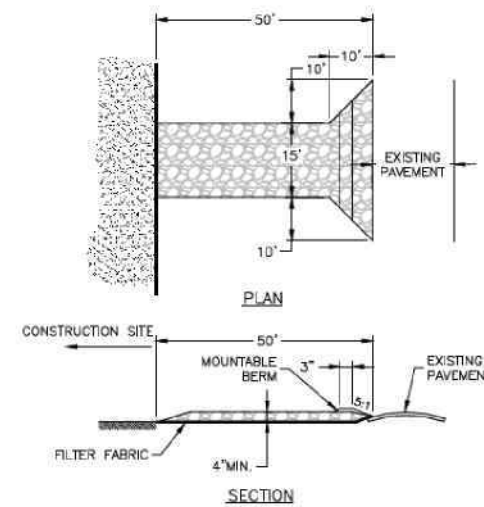
ALTERNATE STREAM CROSSING  
NOT TO SCALE



TYPICAL WETLAND CROSSING  
NOT TO SCALE



TYPICAL TIMBER MAT DETAIL  
NOT TO SCALE



TEMPORARY CONSTRUCTION ENTRANCE / EXIT  
NOT TO SCALE

NOTES

1. STONE SIZE - USE 2" STONE ( MINIMUM) TO 6" STONE (MAXIMUM).
2. LENGTH - GREATER THAN OR EQUAL TO 50 FEET WITH THICKNESS OF 4".
3. WIDTH - FIFTEEN (15) FOOT TYP., BUT NOT LESS THAN FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
4. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS ENTRANCE, IF PIPING IS IMPRACTICAL, MOUNTABLE BERM SHALL BE PERMITTED.
5. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING AND ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
6. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED.
7. THE CLEAN STONE SHOULD BE INSTALLED OVER A GEOTEXTILE FABRIC. GEOTEXTILE FABRIC MAY BE OMITTED FOR PERMANENT CONSTRUCTION ENTRANCES-EXITS ON A CASE-BY-CASE BASIS WITH THE APPROVAL OF THE NATIONAL GRID ENVIRONMENTAL.
8. FOLLOWING CONSTRUCTION, THE CONSTRUCTION ENTRANCE / EXIT SHALL BE REMOVED AND THE AREA GRADED, SEEDED, AND MULCHED AS NEEDED. ENTRANCE / EXITS MAY REMAIN DEPENDING UPON FUTURE ACCESS NEEDS AND / OR PROJECT-SPECIFIC APPROVALS BUT REQUIRES APPROVALS FROM THE NATIONAL GRID ENVIRONMENTAL AND PROPERTY LEGAL.

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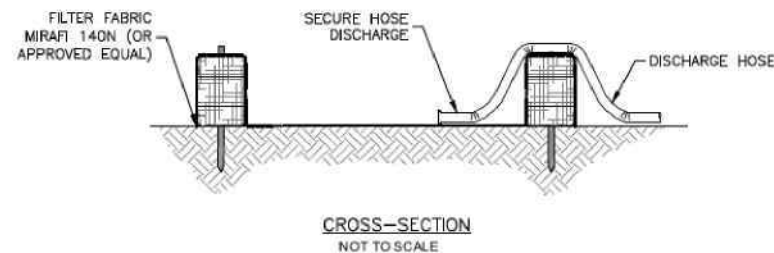
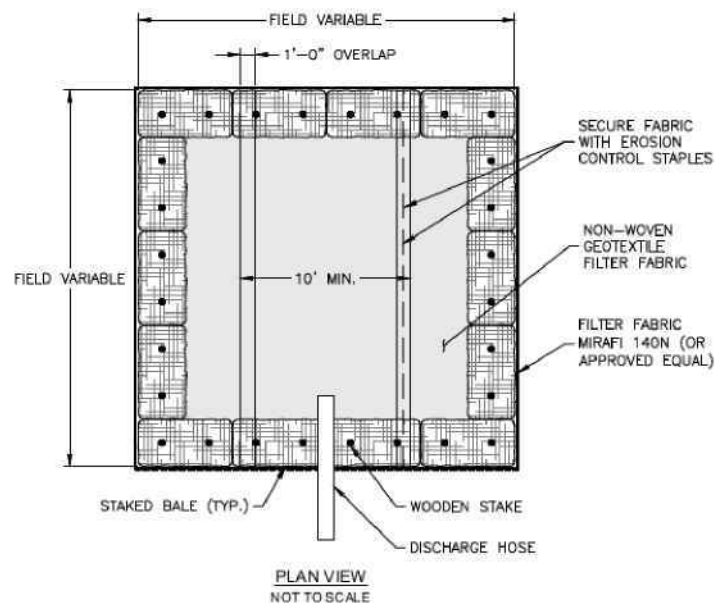
X178 TRANSMISSION LINE REBUILD  
AND OPGW PROJECT  
SUGAR HILL, EASTON, AND WOODSTOCK, NEW HAMPSHIRE

BMP DETAILS

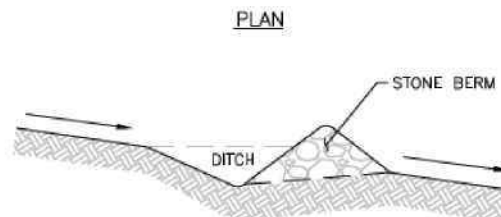
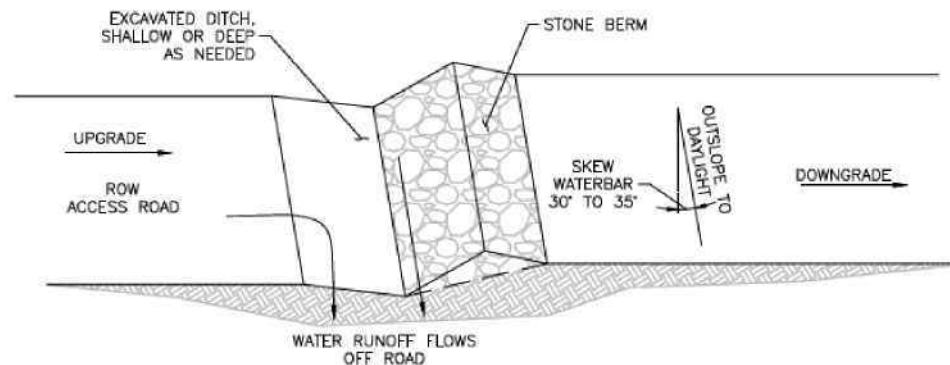
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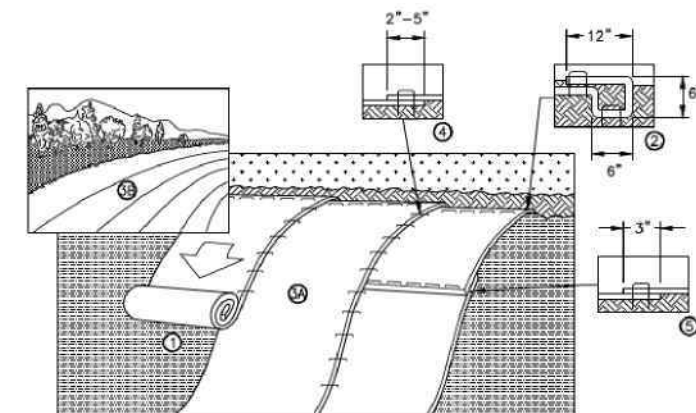
**DEWATERING BASIN DETAIL**



**TYPICAL WATER BAR DETAIL**  
NOT TO SCALE

**NOTES:**

1. DITCHES CAN BE DUG/CONSTRUCTED ALONG SIDE OF ACCESS ROAD, PER ENGINEERS DESIGN.
2. WATER BAR OUTLET SHOULD DRAIN AT A 3% OUT-SLOPE ONTO LEVEL SPREADER, UNDISTURBED LITTER OR VEGETATION.

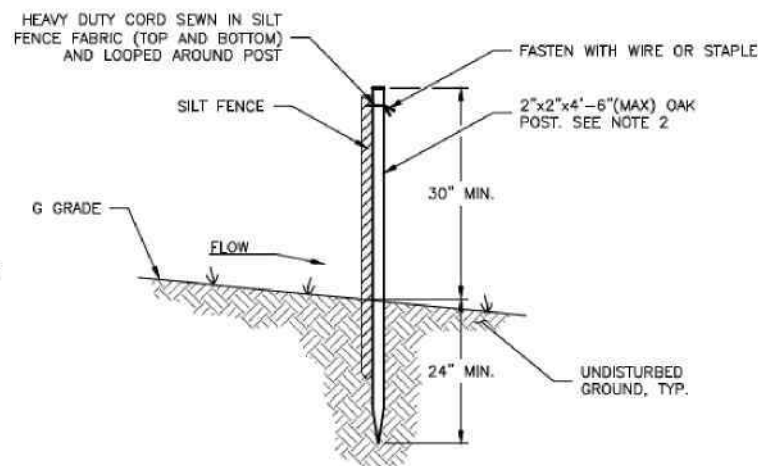
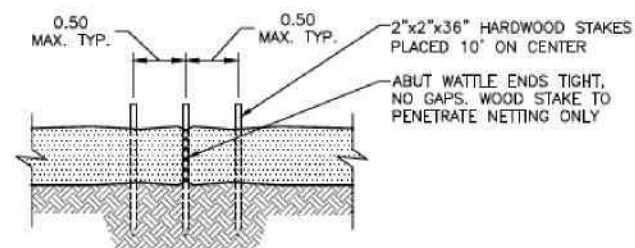
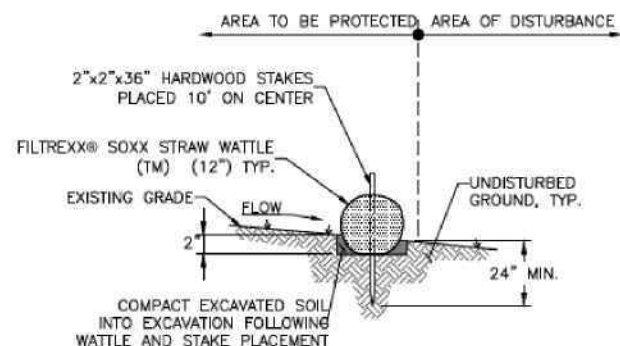


**NOTES:**

1. EROSION CONTROL BLANKET SHOULD BE INSTALLED VERTICALLY DOWNSLOPE.
2. STAKES/STAPLES SHOULD BE PLACED NO MORE THAN 3 FT. APART VERTICALLY AND 1 FT. APART HORIZONTALLY.
3. SLOPE SURFACES SHOULD BE FREE OF DEBRIS, INCLUDING STICKS, ROCKS AND OTHER OBSTRUCTIONS.
4. BLANKETS SHOULD BE ROLLED OUT LOOSELY AND STAKED/STAPLED TO MAINTAIN DIRECT SOIL CONTACT. DO NOT STRETCH THE BLANKETS.
5. DESIGNER/ENGINEER SHALL CHOOSE THE TYPE OF BLANKET OR MATTING DEPENDING ON SPECIFIC OBJECTIVES AND SITE CONDITIONS.

**INSTALLATION NOTES:**

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 6" (15cm) DEEP x 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE RECP's.
3. ROLL THE RECP's (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE(tm). WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm - 12.5cm) OVERLAP DEPENDING ON RECP's TYPE.
5. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE RECP's WIDTH.



**NOTES:**

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH NEW HAMPSHIRE ENV-WQ 1506 STANDARDS.
2. SILT FENCE SHOULD BE INSTALLED "TIGHT" AGAINST SILT FENCE. THOROUGHLY COMPACT EXCAVATED SOILS BACK INTO TRENCH AFTER INSTALLATION OF EROSION CONTROL DEVICE. SILT FENCE FABRIC SHALL NOT BE SLIT. STANDARD 9.1.0 POST SHALL BE DRIVEN THROUGH SILT FENCE FABRIC. 2"x2"x4'-6" (MAX) O.C. IN WETLAND AREAS AND 4'-0" (MAX) O.C. IN WETLAND RAVINE GULLY OR DROP OFF AREAS AS SHOWN ON PLANS.
3. 1"x1"x 4'-6" (MIN) POSTS PERMITTED FOR PREFABRICATED SILT FENCE.
4. SILT FENCE SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.

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**X178 TRANSMISSION LINE REBUILD AND OPGW PROJECT**  
SUGAR HILL, EASTON, AND WOODSTOCK, NEW HAMPSHIRE

**BMP DETAILS**

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**NEW HAMPSHIRE FISH AND GAME AOT PERMIT CONDITIONS IN ACCORDANCE WITH ENV-WQ 1504.18 – WILDLIFE PROTECTION NOTES:**

**NHB22-3461 (WOODSTOCK), NHB22-3462 (LINCOLN), NHB22-3463 (EASTON), NHB22-3464 (SUAGR HILL)**

**NEW HAMPSHIRE FISH AND GAME PERMIT CONDITIONS:**

1. WOOD TURTLES (STATE SPECIES OF SPECIAL CONCERN) OCCUR WITHIN THE VICINITY OF THE PROJECT AREA. ALL OPERATORS AND PERSONNEL WORKING ON OR ENTERING THE SITE SHALL BE MADE AWARE OF THE POTENTIAL PRESENCE OF THESE SPECIES AND SHALL BE PROVIDED FLYERS THAT HELP TO IDENTIFY THESE SPECIES, ALONG WITH NHFG CONTACT INFORMATION. SEE PLAN SHEET 4-5.
2. RARE SPECIES INFORMATION (E.G. IDENTIFICATION, OBSERVATION AND REPORTING OF OBSERVATIONS, WHEN TO CONTACT NHFG IMMEDIATELY AND NHFG CONTACT INFORMATION) SHALL BE POSTED ON SITE AT ALL TIMES AND COMMUNICATED DURING MORNING TAILGATE MEETINGS PRIOR TO WORK COMMENCEMENT.
3. TURTLES AND SNAKES MAY BE ATTRACTED TO DISTURBED GROUND DURING NESTING SEASON. TURTLE NESTING SEASON OCCURS APPROXIMATELY MAY 15TH – JUNE 30TH. NESTING AREAS MAY INCLUDE WORK PADS AND ACCESS ROADS THAT ARE NOT HARD PACK GRAVEL AND OTHER SANDY/GRAVEL WORK AREAS. ALL TURTLE SPECIES NESTS ARE PROTECTED BY NH LAWS. BE AWARE OF THE POTENTIAL TO ENCOUNTER NESTING WILDLIFE IN THESE AREAS.
4. IF A NEST IS OBSERVED OR SUSPECTED, OPERATORS SHALL CONTACT MELISSA WINTERS (603-479-1129) OR JOSH MEGYESY (978-578-0802) AT NHFG IMMEDIATELY FOR FURTHER CONSULTATION. THE NEST OR SUSPECTED NEST SHALL BE MARKED (SURROUNDING ROPED OFF OR CONE BUFFER) AND AVOIDED; THIS SHALL BE COMMUNICATED TO ALL PERSONNEL ONSITE. SITE ACTIVITIES SHALL NOT OCCUR IN THE AREA SURROUNDING THE NEST OR SUSPECTED NEST UNTIL FURTHER GUIDANCE IS PROVIDED BY NHFG.
5. VERNAL POOLS AND POTENTIAL VERNAL POOLS (PVP) SHALL BE FLAGGED PRIOR TO WORK, AND IMPACTS SHALL BE AVOIDED WITH THE FOLLOWING EXCEPTIONS AS DESCRIBED IN THE TABLE EMBEDDED IN THE ATTACHED SCREENSHOT TITLED, "VERNAL POOL SUMMARY EVS X178":
  1. WETLAND WS-75 AND L/ET-16 CONTAIN VERNAL POOLS WITHIN THE PROPOSED WORK PAD AREA FOR STRUCTURES 180 AND 269. THE WORK PADS MAY OVERLAP THESE VERNAL POOLS TO CONSTRUCT A SAFE WORK AREA. TEMPORARY TIMBER MATTING SHALL BE UTILIZED AND RESTORATION SHALL OCCUR FOLLOWING IMPACTS. IMPACTS TO THE VERNAL POOLS SHALL ONLY OCCUR DECEMBER 1 TO MARCH 1. WORK SHALL OCCUR UNDER FROZEN OR DRY CONDITIONS IF POSSIBLE. NHFG SHALL BE NOTIFIED PRIOR TO DISTURBANCE.
6. NO DISTURB VEGETATIVE BUFFERS OF 50' SHALL BE MAINTAINED AROUND VERNAL POOLS WHEREVER POSSIBLE. NHFG ACKNOWLEDGES THE FOLLOWING VERNAL POOL BUFFER IMPACTS AS DESCRIBED IN THE TABLE EMBEDDED IN THE ATTACHED SCREENSHOT TITLED, "VERNAL POOL SUMMARY EVS X178":
  1. WETLANDS WS-64, WS-75, WS-117, L-73, L-66, L-42, L-41, L-40, L/ET-16, LW-1, ET-31, ET-37 CONTAIN VERNAL POOLS. TEMPORARY TIMBER MATTING WILL BE UTILIZED WITHIN 50-FT OF THESE VERNAL POOLS.
7. ALL MATTING WHICH WILL BE PLACED IN WATERBODIES DEEMED SUITABLE FOR HIBERNATING RARE TURTLES WILL BE PLACED PRIOR TO THE START OF THE INACTIVE SEASON (OCTOBER 16-MARCH 31) SO AS TO PREVENT ACCIDENTAL PLACEMENT ATOP HIBERNATING TURTLES. AREAS IDENTIFIED AS SUITABLE HIBERNATION HABITAT SHALL BE IDENTIFIED ON PLAN SHEETS AND PROVIDED TO NHFG AT LEAST TWO WEEKS PRIOR TO BEGINNING WORK.
8. IMMEDIATELY PRIOR TO THE PLACEMENT OF MATTING IN WETLANDS DURING THE ACTIVE SEASON (APRIL 1-OCTOBER 15), THE AREAS SHALL BE CLEARED BY A TRAINED INDIVIDUAL. A TRAINED INDIVIDUAL SHALL BE DEFINED AS ANY CONTRACTOR WHO HAS GONE THROUGH PROJECT-SPECIES PROTECTION EDUCATION CONDUCTED BY THE QUALIFIED BIOLOGIST ON RARE WILDLIFE SPECIES AT THE SITE. CONTACT NHFG IF TURTLES IN MATTING AREAS ARE OBSERVED OR SUSPECTED.
9. FOR ALL WORK PADS, STAGING AREAS, MATTING, AND ACCESS ROADS, SEARCHES AND SWEEPS SHALL BE CONDUCTED BY TRAINED INDIVIDUALS IMMEDIATELY BEFORE THE START OF WORK AND MOVEMENT OF EQUIPMENT IN ORDER TO MINIMIZE THE CHANCE OF ANIMALS ENTERING AN AREA BETWEEN THE SWEEP AND WORK. A TRAINED INDIVIDUAL SHALL BE DEFINED AS ANY CONTRACTOR WHO HAS GONE THROUGH PROJECT-SPECIES PROTECTION EDUCATION CONDUCTED BY THE QUALIFIED BIOLOGIST ON RARE WILDLIFE SPECIES AT THE SITE.
10. ALL WORK ACTIVITIES SHALL BE RESTRICTED TO THE DEFINED ROADS, CONSTRUCTION AREAS, AND STAGING AREAS, WITH NO EQUIPMENT OR MATERIALS STAGED OR STORED OUTSIDE OF THE DEFINED AREAS AS SHOWN ON PLAN SHEETS OR EQUIVALENT DOCUMENT.
  1. MINOR FIELD CHANGES TO ACCESS ROADS AND WORK PADS INCLUDING: SHIFTING ACCESS FROM ONE SIDE OF THE RIGHT OF WAY TO THE OTHER, SHIFTING OF WORK PADS AND STAGING AREAS FORWARD OR BACKWARDS, BUT NOT INCREASING THE OVERALL SQUARE FOOTAGE OF THE WORK PADS OR STAGING AREAS, MAY BE CONSIDERED BASED ON LOCATION. NHFG SHALL BE NOTIFIED OF ANY PROPOSED CHANGES.
11. WORK, PULL PADS, AND ACCESS SHALL BE MINIMIZED TO THE GREATEST EXTENT POSSIBLE.
12. WORK PADS SHALL BE REDUCED POST-CONSTRUCTION TO 30' X 60' AND RESTORED WITH A NATIVE VEGETATIVE SEED MIX.
13. ALL MANUFACTURED EROSION AND SEDIMENT CONTROL PRODUCTS, WITH THE EXCEPTION OF TURF REINFORCEMENT MATS, UTILIZED FOR, BUT NOT LIMITED TO, SLOPE PROTECTION, RUNOFF DIVERSION, SLOPE INTERRUPTION, PERIMETER CONTROL, INLET PROTECTION, CHECK DAMS, AND SEDIMENT TRAPS SHALL NOT CONTAIN PLASTIC, OR MULTIFILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AN OPENING SIZE OF GREATER THAN 1/8 INCHES;
14. ALL OBSERVATIONS OF THREATENED OR ENDANGERED SPECIES ON THE PROJECT SITE SHALL BE REPORTED IMMEDIATELY TO THE NHFG NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM BY PHONE AT 603-271-2461 AND BY EMAIL AT NHFGREVIEW@WILDLIFE.NH.GOV, WITH THE EMAIL SUBJECT LINE CONTAINING THE NHB DATACHECK TOOL RESULTS LETTER ASSIGNED NUMBER, THE PROJECT NAME, AND THE TERM WILDLIFE SPECIES OBSERVATION;
15. PHOTOGRAPHS OF THE OBSERVED SPECIES AND NEARBY ELEMENTS OF HABITAT OR AREAS OF LAND DISTURBANCE SHALL BE PROVIDED TO NHFG IN DIGITAL FORMAT AT THE ABOVE EMAIL ADDRESS FOR VERIFICATION, AS FEASIBLE;
16. IN THE EVENT A THREATENED OR ENDANGERED SPECIES IS OBSERVED ON THE PROJECT SITE DURING THE TERM OF THE PERMIT, THE SPECIES SHALL NOT BE DISTURBED, HANDLED, OR HARMED IN ANY WAY PRIOR TO CONSULTATION WITH NHFG AND IMPLEMENTATION OF CORRECTIVE ACTIONS RECOMMENDED BY NHFG.
  1. SITE OPERATORS OR TRAINED INDIVIDUALS SHALL BE ALLOWED TO RELOCATE WILDLIFE ENCOUNTERED IF DISCOVERED WITHIN THE ACTIVE WORK ZONE AND IF IN DIRECT HARM FROM PROJECT ACTIVITIES. WILDLIFE SHALL BE RELOCATED IN CLOSE PROXIMITY TO THE CAPTURE LOCATION BUT OUTSIDE OF THE WORK ZONE AND IN THE DIRECTION THE INDIVIDUAL WAS HEADING. NHFG SHALL BE CONTACTED IMMEDIATELY IF THIS ACTION OCCURS.
17. THE NHFG, INCLUDING ITS EMPLOYEES AND AUTHORIZED AGENTS, SHALL HAVE ACCESS TO THE PROPERTY DURING THE TERM OF THE PERMIT.



**ADDITIONAL RECOMMENDATIONS:**

1. SMOOTH GREEN SNAKES (STATE SPECIES OF SPECIAL CONCERN) OCCUR WITHIN THE VICINITY OF THE PROJECT SITE. ALL OPERATORS AND PERSONNEL WORKING ON OR ENTERING THE SITE SHOULD BE MADE AWARE OF THE POTENTIAL PRESENCE OF THESE SPECIES AND SHOULD BE PROVIDED FLYERS THAT HELP TO IDENTIFY THESE SPECIES, ALONG WITH NHFG CONTACT INFORMATION. RARE SPECIES INFORMATION (E.G. IDENTIFICATION, OBSERVATION AND REPORTING OF OBSERVATIONS, WHEN TO CONTACT NHFG IMMEDIATELY AND NHFG CONTACT INFORMATION) SHOULD BE POSTED ON SITE AT ALL TIMES AND COMMUNICATED DURING MORNING TAILGATE MEETINGS PRIOR TO WORK COMMENCEMENT. SEE PLAN SHEET 4-5.
2. NEW HAMPSHIRE FISH AND GAME RECOMMENDS THAT THE ABOVE CONSERVATION MEASURES ARE APPLIED TO ALL WORK THROUGHOUT THE LINE, INCLUDING IN THE TOWNS OF WOODSTOCK, LINCOLN, AND SUGAR HILL WHERE THERE WERE NO KNOWN OBSERVATIONS OF RARE SPECIES.

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**X178-2 TRANSMISSION LINE REBUILD AND OPGW PROJECT**  
SUGAR HILL, EASTON, AND WOODSTOCK, NEW HAMPSHIRE

**NOTES**

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**WOOD TURTLE (GLYPTEMYS INSCULPTA)**

STATE SPECIES OF SPECIAL CONCERN



**WOOD TURTLE IDENTIFICATION**

1. NECK AND FORELIMBS ARE ORANGE.
2. CHARACTERIZED BY ITS HIGHLY SCULPTED SHELL WITH EACH LARGE SCUTE TAKING ON AN IRREGULAR PYRAMIDAL SHAPE.
3. ADULTS CAN BE 5-8 INCHES LONG.

**SMOOTH GREEN SNAKE (LIOCHLOROPHIS VERNALIS)**

SPECIES OF SPECIAL CONCERN



**SMOOTH GREEN SNAKE IDENTIFICATION**



1. A THIN, SLENDER BRIGHT-GREEN SNAKE MEASURING 10-20 INCHES
2. THE UNDERSIDE IS WHILE OR PALE YELLOW

\*ALL PHOTOS AND IDENTIFICATION INFORMATION COURTESY OF NEW HAMPSHIRE FISH AND GAME DEPARTMENT.

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X178-2 TRANSMISSION LINE REBUILD  
AND OPGW PROJECT  
SUGAR HILL, EASTON, AND WOODSTOCK,  
NEW HAMPSHIRE

**WILDLIFE NOTES**

PREPARED BY:  <b>GZA</b> GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: 	
PROJ MGR: LEW	REVIEWED BY: TLT	CHECKED BY: DMZ	SHEET
DESIGNED BY: MJD	DRAWN BY: MJD	SCALE:	
DATE: 3/13/2024	PROJECT NO: 04.0191410.39	REVISION NO:	<b>S5</b>





**Figure 4 – Alteration of Terrain Permitting Plans**

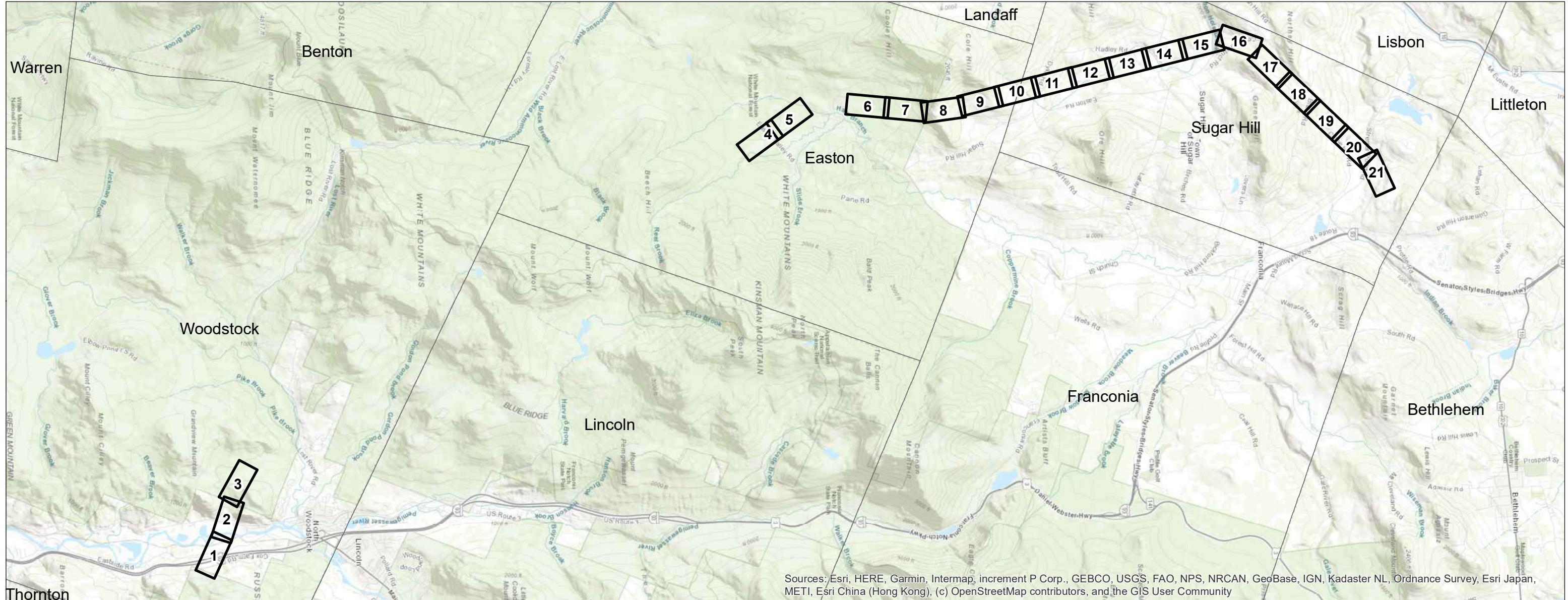


# X178-2 Transmission Line Structure Rebuild Project - Phase 1

WOODSTOCK, EASTON AND SUGAR HILL, NEW HAMPSHIRE  
Alteration of Terrain Permitting Planset

Date: March 13, 2024

**REVIEWED**  
By Ridgely Mauck at 1:17 pm, May 28, 2024

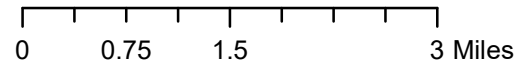


Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

PREPARED FOR:



13 Legends Drive  
Hooksett, NH 03106



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Title Sheet / Index Map  
Map Sheets 1-21  
Notesheets 1-5

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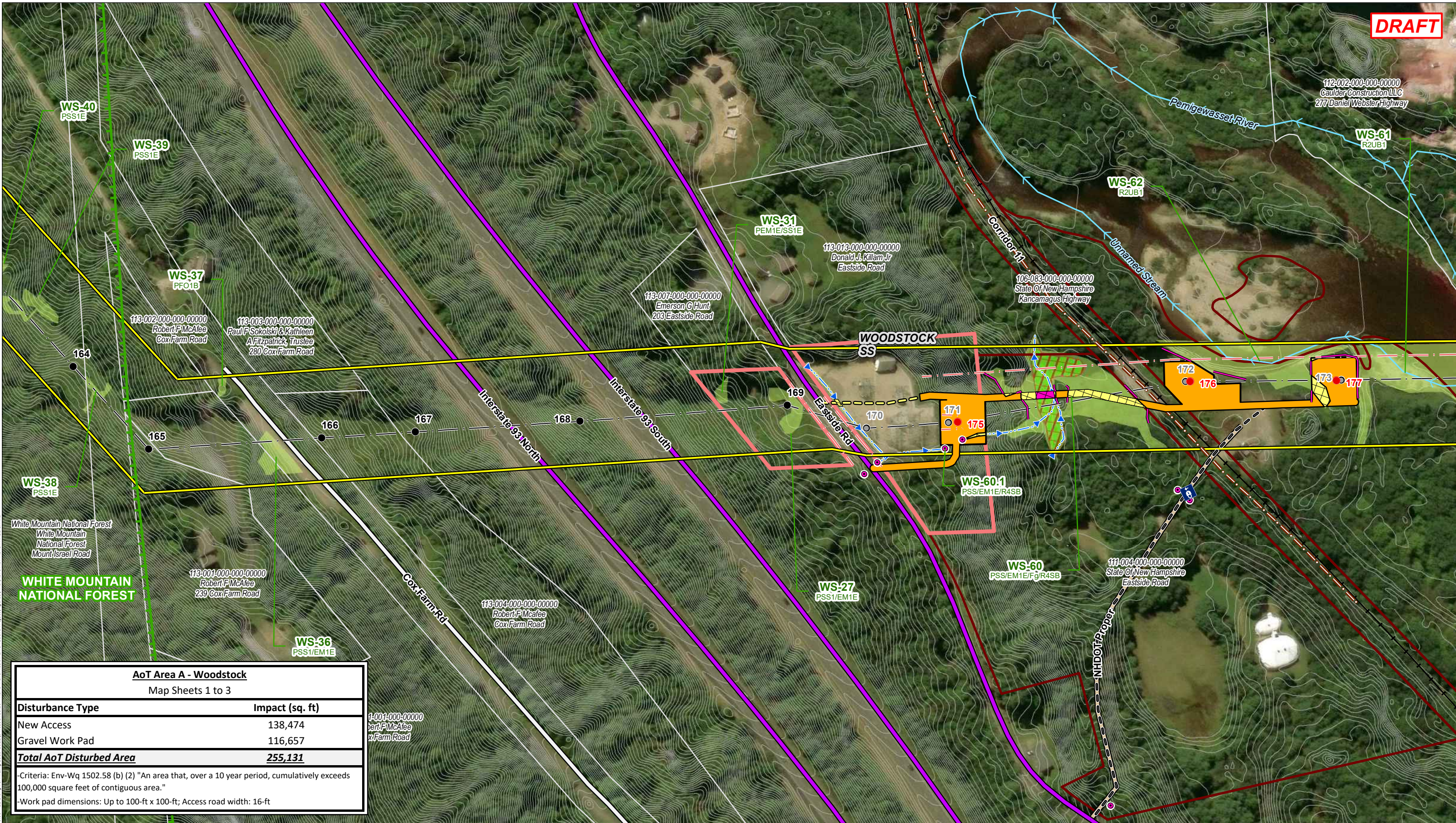
PREPARED BY:



**GZA GeoEnvironmental, Inc.**  
Engineers and Scientists  
www.gza.com



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**AoT Area A - Woodstock**  
Map Sheets 1 to 3

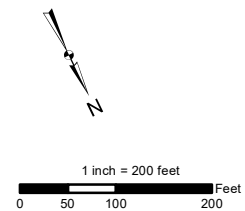
Disturbance Type	Impact (sq. ft)
New Access	138,474
Gravel Work Pad	116,657
<b>Total AoT Disturbed Area</b>	<b>255,131</b>

-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area."  
-Work pad dimensions: Up to 100-ft x 100-ft; Access road width: 16-ft

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- PARCEL BOUNDARY
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- STATE OWNED PARCEL
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- WORK PADS
- 2FT CONTOURS



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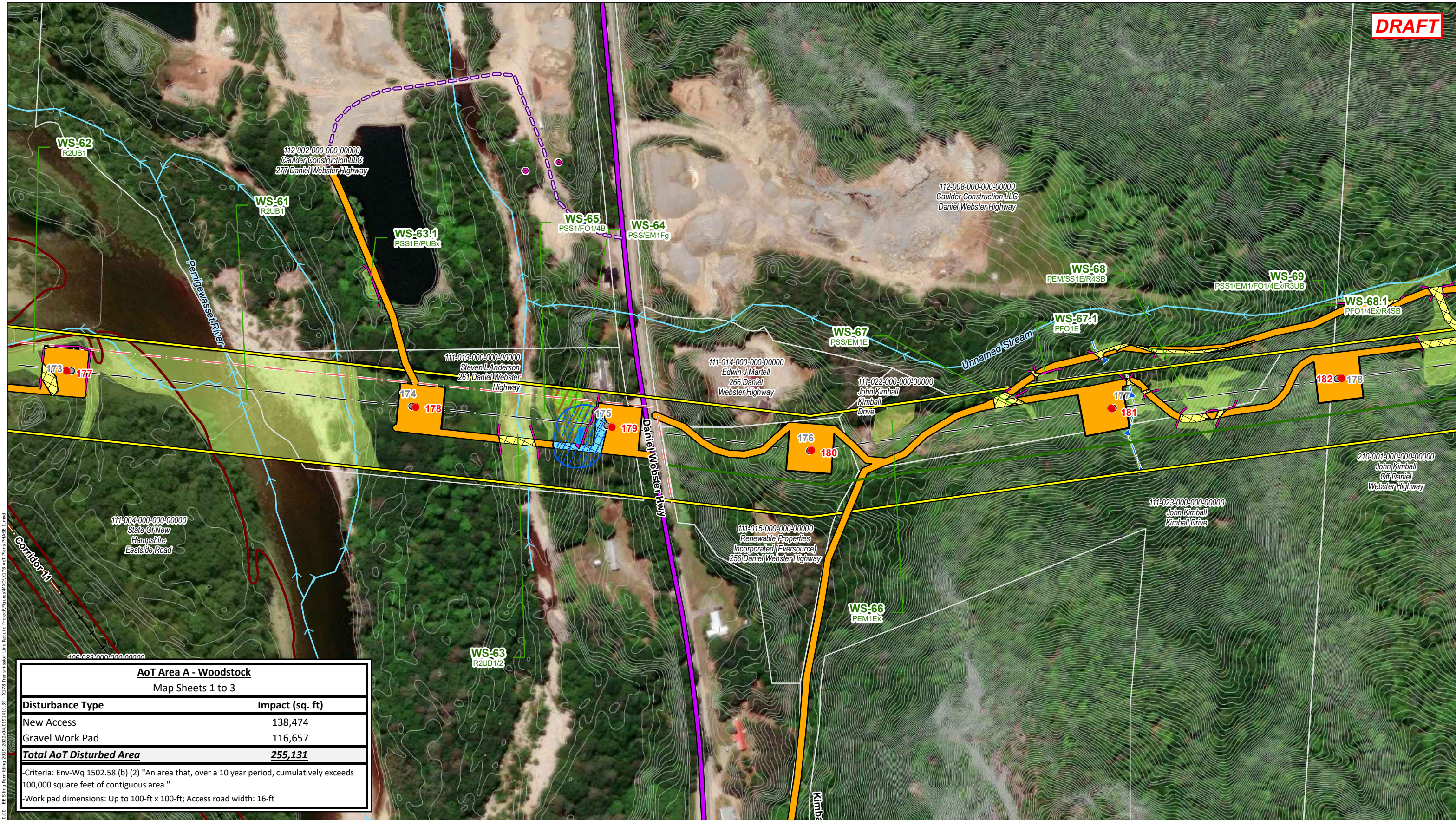
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**X178 Transmission Line Structure Rebuild Project Phase 1**

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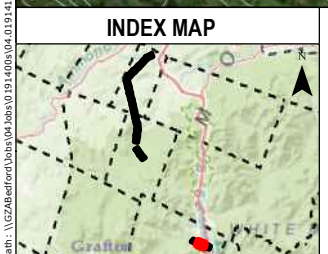




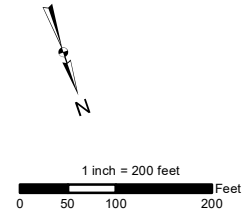
**AoT Area A - Woodstock**  
Map Sheets 1 to 3

Disturbance Type	Impact (sq. ft)
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Gravel Work Pad	116,657
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**EVERSOURCE ENERGY**

**X178 Transmission Line Structure Rebuild Project Phase 1**

Woodstock, NH	MAP SHEET
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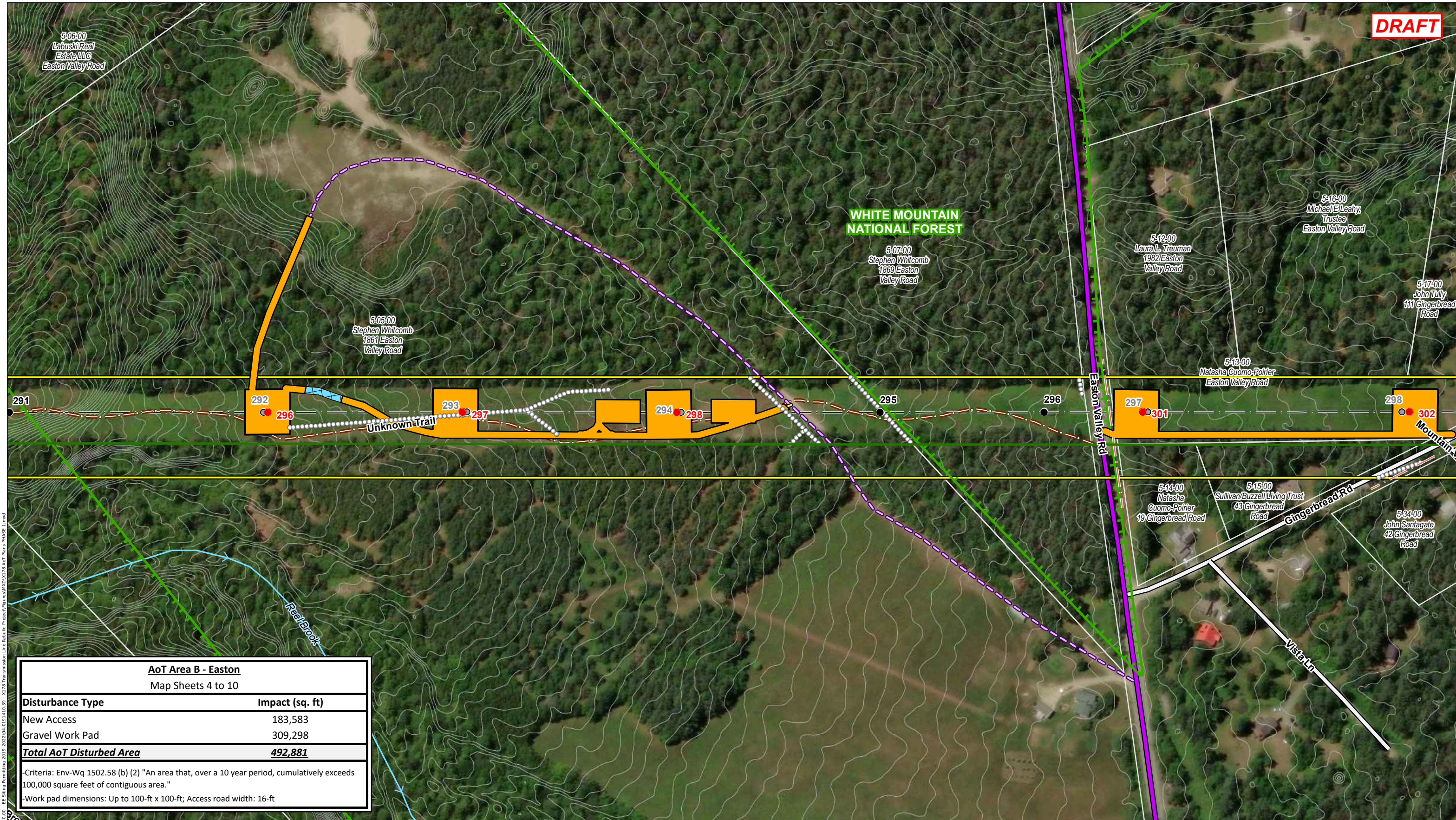
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**AoT Area B - Easton**

Map Sheets 4 to 10

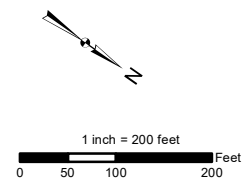
Disturbance Type	Impact (sq. ft)
New Access	183,583
Gravel Work Pad	309,298
<b>Total AoT Disturbed Area</b>	<b>492,881</b>

-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area."  
 -Work pad dimensions: Up to 100-ft x 100-ft; Access road width: 16-ft

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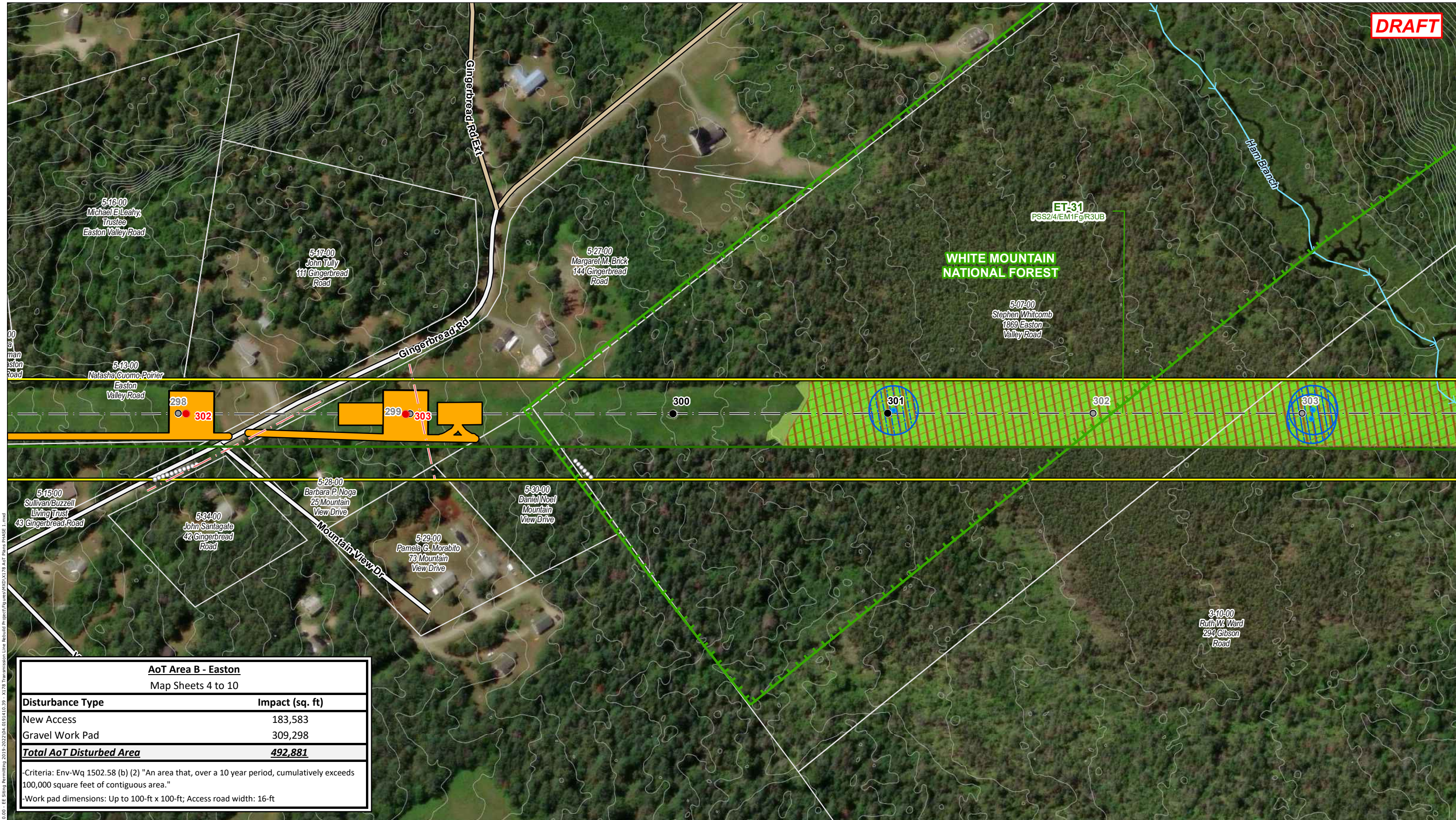
NO.	DATE	REVISIONS

**EVERSOURCE ENERGY**

**X178 Transmission Line Structure Rebuild Project Phase 1**

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AoT Area B - Easton	
Map Sheets 4 to 10	
Disturbance Type	Impact (sq. ft)
New Access	183,583
Gravel Work Pad	309,298
<b>Total AoT Disturbed Area</b>	<b>492,881</b>

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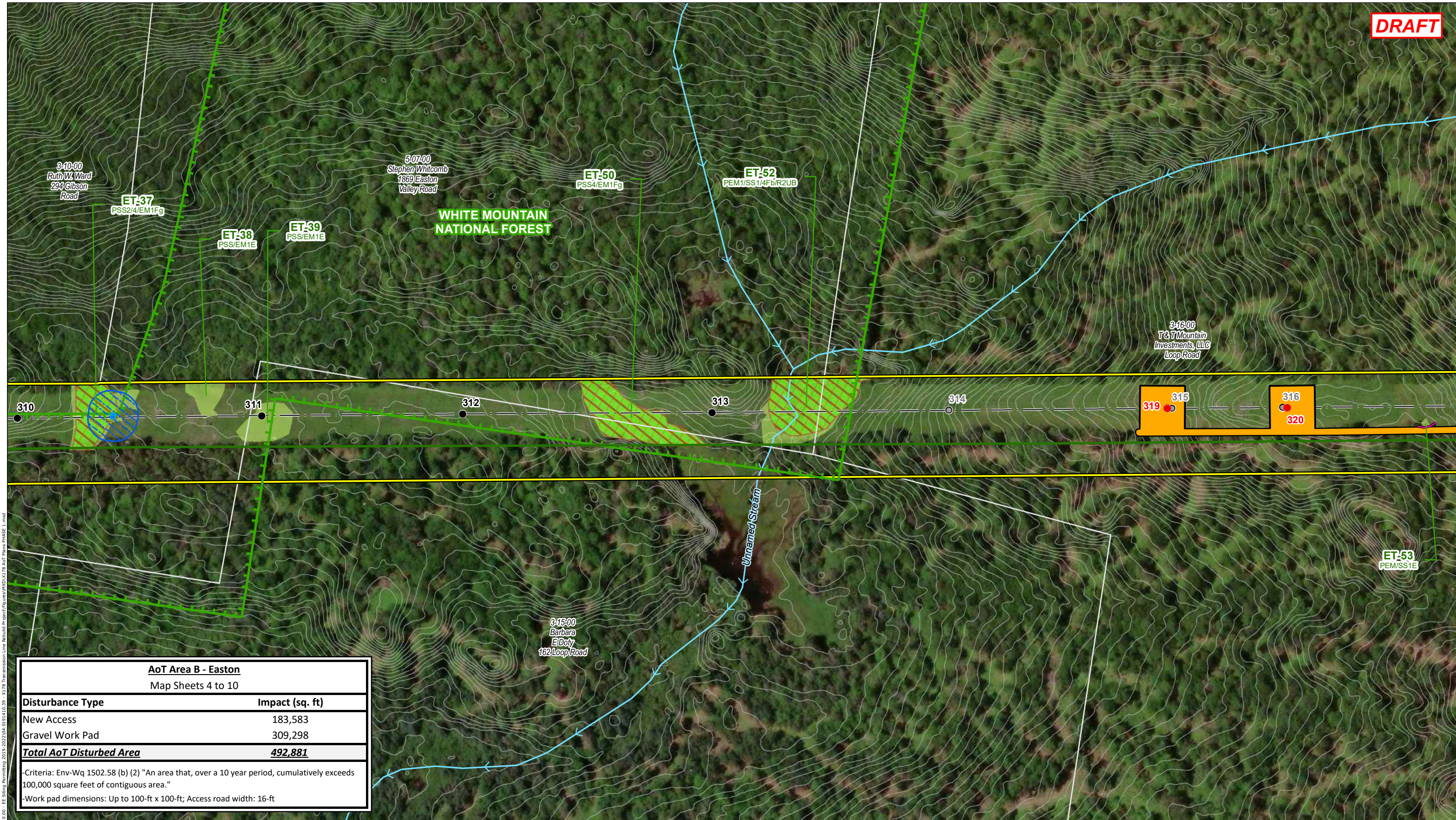
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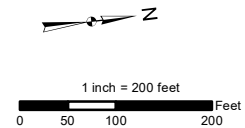


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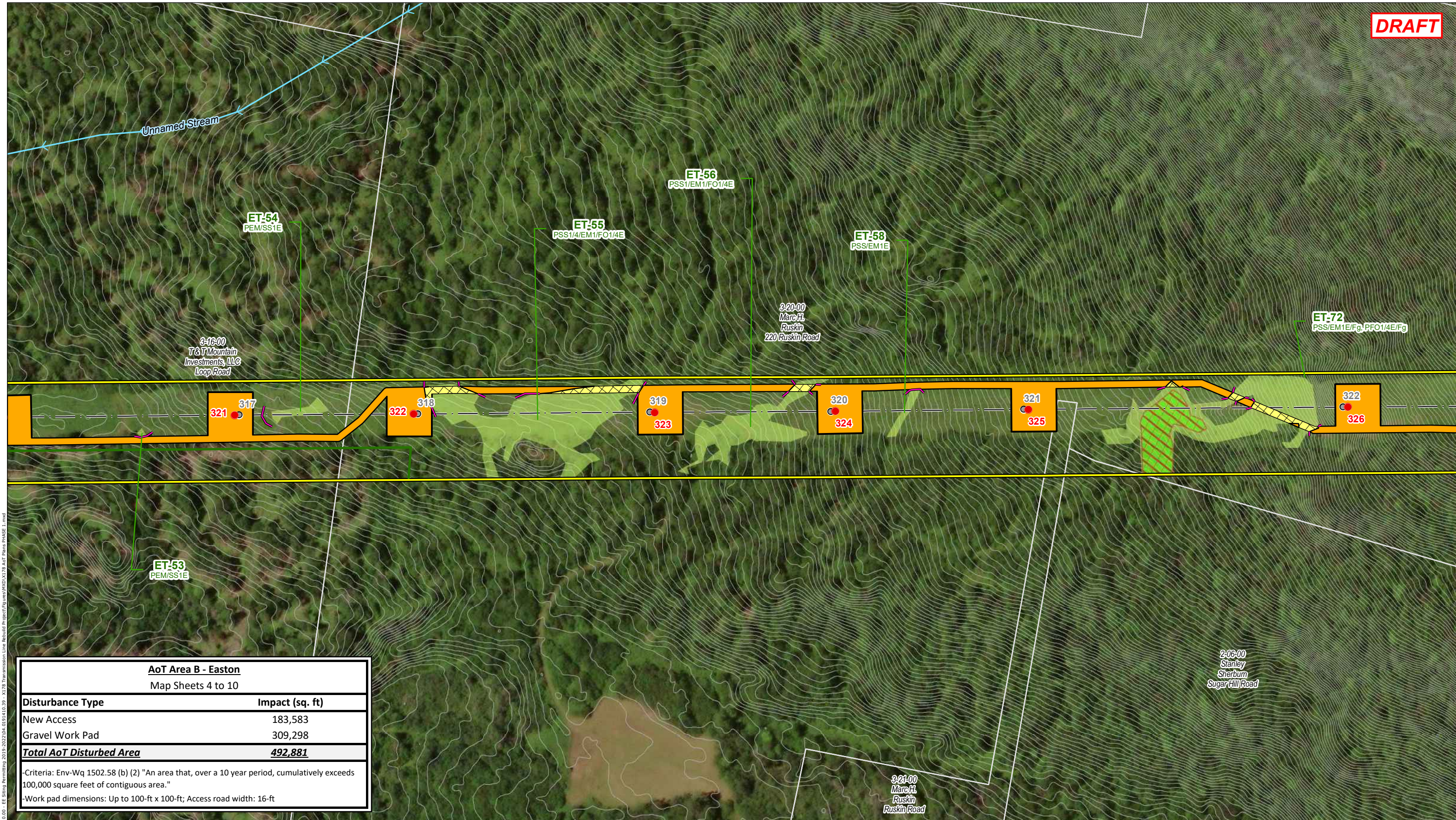
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**X178 Transmission Line Structure Rebuild Project Phase 1**

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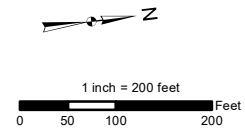
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**X178 Transmission Line Structure Rebuild Project Phase 1**

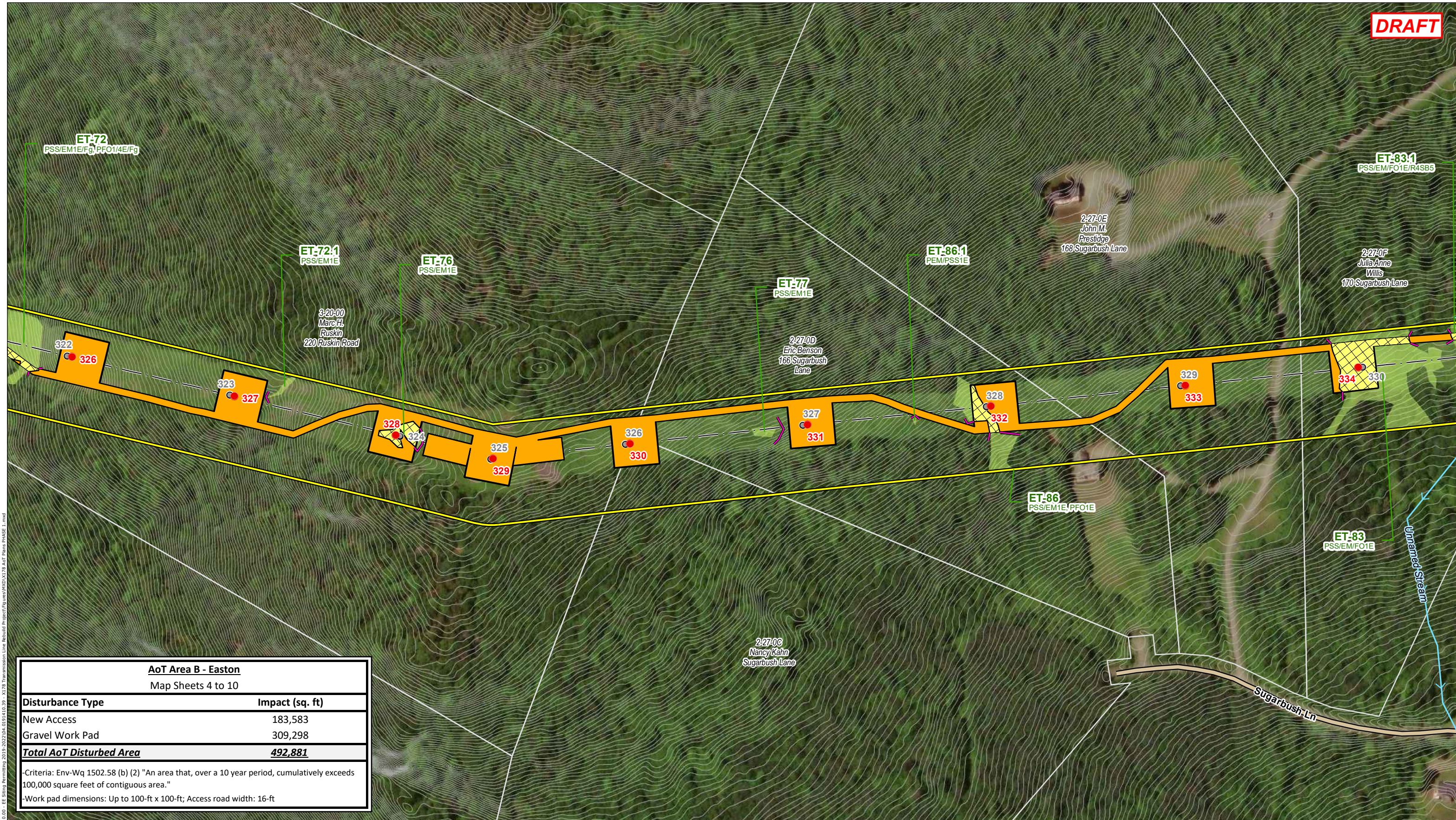
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AoT Area B - Easton	
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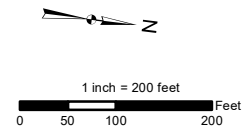
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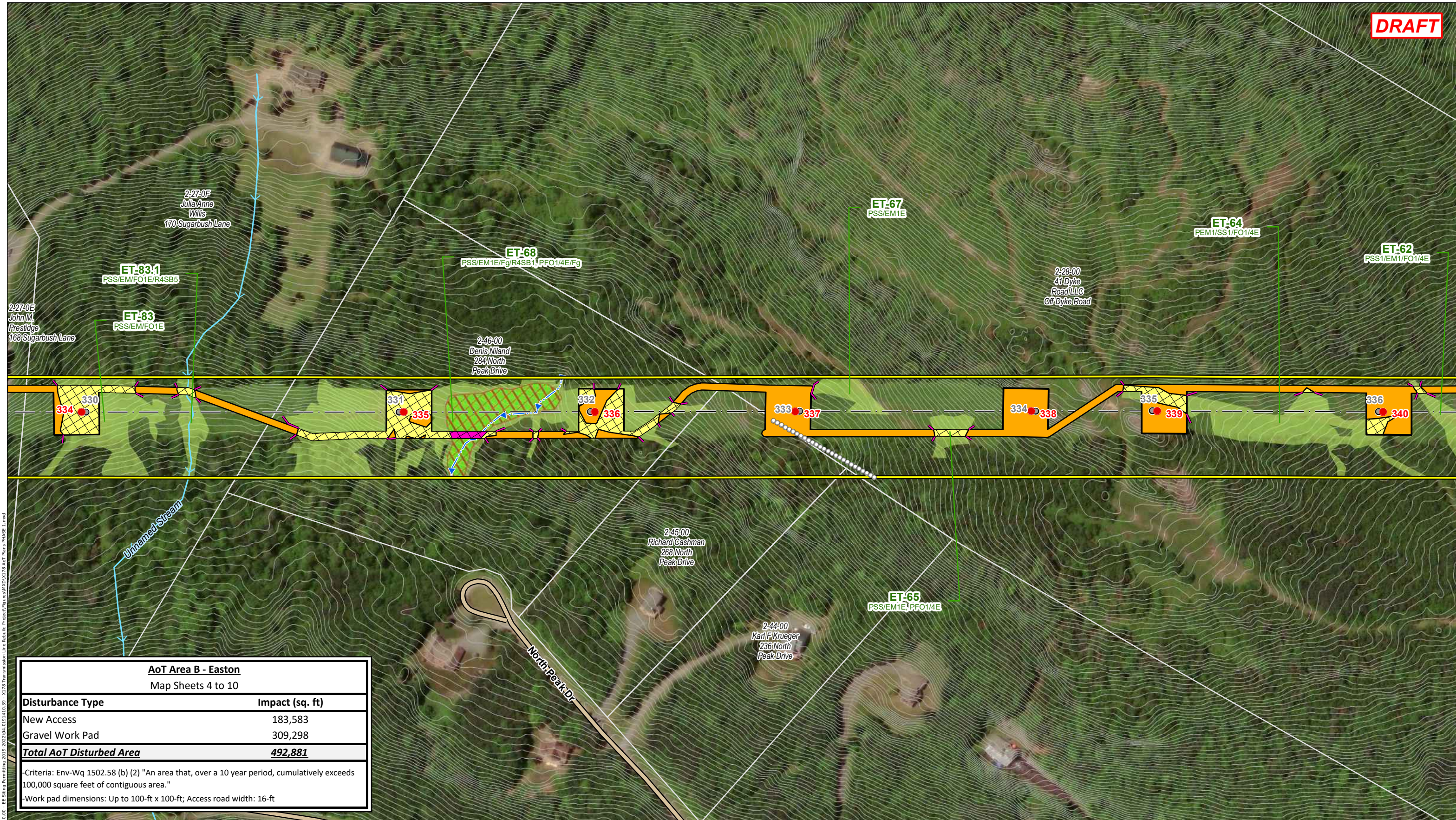
**EVSOURCE ENERGY**

**X178 Transmission Line Structure Rebuild Project Phase 1**

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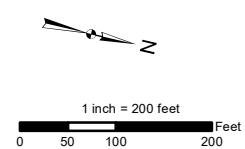


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<ul style="list-style-type: none"> <li>U199 TEMPORARY TAP POLE</li> <li>APPROXIMATE AoT IMPACT AREA</li> <li>EXISTING STRUCTURE - NO WORK</li> <li>STRUCTURE TO BE REMOVED</li> <li>PROPOSED STRUCTURE</li> <li>EROSION CONTROLS</li> <li>PULL PADS</li> <li>WORK PADS</li> <li>TEMPORARY WETLAND MATTING</li> <li>TEMPORARY WETLAND GRADING</li> <li>TRANSMISSION LINE ROW</li> </ul>	<ul style="list-style-type: none"> <li>TRANSMISSION LINE</li> <li>DELINEATED INTERMITTENT STREAM</li> <li>DELINEATED PERENNIAL STREAM</li> <li>NHD FLOWLINES</li> <li>VERY POORLY DRAINED SOILS</li> <li>FIELD DELINEATED WETLAND</li> <li>CONFIRMED VERNAL POOL</li> <li>NH RECREATIONAL TRAILS</li> <li>TEMPORARY WETLAND MATTING IN VPD SOILS</li> <li>TEMPORARY UPLAND MATTING</li> </ul>	<ul style="list-style-type: none"> <li>TOWN MAINTAINED ROAD</li> <li>NHDOT ROAD</li> <li>FEDERAL ROAD</li> <li>PRIVATE ROAD</li> <li>PROPOSED ACCESS</li> <li>SECONDARY ACCESS</li> <li>EXISTING ACCESS</li> <li>TOWN BOUNDARY</li> <li>PARCEL BOUNDARY</li> <li>EVERSOURCE OWNED PARCEL</li> <li>STATE OWNED PARCEL</li> <li>WHITE MOUNTAIN NATIONAL FOREST BOUNDARY</li> </ul>	<ul style="list-style-type: none"> <li>EXTENT OF WETLAND DELINEATION</li> <li>50-FT VERNAL POOL BUFFER</li> <li>CULVERT</li> <li>DISTRIBUTION LINE</li> <li>RAILROADS</li> <li>STONEWALL</li> <li>GATE</li> <li>WORK PADS</li> <li>2FT CONTOURS</li> </ul>
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NO.	DATE
	REVISIONS

**EVERSOURCE ENERGY**

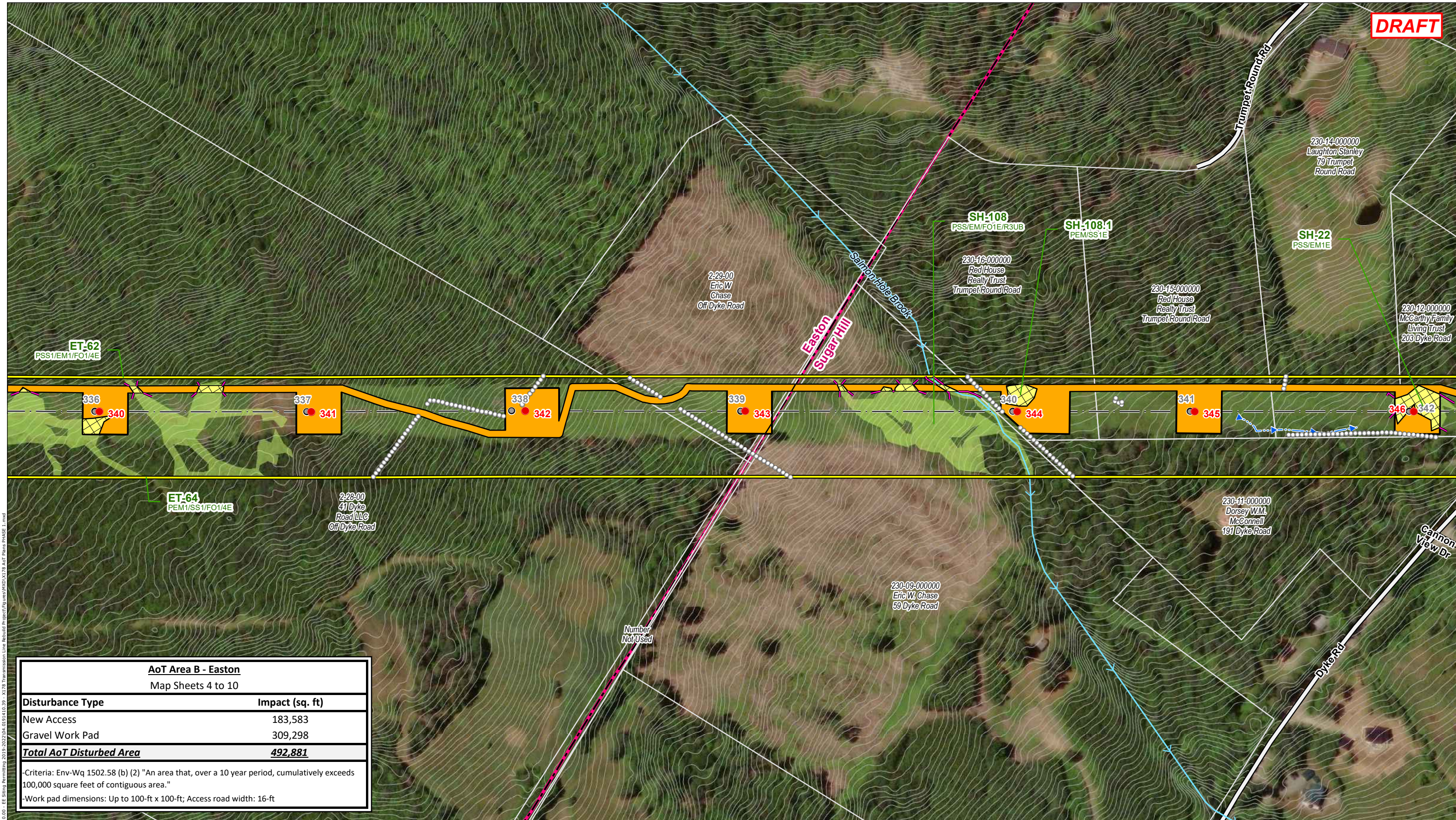
**X178 Transmission Line Structure Rebuild Project Phase 1**

Easton, NH	MAP SHEET
March 13, 2024	<b>9 OF 21</b>
04.0191410.39	

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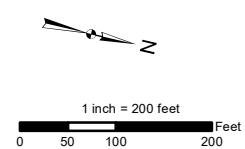


AoT Area B - Easton	
Map Sheets 4 to 10	
Disturbance Type	Impact (sq. ft)
New Access	183,583
Gravel Work Pad	309,298
<b>Total AoT Disturbed Area</b>	<b>492,881</b>

-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area."  
 -Work pad dimensions: Up to 100-ft x 100-ft; Access road width: 16-ft



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- PARCEL BOUNDARY
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- RAILROADS
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- WORK PADS
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**EVERSOURCE ENERGY**

**X178 Transmission Line Structure Rebuild Project Phase 1**

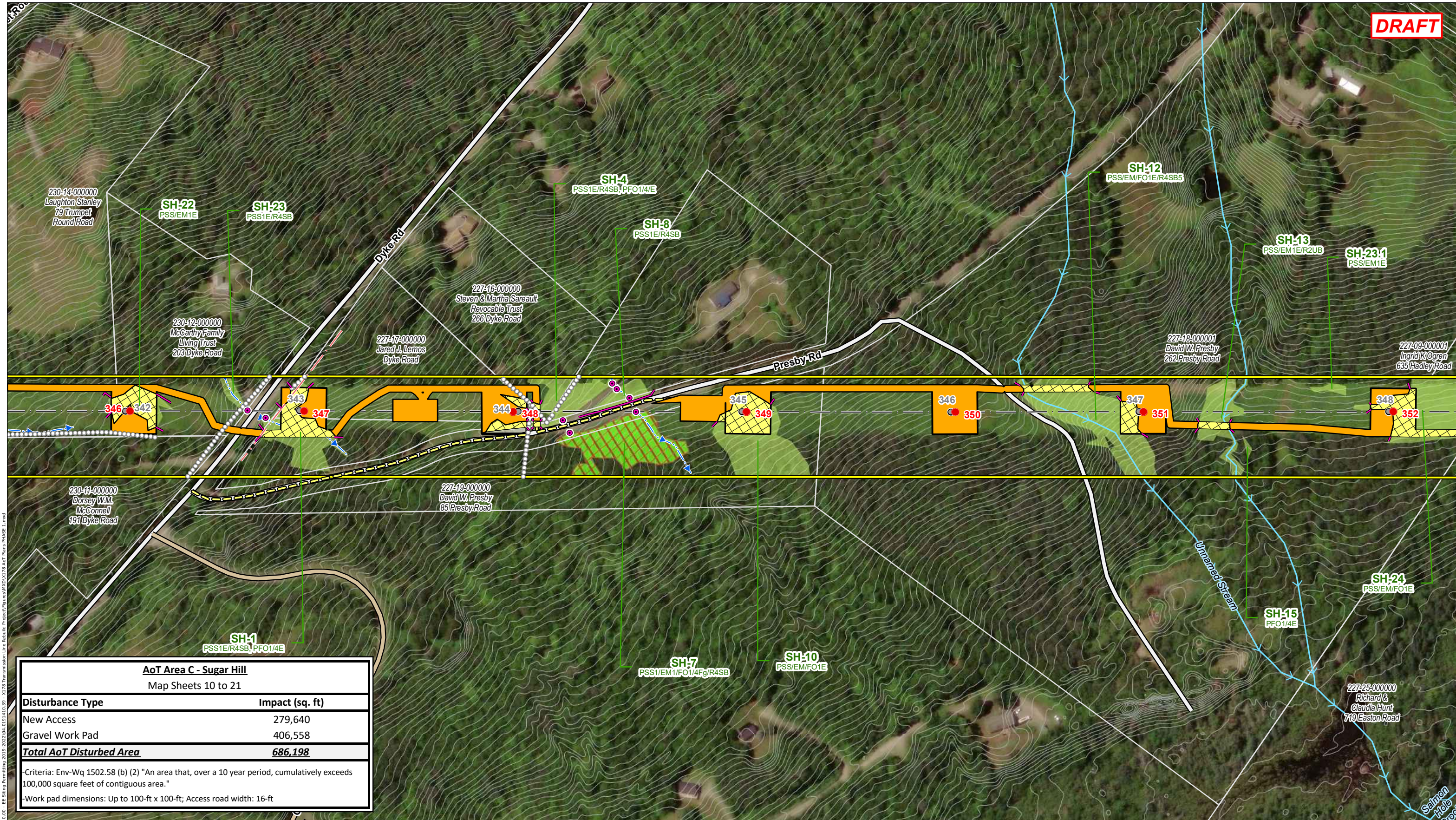
Easton/Sugar Hill, NH      MAP SHEET

March 13, 2024

04.0191410.39      **10 OF 21**

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<ul style="list-style-type: none"> <li>U199 TEMPORARY TAP POLE</li> <li>APPROXIMATE AoT IMPACT AREA</li> <li>EXISTING STRUCTURE - NO WORK</li> <li>STRUCTURE TO BE REMOVED</li> <li>PROPOSED STRUCTURE</li> <li>EROSION CONTROLS</li> <li>PULL PADS</li> <li>WORK PADS</li> <li>TEMPORARY WETLAND MATTING</li> <li>TEMPORARY WETLAND GRADING</li> <li>TRANSMISSION LINE ROW</li> </ul>	<ul style="list-style-type: none"> <li>TRANSMISSION LINE</li> <li>DELINEATED INTERMITTENT STREAM</li> <li>DELINEATED PERENNIAL STREAM</li> <li>NHD FLOWLINES</li> <li>VERY POORLY DRAINED SOILS</li> <li>FIELD DELINEATED WETLAND</li> <li>CONFIRMED VERNAL POOL</li> <li>NH RECREATIONAL TRAILS</li> <li>TEMPORARY WETLAND MATTING IN VPD SOILS</li> <li>TEMPORARY UPLAND MATTING</li> </ul>	<ul style="list-style-type: none"> <li>TOWN MAINTAINED ROAD</li> <li>NHDOT ROAD</li> <li>FEDERAL ROAD</li> <li>PRIVATE ROAD</li> <li>PROPOSED ACCESS</li> <li>SECONDARY ACCESS</li> <li>EXISTING ACCESS</li> <li>TOWN BOUNDARY</li> <li>PARCEL BOUNDARY</li> <li>EVERSOURCE OWNED PARCEL</li> <li>STATE OWNED PARCEL</li> <li>WHITE MOUNTAIN NATIONAL FOREST BOUNDARY</li> </ul>	<ul style="list-style-type: none"> <li>EXTENT OF WETLAND DELINEATION</li> <li>50-FT VERNAL POOL BUFFER</li> <li>CULVERT</li> <li>DISTRIBUTION LINE</li> <li>RAILROADS</li> <li>STONEWALL</li> <li>GATE</li> <li>WORK PADS</li> <li>2FT CONTOURS</li> </ul>
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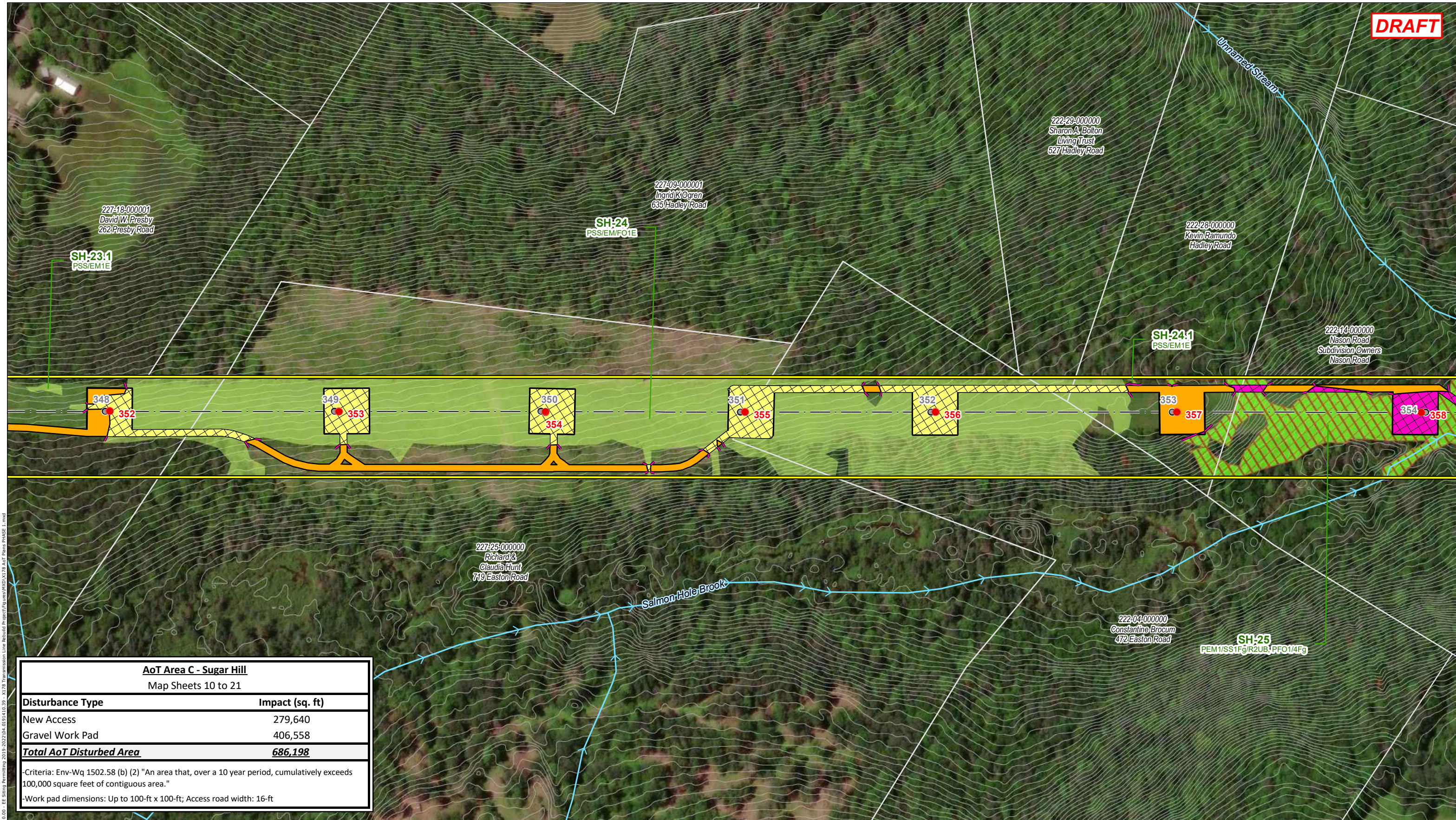
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REVISIONS	

<b>EVERSOURCE ENERGY</b>	
<b>X178 Transmission Line Structure Rebuild Project Phase 1</b>	
Sugar Hill, NH	MAP SHEET
March 13, 2024	11 OF 21
04.0191410.39	

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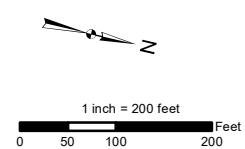


AoT Area C - Sugar Hill	
Map Sheets 10 to 21	
Disturbance Type	Impact (sq. ft)
New Access	279,640
Gravel Work Pad	406,558
<b>Total AoT Disturbed Area</b>	<b>686,198</b>

-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area."  
 -Work pad dimensions: Up to 100-ft x 100-ft; Access road width: 16-ft



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NO.	DATE	REVISIONS

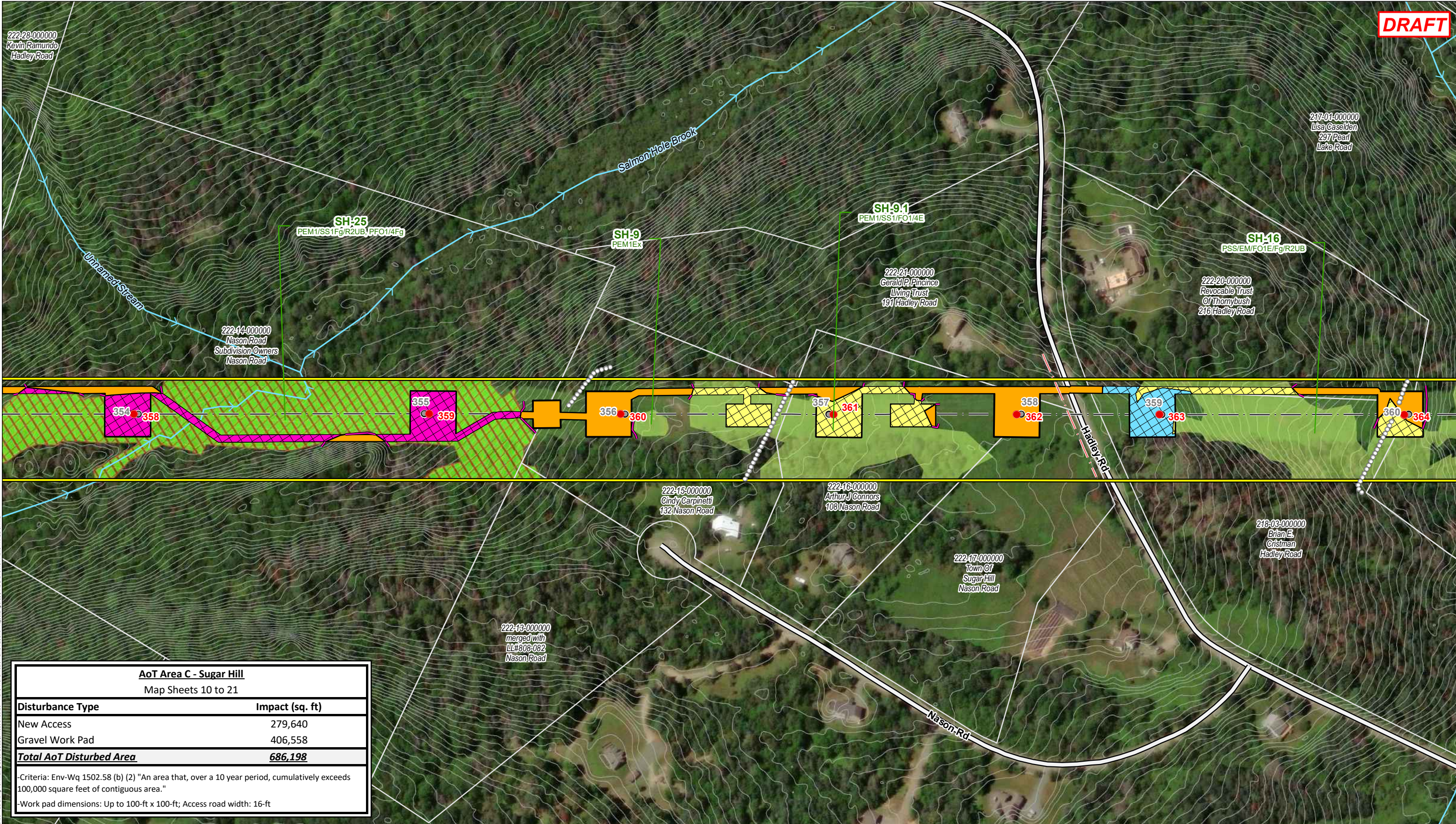
**EVERSOURCE ENERGY**

**X178 Transmission Line Structure Rebuild Project Phase 1**

Sugar Hill, NH	MAP SHEET
March 13, 2024	12 OF 21
04.0191410.39	

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AoT Area C - Sugar Hill	
Map Sheets 10 to 21	
Disturbance Type	Impact (sq. ft)
New Access	279,640
Gravel Work Pad	406,558
<b>Total AoT Disturbed Area</b>	<b>686,198</b>

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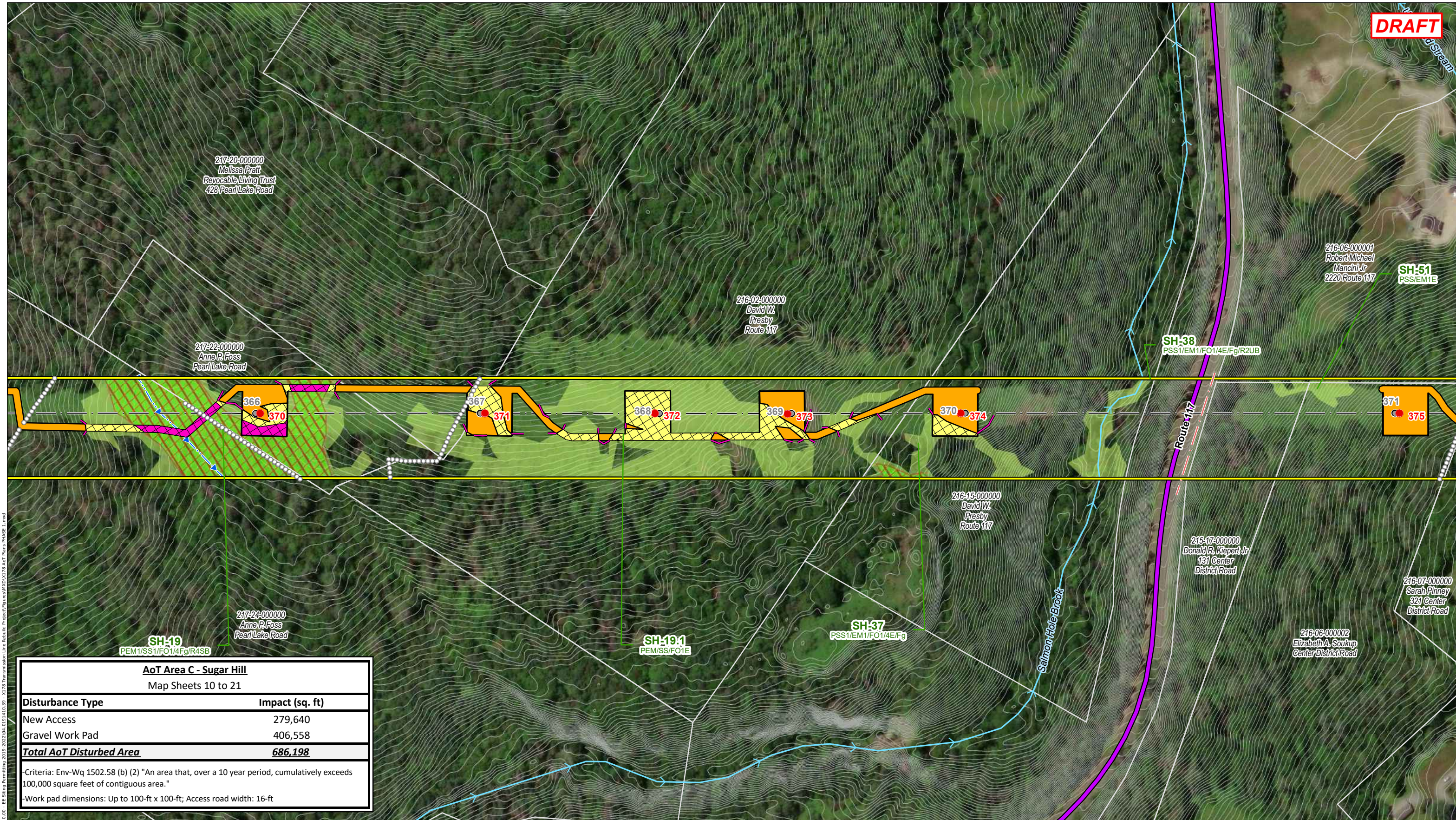
<b>INDEX MAP</b> 	<ul style="list-style-type: none"> <li>● U199 TEMPORARY TAP POLE</li> <li>■ APPROXIMATE AoT IMPACT AREA</li> <li>● EXISTING STRUCTURE - NO WORK</li> <li>○ STRUCTURE TO BE REMOVED</li> <li>● PROPOSED STRUCTURE</li> <li>— EROSION CONTROLS</li> <li>■ PULL PADS</li> <li>■ WORK PADS</li> <li>■ TEMPORARY WETLAND MATTING</li> <li>■ TEMPORARY WETLAND GRADING</li> <li>■ TRANSMISSION LINE ROW</li> </ul>	<ul style="list-style-type: none"> <li>— TRANSMISSION LINE</li> <li>— DELINEATED INTERMITTENT STREAM</li> <li>— DELINEATED PERENNIAL STREAM</li> <li>— NHD FLOWLINES</li> <li>■ VERY POORLY DRAINED SOILS</li> <li>■ FIELD DELINEATED WETLAND</li> <li>■ CONFIRMED VERNAL POOL</li> <li>■ NH RECREATIONAL TRAILS</li> <li>■ TEMPORARY WETLAND MATTING IN VPD SOILS</li> <li>■ TEMPORARY UPLAND MATTING</li> </ul>	<ul style="list-style-type: none"> <li>— TOWN MAINTAINED ROAD</li> <li>— NH DOT ROAD</li> <li>— FEDERAL ROAD</li> <li>— PRIVATE ROAD</li> <li>— PROPOSED ACCESS</li> <li>— SECONDARY ACCESS</li> <li>— EXISTING ACCESS</li> <li>— TOWN BOUNDARY</li> <li>— PARCEL BOUNDARY</li> <li>— EVERSOURCE OWNED PARCEL</li> <li>— STATE OWNED PARCEL</li> <li>— WHITE MOUNTAIN NATIONAL FOREST BOUNDARY</li> </ul>	<ul style="list-style-type: none"> <li>— EXTENT OF WETLAND DELINEATION</li> <li>■ 50-FT VERNAL POOL BUFFER</li> <li>● CULVERT</li> <li>— DISTRIBUTION LINE</li> <li>— RAILROADS</li> <li>○ STONEWALL</li> <li>■ GATE</li> <li>■ WORK PADS</li> <li>— 2FT CONTOURS</li> </ul>		<p>This mapping product has been created to comply with submittal requirements to obtain certain regulatory approvals and, as such, there is no reliance on the information contained herein for any other purpose.</p>	<p><b>EVSOURCE ENERGY</b></p> <p><b>X178 Transmission Line Structure Rebuild Project Phase 1</b></p>	Sugar Hill, NH	MAP SHEET
								March 13, 2024	13 OF 21
NO.	DATE	REVISIONS	04.0191410.39						





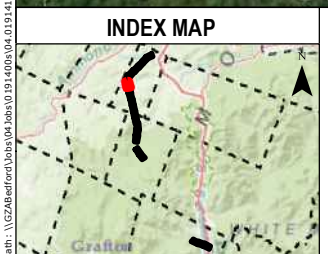


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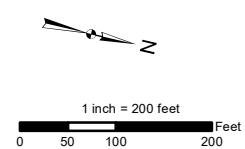


AoT Area C - Sugar Hill	
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NO.	DATE	REVISIONS

**EVERSOURCE ENERGY**

**X178 Transmission Line Structure Rebuild Project Phase 1**

Sugar Hill, NH	MAP SHEET
March 13, 2024	15 OF 21
04.0191410.39	

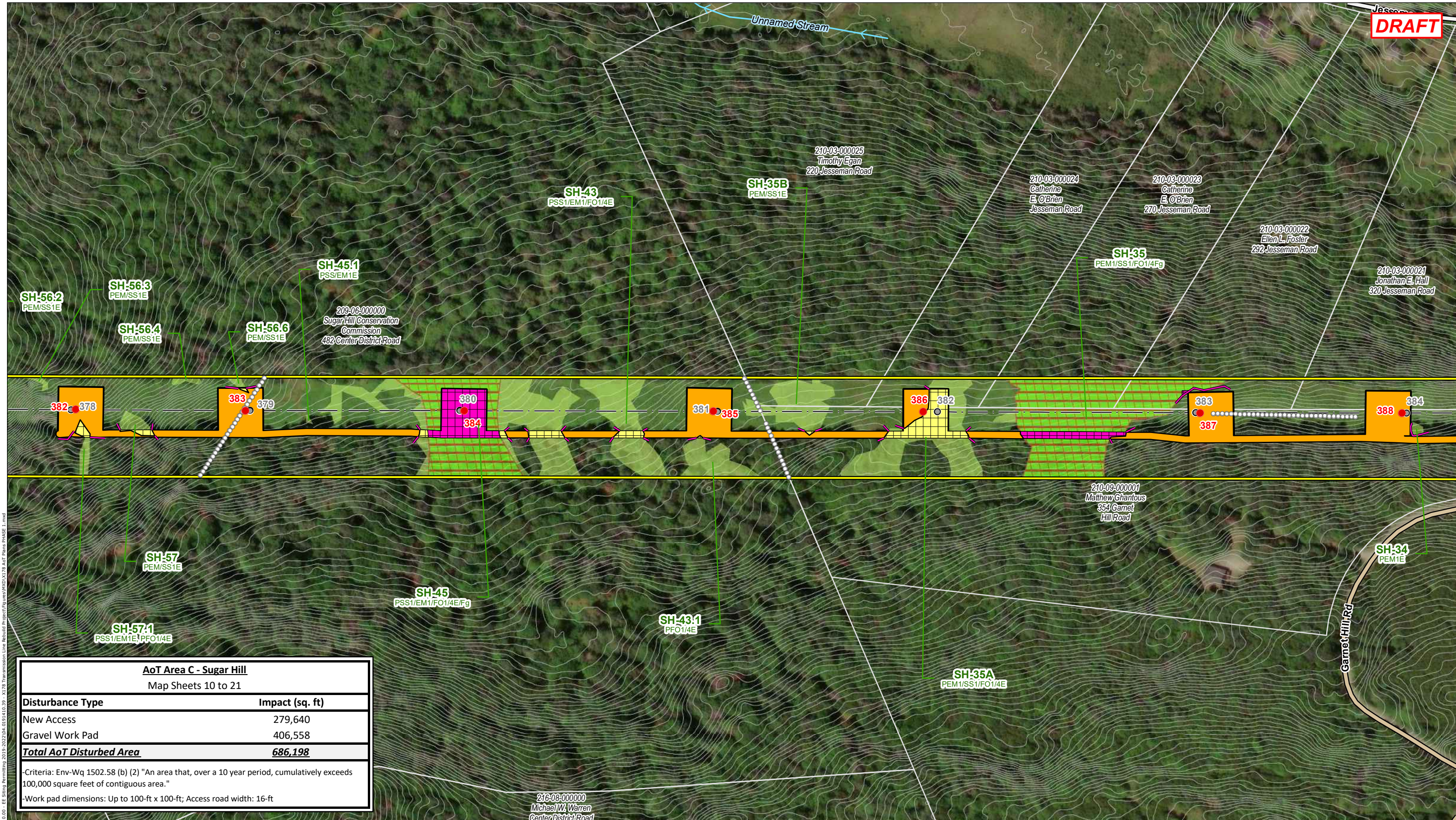
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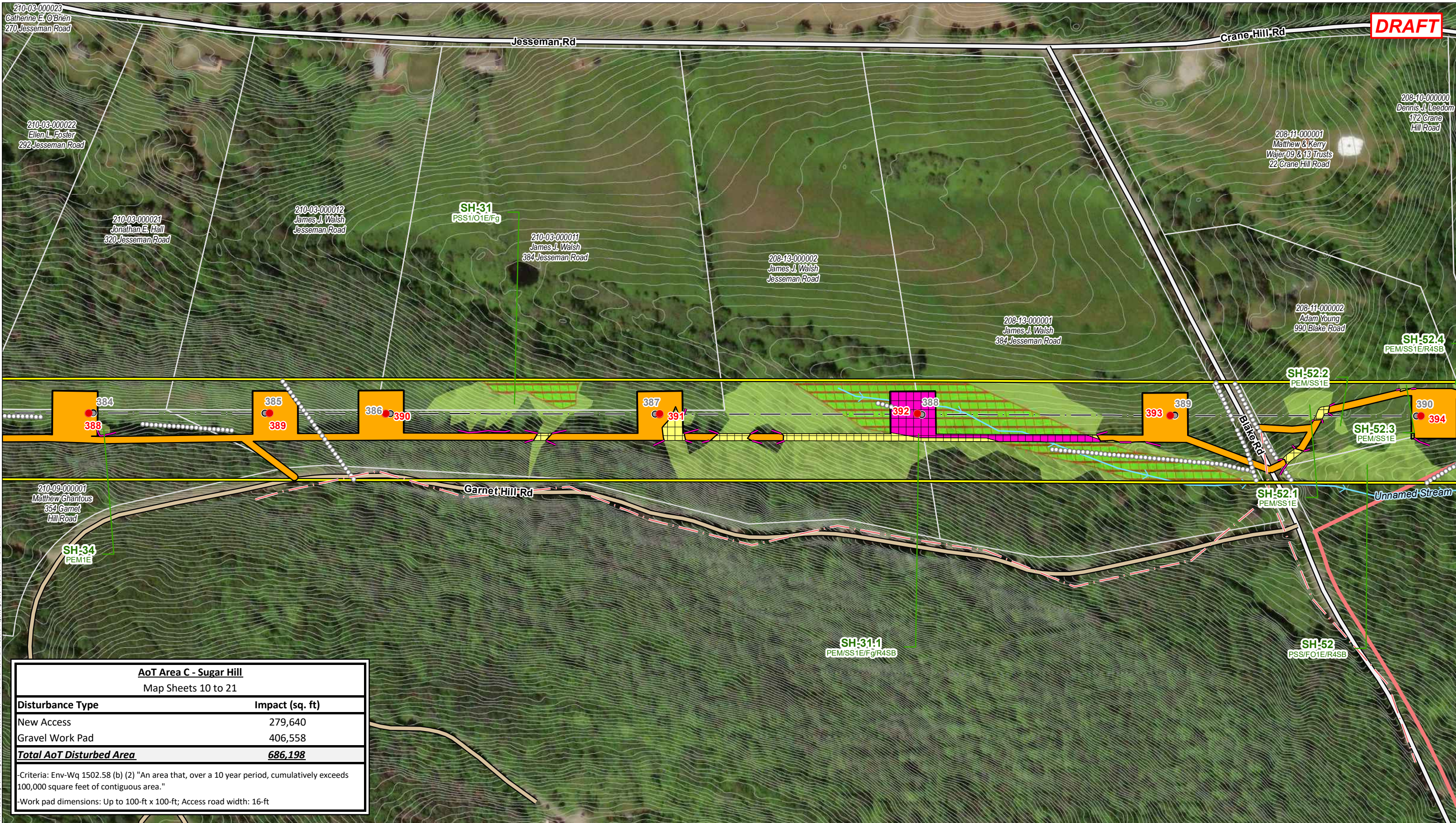
**EVSOURCE ENERGY**

**X178 Transmission Line Structure Rebuild Project Phase 1**

Sugar Hill, NH	MAP SHEET
March 13, 2024	17 OF 21
04.0191410.39	

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AoT Area C - Sugar Hill	
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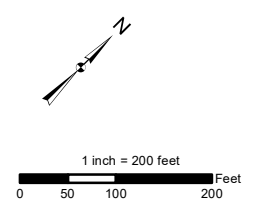
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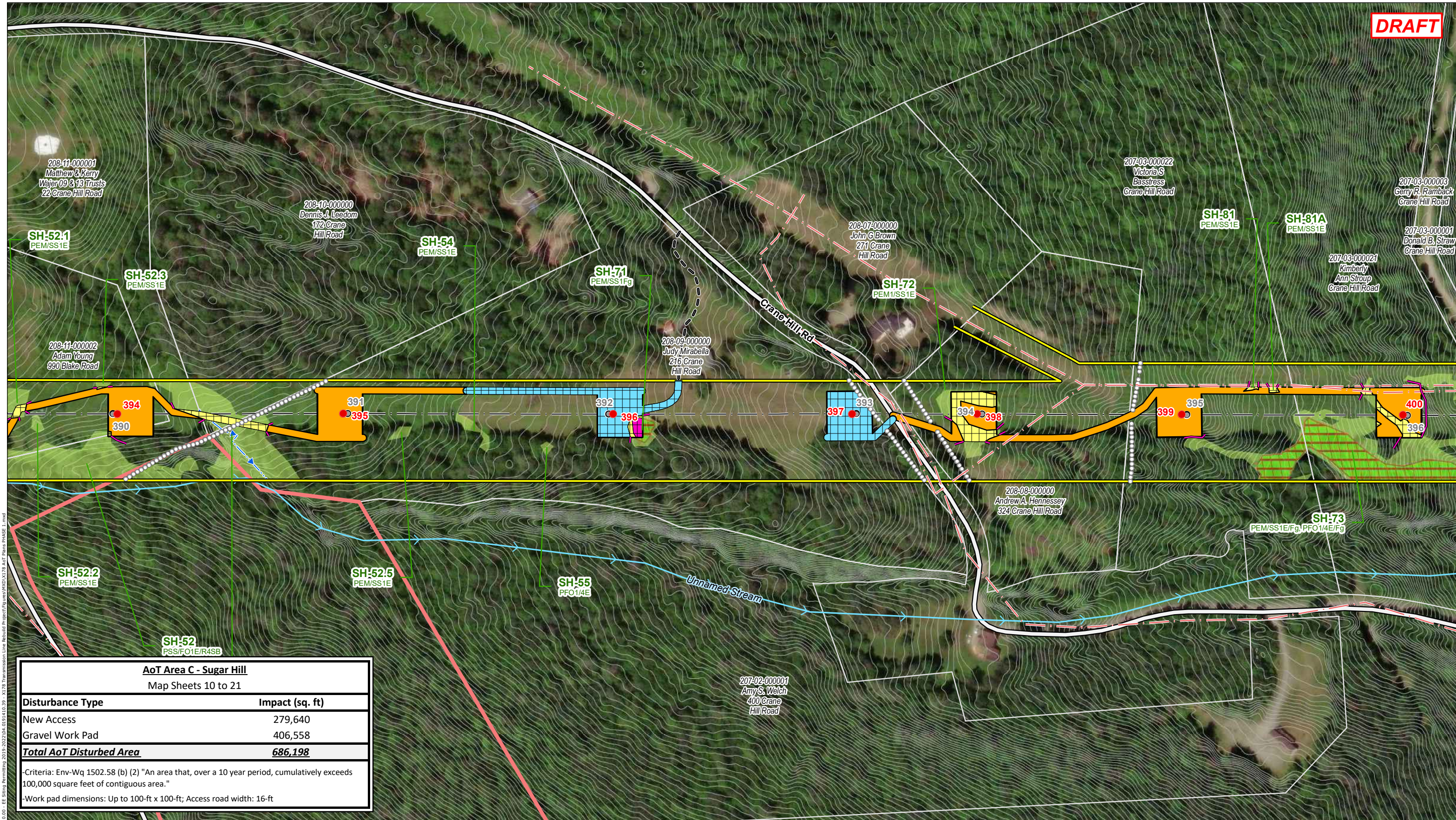
**EVERSOURCE ENERGY**

**X178 Transmission Line Structure Rebuild Project Phase 1**

Sugar Hill, NH	MAP SHEET
March 13, 2024	<b>18 OF 21</b>
NO.	DATE
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	04.0191410.39





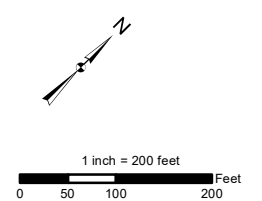


AoT Area C - Sugar Hill	
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<ul style="list-style-type: none"> <li>U199 TEMPORARY TAP POLE</li> <li>APPROXIMATE AoT IMPACT AREA</li> <li>EXISTING STRUCTURE - NO WORK</li> <li>STRUCTURE TO BE REMOVED</li> <li>PROPOSED STRUCTURE</li> <li>EROSION CONTROLS</li> <li>PULL PADS</li> <li>WORK PADS</li> <li>TEMPORARY WETLAND MATTING</li> <li>TEMPORARY WETLAND GRADING</li> <li>TRANSMISSION LINE ROW</li> </ul>	<ul style="list-style-type: none"> <li>TRANSMISSION LINE</li> <li>DELINEATED INTERMITTENT STREAM</li> <li>DELINEATED PERENNIAL STREAM</li> <li>NHD FLOWLINES</li> <li>VERY POORLY DRAINED SOILS</li> <li>FIELD DELINEATED WETLAND</li> <li>CONFIRMED VERNAL POOL</li> <li>NH RECREATIONAL TRAILS</li> <li>TEMPORARY WETLAND MATTING IN VPD SOILS</li> <li>TEMPORARY UPLAND MATTING</li> </ul>	<ul style="list-style-type: none"> <li>TOWN MAINTAINED ROAD</li> <li>NHDOT ROAD</li> <li>FEDERAL ROAD</li> <li>PRIVATE ROAD</li> <li>PROPOSED ACCESS</li> <li>SECONDARY ACCESS</li> <li>EXISTING ACCESS</li> <li>TOWN BOUNDARY</li> <li>PARCEL BOUNDARY</li> <li>EVERSOURCE OWNED PARCEL</li> <li>STATE OWNED PARCEL</li> <li>WHITE MOUNTAIN NATIONAL FOREST BOUNDARY</li> </ul>	<ul style="list-style-type: none"> <li>EXTENT OF WETLAND DELINEATION</li> <li>50-FT VERNAL POOL BUFFER</li> <li>CULVERT</li> <li>DISTRIBUTION LINE</li> <li>RAILROADS</li> <li>STONEWALL</li> <li>GATE</li> <li>WORK PADS</li> <li>2FT CONTOURS</li> </ul>
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NO.	DATE	REVISIONS

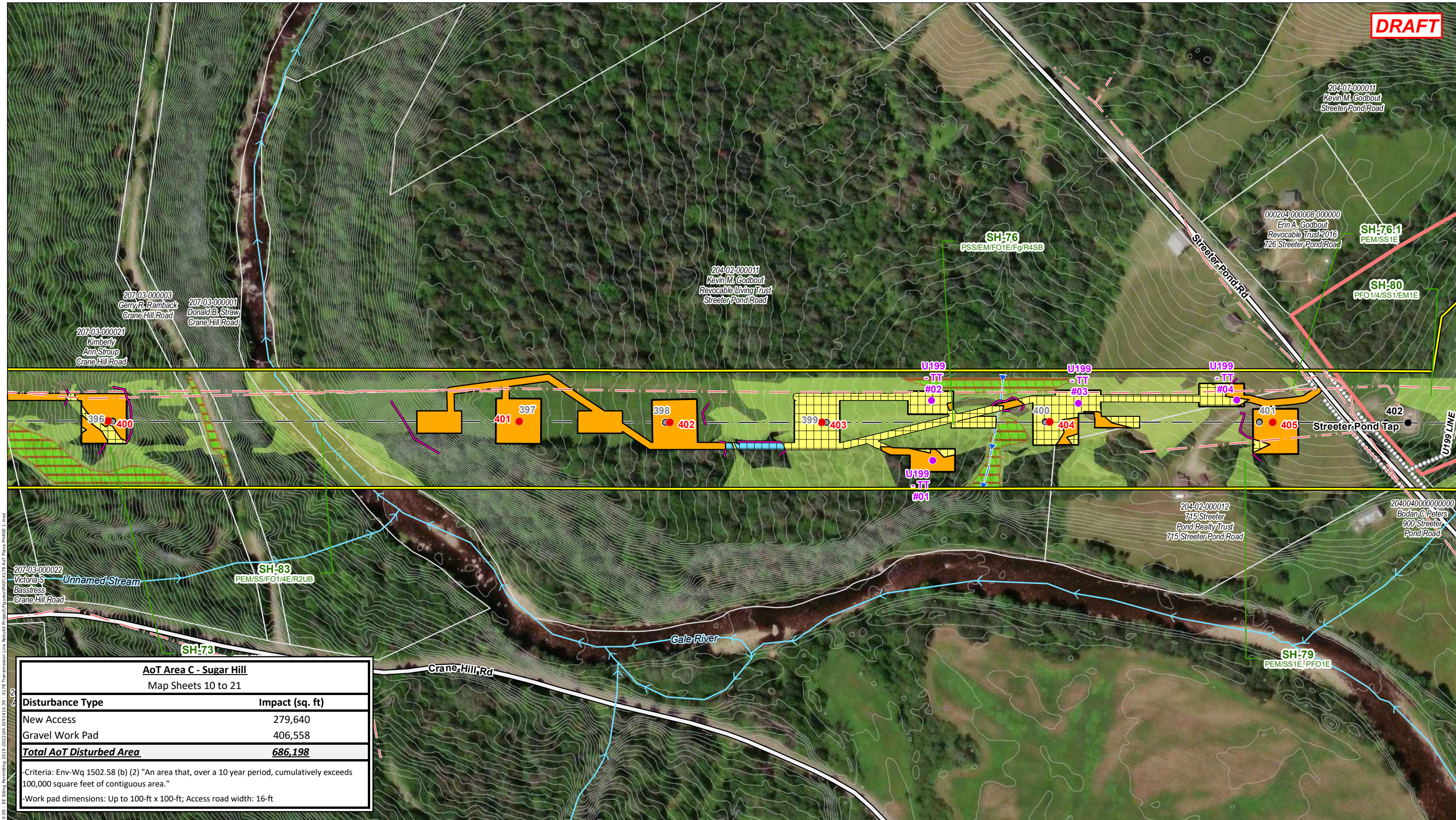
**EVERSOURCE ENERGY**

**X178 Transmission Line Structure Rebuild Project Phase 1**

Sugar Hill, NH	MAP SHEET
March 13, 2024	19 OF 21
04.0191410.39	

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AOT Area C - Sugar Hill	
Map Sheets 10 to 21	
Disturbance Type	Impact (sq. ft)
New Access	279,640
Gravel Work Pad	406,558
<b>Total AOT Disturbed Area</b>	<b>686,198</b>

-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area."  
 -Work pad dimensions: Up to 100-ft x 100-ft; Access road width: 16-ft



- U199 TEMPORARY TAP POLE
- APPROXIMATE AOT IMPACT AREA
- EXISTING STRUCTURE - NO WORK
- STRUCTURE TO BE REMOVED
- PROPOSED STRUCTURE
- EROSION CONTROLS
- PULL PADS
- WORK PADS
- TEMPORARY WETLAND MATTING
- TEMPORARY WETLAND GRADING
- TRANSMISSION LINE ROW
- TRANSMISSION LINE
- DELINEATED INTERMITTENT STREAM
- DELINEATED PERENNIAL STREAM
- NHD FLOWLINES
- VERY POORLY DRAINED SOILS
- FIELD DELINEATED WETLAND
- CONFIRMED VERNAL POOL
- NH RECREATIONAL TRAILS
- TEMPORARY WETLAND MATTING IN VPD SOILS
- TEMPORARY UPLAND MATTING
- TOWN MAINTAINED ROAD
- NHDOT ROAD
- FEDERAL ROAD
- PRIVATE ROAD
- PROPOSED ACCESS
- SECONDARY ACCESS
- EXISTING ACCESS
- TOWN BOUNDARY
- PARCEL BOUNDARY
- EVERSOURCE OWNED PARCEL
- STATE OWNED PARCEL
- WHITE MOUNTAIN NATIONAL FOREST BOUNDARY
- 50-FT VERNAL POOL BUFFER
- CULVERT
- DISTRIBUTION LINE
- RAILROADS
- STONEWALL
- GATE
- WORK PADS
- 2FT CONTOURS

This mapping product has been created to comply with submittal requirements to obtain certain regulatory approvals and, as such, there is no reliance on the information contained herein for any other purpose.	
NO.	DATE
REVISIONS	

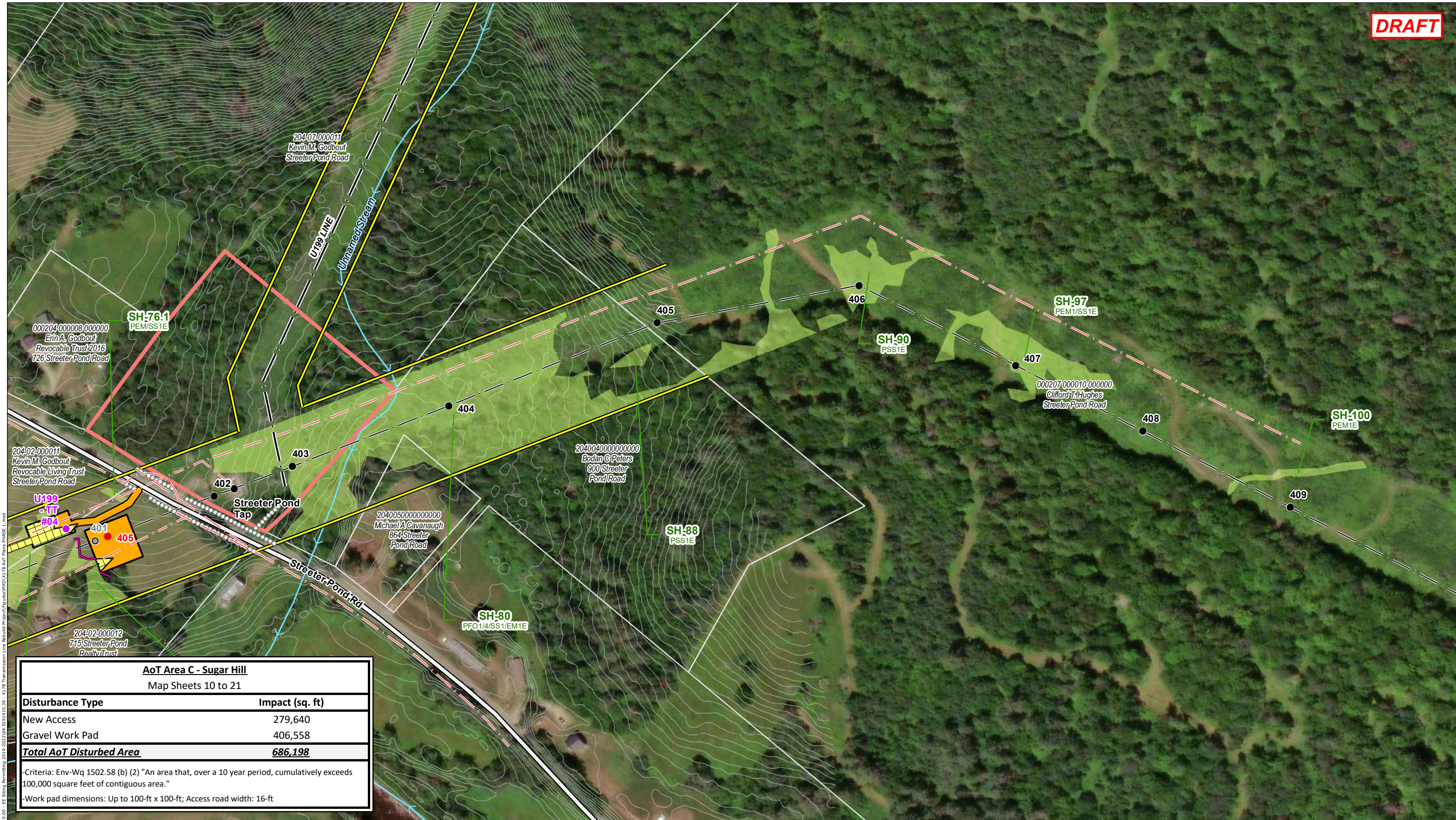
**EVERSOURCE ENERGY**

**X178 Transmission Line Structure Rebuild Project Phase 1**

Sugar Hill, NH	MAP SHEET
March 13, 2024	<b>20 OF 21</b>
04.0191410.39	

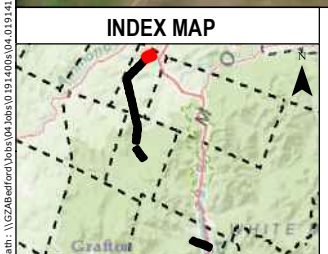
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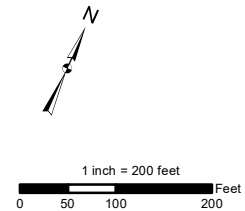


AoT Area C - Sugar Hill	
Map Sheets 10 to 21	
Disturbance Type	Impact (sq. ft)
New Access	279,640
Gravel Work Pad	406,558
<b>Total AoT Disturbed Area</b>	<b>686,198</b>

-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area."  
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<ul style="list-style-type: none"> <li>● U199 TEMPORARY TAP POLE</li> <li>■ APPROXIMATE AoT IMPACT AREA</li> <li>● EXISTING STRUCTURE - NO WORK</li> <li>○ STRUCTURE TO BE REMOVED</li> <li>● PROPOSED STRUCTURE</li> <li>— EROSION CONTROLS</li> <li>■ PULL PADS</li> <li>■ WORK PADS</li> <li>■ TEMPORARY WETLAND MATTING</li> <li>■ TEMPORARY WETLAND GRADING</li> <li>■ TRANSMISSION LINE ROW</li> </ul>	<ul style="list-style-type: none"> <li>— TRANSMISSION LINE</li> <li>— DELINEATED INTERMITTENT STREAM</li> <li>— DELINEATED PERENNIAL STREAM</li> <li>— NHD FLOWLINES</li> <li>■ VERY POORLY DRAINED SOILS</li> <li>■ FIELD DELINEATED WETLAND</li> <li>■ CONFIRMED VERNAL POOL</li> <li>■ NH RECREATIONAL TRAILS</li> <li>■ TEMPORARY WETLAND MATTING IN VPD SOILS</li> <li>■ TEMPORARY UPLAND MATTING</li> </ul>	<ul style="list-style-type: none"> <li>— TOWN MAINTAINED ROAD</li> <li>— NHDOT ROAD</li> <li>— FEDERAL ROAD</li> <li>— PRIVATE ROAD</li> <li>— PROPOSED ACCESS</li> <li>— SECONDARY ACCESS</li> <li>— EXISTING ACCESS</li> <li>— TOWN BOUNDARY</li> <li>— PARCEL BOUNDARY</li> <li>— EVERSOURCE OWNED PARCEL</li> <li>— STATE OWNED PARCEL</li> <li>— WHITE MOUNTAIN NATIONAL FOREST BOUNDARY</li> </ul>	<ul style="list-style-type: none"> <li>— EXTENT OF WETLAND DELINEATION</li> <li>■ 50-FT VERNAL POOL BUFFER</li> <li>● CULVERT</li> <li>— DISTRIBUTION LINE</li> <li>— RAILROADS</li> <li>○ STONEWALL</li> <li>■ GATE</li> <li>■ WORK PADS</li> <li>— 2FT CONTOURS</li> </ul>
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<b>X178 Transmission Line Structure Rebuild Project Phase 1</b>			
Sugar Hill, NH		MAP SHEET	
March 13, 2024		<b>21 OF 21</b>	
NO.	DATE	REVISIONS	04.0191410.39



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**CONSTRUCTION SEQUENCE:**

1. WETLAND BOUNDARIES TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.
2. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAIL PROVIDED, AS NECESSARY, AND CONSISTENT WITH THE NHDES MARCH 2019 BMP MANUAL FOR UTILITY MAINTENANCE.
3. WETLAND IMPACTS ASSOCIATED WITH WETLAND CROSSINGS ARE REQUIRED FOR ACCESS BETWEEN STRUCTURES WITHIN THE RIGHT OF WAY. LOOK FOR FIELD FLAGGING AND REFER TO PROJECT PLANS FOR THESE LOCATIONS.
4. ADEQUATE PRECAUTION SHALL BE EXERCISED TO AVOID SPILLAGE OF FUEL OILS, CHEMICALS, OR SIMILAR SUBSTANCES. NO FUELS, LUBRICANTS, CHEMICALS OR SIMILAR SUBSTANCES SHALL BE STORED BENEATH TREES OR IN THE VICINITY OF ANY WETLANDS, RIVER, STREAM OR OTHER BODY OF WATER; OR IN THE VICINITY OF NATURAL OR MAN-MADE CHANNELS LEADING THERETO. NO POWER EQUIPMENT SHALL BE STORED, MAINTAINED, OR FUELED IN ANY AREA ADJACENT TO A WETLAND, RIVER, STREAM OR OTHER BODY OF WATER.
5. REMOVE COMPLETELY ALL CONTAMINATION FROM ANY SPILLAGE OF CHEMICALS OR PETROLEUM PRODUCT AND COMPLETE REHABILITATION OF THE AFFECTED AREA.
6. ACCESS ROUTES HAVE BEEN SELECTED TO PREVENT DEGRADATION OF THE RIGHT-OF-WAY AND MINIMIZE ENVIRONMENTAL IMPACT. OPERATIONS SHALL BE CONFINED TO THE SPECIFIED ACCESS ROUTES WITHIN THE PROPOSED WETLAND IMPACT AREA. ACCESS ROUTES SHALL NOT EXCEED A 16 FOOT-WIDTH.
7. IMPACT TO VEGETATION WITHIN WETLANDS WILL BE LIMITED TO THE EXTENT NECESSARY TO PLACE THE TIMBER MATS WHERE REQUIRED.
8. LOW GROWING VARIETIES OF VEGETATION ADJACENT TO WETLANDS SHALL BE PRESERVED TO THE EXTENT POSSIBLE. STUMPS SHALL NOT BE REMOVED, AND THERE SHALL BE NO EXCAVATIONS, FILLS OR GRADING DONE ADJACENT TO WETLANDS, UNLESS MINOR EXCAVATIONS OR GRADING IS NEEDED FOR ACCESS OR WORK PADS AND THEN ONLY WITHIN LIMITS SHOWN ON PROJECT PLANS.
9. TIMBER MATS AND PERIMETER CONTROLS WILL BE USED ALONG ACCESS ROUTES AND WORK PADS WITHIN WETLAND AREAS. THESE MATS ARE CONSTRUCTED OF HEAVY TIMBERS OR COMPOSITE MATERIAL, BOLTED TOGETHER, AND ARE PLACED END-TO-END IN THE WETLAND TO SUPPORT HEAVY EQUIPMENT. ALL TIMBER MATS SHALL BE PLACED AND REMOVED SO AS NOT TO CAUSE ANY RUTS, CHANNELS OR DEPRESSIONS, OR OTHERWISE CAUSE ANY UNDUE DISTURBANCE TO WETLANDS.
10. IN UPLANDS, ADDITIONAL BMP'S MAY INCLUDE THE PLACEMENT OF GEOTEXTILE FABRIC, 3"-4" STONE, AND GRAVEL TO PROVIDE A SUITABLE ROAD BED. MATTING SHALL BE INSTALLED IN A MANNER TO BRIDGE STREAM CHANNELS. TEMPORARY CULVERTS MAY BE REQUIRED IN AREAS OF HIGH FLOW TO MAINTAIN HYDROLOGIC CONNECTIVITY. ALL MATERIAL WILL BE REMOVED FROM JURISDICTIONAL AREAS AFTER CONSTRUCTION COMPLETION.
11. NO MATERIAL SHALL BE PLACED IN ANY LOCATION OR IN ANY MANNER SO AS TO IMPAIR SURFACE WATER FLOW INTO, THROUGH OR OUT OF ANY WETLAND AREA. NO INSTALLATION SHALL CREATE AN IMPOUNDMENT THAT WILL IMPEDE THE FLOW OF WATER OR CAUSE FLOODING.
12. BIOLOGICAL MONITORING OF PROJECT SPECIES MAY REQUIRE THAT WORK AREAS ARE CLEARED PRIOR TO WORK OR PLACEMENT OF MATERIALS.
13. NO MATERIAL SHALL BE TAKEN FROM THE WETLANDS AREA EXCEPT THAT WHICH MUST NECESSARILY BE REMOVED FOR THE STRUCTURE OR FOUNDATION PLACEMENT OR STABILIZATION. ALL EXCESS MATERIAL TAKEN FROM THE WETLAND WILL BE REMOVED FROM THE SITE.
14. DISCHARGE OF DEWATERING WATER SHOULD NOT BE DIRECTED TOWARDS SURFCE WATERS IDENTIFIED BY NHDES AS TIER 2, TIER 2.5, OR TIER 3 WITHOUT PRIOR AUTHORIZATION FROM EVERSOURCE. SUCH ACTIVITIES TRIGGER TURBIDITY MONITORING AND REPORTING REQUIREMENTS AS OUTLINED IN SECTION 3.3 OF THE 2022 EPA CONSTRUCTION GENERAL PERMIT, TIER 2, TIER 2.5, AND TIER 3 SURFACE WATERS ARE CONSIDERED ALL SURFACE WATERS INCLUDING LAKES, PONDS, MARCHES, AND TIDAL WATERS AS DEFINED BY ENV-WT 104.33. DEWATERING WATER SHOULD BE DIRECTED AWAY FROM SURFACE WATERS, OR BE DISCHARGED TO A VAC TRUCK, POLY TANK OR UPLAND BASIN, AS APPROVED BY EVERSOURCE. OTHERWISE, TURBIDITY MONITORING DURING DEWATERING ACTIVITIES WILL BE REQUIRED.
15. ANY PROPOSED SUPPORT FILLS SHALL BE CLEAN GRAVEL AND STONE, FREE OF WASTE METAL PRODUCTS, ORGANIC MATERIALS AND SIMILAR DEBRIS AND SHALL NOT EXCEED THE AMOUNT PERMITTED. THIS ALLOWABLE FILL IS THE ONLY FILL THAT MAY REMAIN IN THE WETLAND AFTER CONSTRUCTION. ALL CUT AND FILLS SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
16. INSTALL NEW POLES IN THE LOCATIONS DESIGNATED ON THE PERMITTING PLANS.
17. WIRE INSTALLATION WILL BE PERFORMED IN A MANNER SO AS TO AVOID, OR LIMIT TO THE MAXIMUM EXTENT POSSIBLE, TRAVERSING WETLANDS WITH HEAVY EQUIPMENT. IN SOME CASES, A HELICOPTER MAY BE USED DURING THE INSTALLATION TO MINIMIZE IMPACTS.
18. REMOVAL OF THE OLD POLE WILL OCCUR ONCE THE WIRE HAS BEEN INSTALLED ON THE NEW STRUCTURE. THE OLD STRUCTURES WILL BE REMOVED FROM THE SITE. POLES WILL BE CUT AT THE GROUND SURFACE. FOOTINGS WILL BE ABANDONED IN PLACE TO MINIMIZE IMPACTS.
19. ALL TIMBER MATS, MATERIAL, AND DEBRIS WILL BE REMOVED FROM THE WORK AREA UPON THE COMPLETION OF CONSTRUCTION.
20. UNLESS APPROVED AS PERMANENT IMPACT, TIMBER MATS MUST ONLY BE INSTALLED FOR ONE GROWING SEASON. TIMBER MATS INSTALLED DURING THE ACTIVE GROWING SEASON (MAY 1 TO OCTOBER 1) MUST BE REMOVED PRIOR TO THE START OF THE FOLLOWING GROWING SEASON (BY APRIL 30 LATEST).
21. UPLAND DISTURBED AREAS SHALL BE RESTORED AND STABILIZED UPON COMPLETION OF CONSTRUCTION. WORK PAD RESTORATION SHOULD INCLUDE REDUCING THE WORK PAD TO A 30 BY 60 FOOT AREA, AND REDUCING SLOPES TO A MAXIMUM OF 25%. STOCKPILED MATERIAL SHOULD BE SPREAD TO REDUCE ANY UNNECESSARY SLOPES. GRAVEL WORK PADS AND SLOPES SHOULD BE SCARIFIED TO A MINIMUM OF 3" BEFORE SPREADING TOPSOIL/LOAM. DISTURBED UPLANDS SHALL BE SEEDED WITH A GRASS MIX.
22. TEMPORARY WETLAND IMPACTS WILL BE RE-GRADED TO ORIGINAL CONTOURS TO THE GREATEST EXTENT PRACTICABLE FOLLOWING CONSTRUCTION. EROSION CONTROL/RESTORATION SEED MIX WILL BE APPLIED AS NECESSARY IF THE SURROUNDING NATIVE SEED BANK DOES NOT RESULT IN ADEQUATE VEGETATIVE COVER.
23. MULCH USED FOR STABILIZATION SHALL CONSIST OF SEEDLESS STRAW.
24. SEDIMENT AND EROSION CONTROL MEASURES WILL BE EVALUATED AND REMOVED IF NECESSARY UPON THE COMPLETION OF CONSTRUCTION.
25. UNLESS OTHERWISE REQUESTED BY UNDERLYING PROPERTY OWNERS AND APPROVED BY EVERSOURCE, COMMERCIAL LOAM WILL NOT BE USED AS PART OF RESTORATION. ONLY IN-SITU TOPSOIL WILL BE USED TO RESTORE DISTURBED AREAS.
26. RESTORATION REQUIREMENTS MAY INLCUDE A PERCENT COVER GOAL AND EXTEND BEYOND THE FINAL CONSTRUCTION ACTIVITIES.

**WINTER CONSTRUCTION NOTES:**

1. PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED. STABILIZATION METHODS SHALL INCLUDE SEEDING AND MULCH, AND INSTALLATION OF EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING. ELSEWHERE, THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
2. DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE TEMPORARILY STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
3. AFTER NOVEMBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL (NH DOT 304.3).
4. PROJECTS IN WHICH THERE IS AN ACTIVE NOI AND CONSTRUCTION IS COMPLETED BETWEEN OCTOBER 15 AND APRIL 31 MUST BE MONITORED FOR A MINIMUM OF 70% VEGETATIVE GROWTH IN ORDER TO SUBMIT A NOT THROUGH THE EPA.

**GENERAL NOTES:**

OWNER: EVERSOURCE ENERGY  
13 LEGENDS DRIVE  
HOOKSETT, NH 03106

1. BASE PLAN PROVIDED BY EVERSOURCE ENERGY. EVERSOURCE ENERGY PROVIDED THE UTILITY DESIGN.
2. JURISDICTIONAL WETLANDS WERE DELINEATED BY OTHERS AND CONFIRMED BY GZA GEOENVIRONMENTAL, INC. IN 2023. IN ACCORDANCE WITH THE 1987 U.S. ARMY CORPS OF ENGINEERS' "WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1," AND REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTHEAST REGION," JANUARY 2012. WETLANDS WILL BE REVIEWED BY GZA GEOENVIRONMENTAL, INC. PRIOR TO START OF WORK.
3. GZA EVALUATED WETLANDS AS POTENTIAL VERNAL POOLS IN 2023 IN ACCORDANCE WITH "IDENTIFICATION AND DOCUMENTATION OF VERNAL POOLS IN NEW HAMPSHIRE," 2016, NEW HAMPSHIRE FISH AND GAME DEPARTMENT, NONGAME AND ANDANGERED WILDLIFE PROGRAM.
4. SITE PLAN IS FOR PERMITTING PURPOSES ONLY AND DOES NOT REPRESENT A PROPERTY BOUNDARY SURVEY.
5. THE PROJECT WILL BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800, AS WELL AS SECTION 2.10 OF THE NHDES BEST MANAGEMENT PRACTICES MANUAL FOR UTILITY MAINTENANCE IN AND ADJACENT TO WETLANDS AND WATERBODIES IN NEW HAMPSHIRE RELATIVE TO INVASIVE SPECIES.
6. IN ACCORDANCE WITH ENV-WQ 1505.02, THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
  - A MINIMUM 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED
  - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL HAS BEEN INSTALLED
  - OR, EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

**EROSION CONTROL/RESTORATION NOTES:**

1. INSTALLATION OF EROSION CONTROL GRINDINGS AND/OR SILT FENCES SHALL BE COMPLETE PRIOR TO THE START OF WORK IN ANY GIVEN AREA. EROSION CONTROLS SHALL BE USED DURING CONSTRUCTION AND REMOVED WHEN ALL SLOPES HAVE A HEALTHY STAND OF VEGETATION COVER. EROSION CONTROL MEASURES SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER .25" OR GREATER RAINFALL EVENTS.
2. AS REQUIRED, CONSTRUCT TEMPORARY BERMS, SILTATION FENCES, SEDIMENT TRAPS, ETC. TO PREVENT EROSION & SEDIMENTATION OF WETLANDS.
3. THE WORK AREA SHALL BE GRADED AND OTHERWISE SHAPED IN SUCH A MANNER AS TO MINIMIZE SOIL EROSION, SILTATION OF DRAINAGE CHANNELS, DAMAGE TO EXISTING VEGETATION, AND DAMAGE TO PROPERTY OUTSIDE LIMITS OF THE WORK AREA. EROSION CONTROL GRINDINGS WILL BE NECESSARY TO ACCOMPLISH THIS END.
4. ANY STRIPPED TOPSOIL SHALL BE STOCKPILED, WITHOUT COMPACTION, AND STABILIZED WITH BMPS.
5. PERMANENT OR TEMPORARY COVER MUST BE IN PLACE BEFORE THE GROWING SEASON ENDS. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 15 TO SEPTEMBER 15. NO DISTURBED AREA SHALL BE LEFT EXPOSED DURING WINTER MONTHS, PLANT SUITABLE GRASS MIX PRIOR TO OCTOBER 15TH.
6. EROSION CONTROL MATTING, IF REQUIRED, WILL CONSIST OF JUTE MATTING. MATTING WITH WELDED PLASTIC OR 'BIODEGRADABLE PLASTIC' NETTING OR THREAD IS NOT PERMITTED.
7. PER ENV-WT 307.03(C)(6), WATER QUALITY CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL DISTURBED SURFACES ARE STABILIZED TO A CONDITION IN WHICH SOILS ON THE SITE WILL NOT EXPERIENCE ACCELERATED OR UNNATURAL EROSION, SUCH AS ACHIEVING 85% OF GREATER VEGETATIVE COVER USIN AN EROSION CONTROL SEED MIX.

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR THE USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

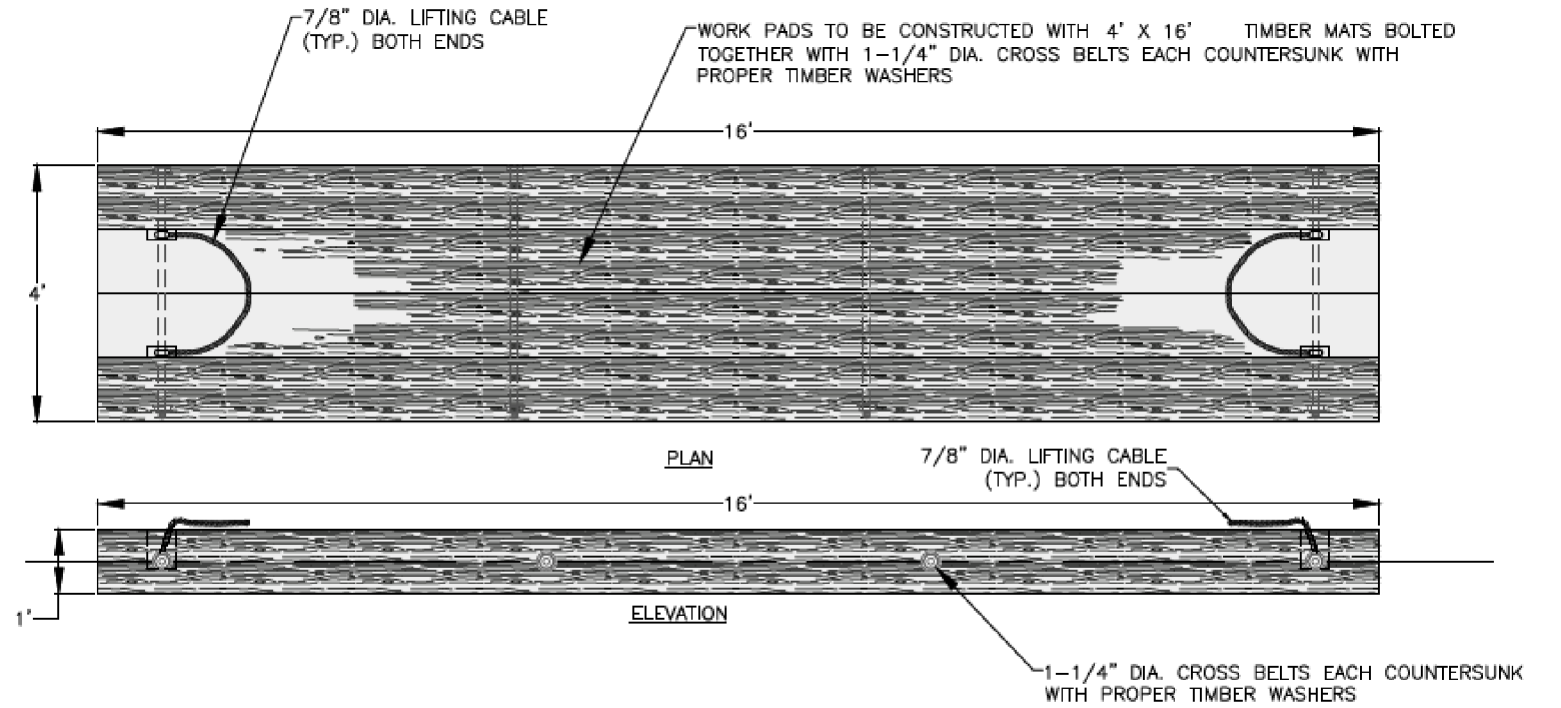
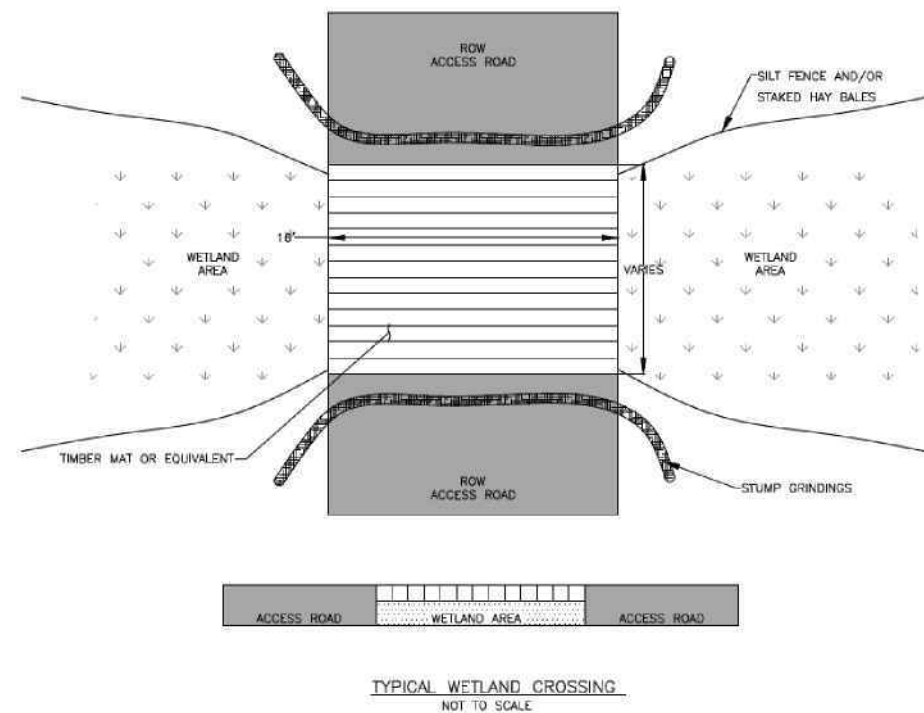
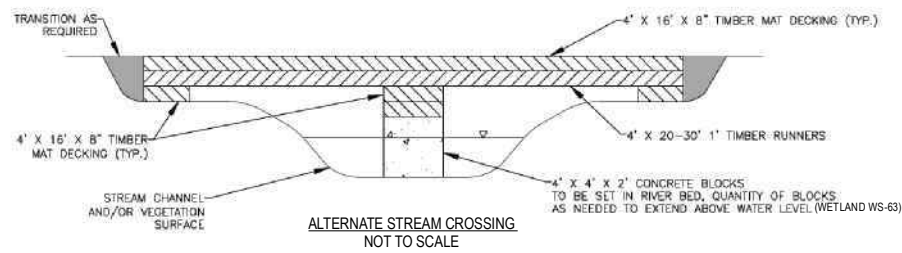
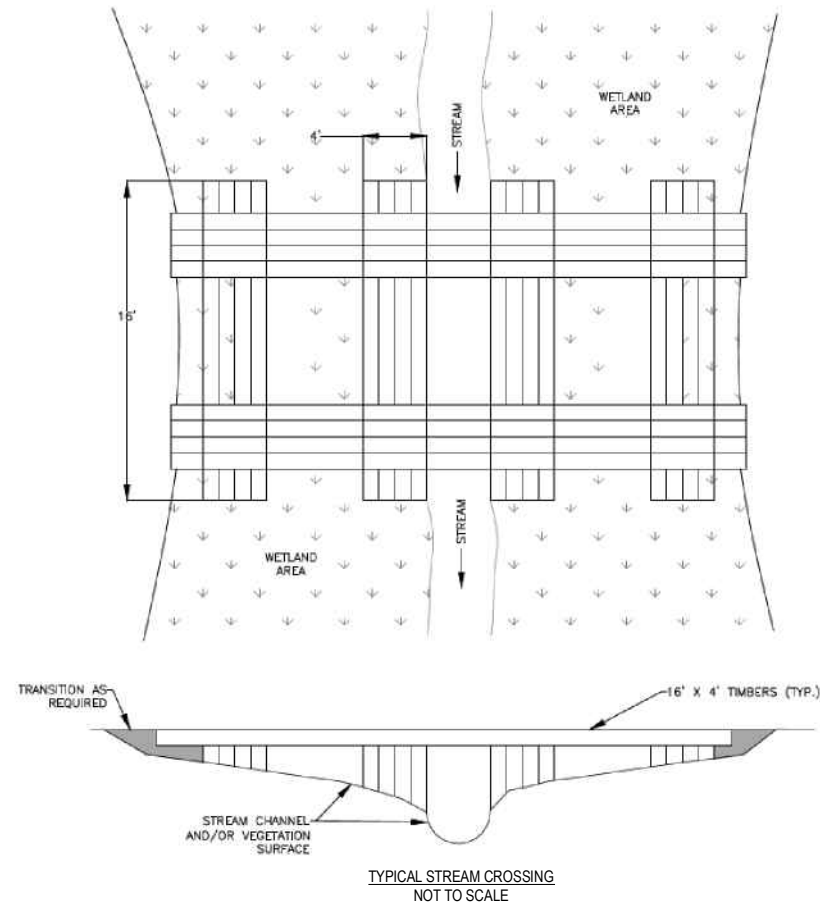
**X178-2 TRANSMISSION LINE REBUILD  
AND OPGW PROJECT**  
SUGAR HILL, EASTON, AND WOODSTOCK, NEW HAMPSHIRE

**NOTES**

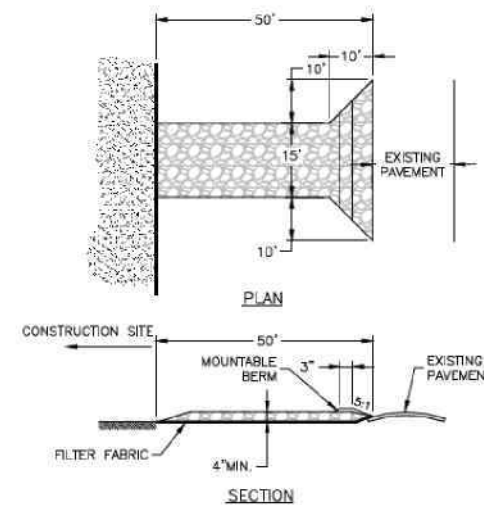
PREPARED BY: <b>GZA GeoEnvironmental, Inc.</b> Engineers and Scientists www.gza.com		PREPARED FOR: 	
PROJ MGR: LEW	REVIEWED BY: TLT	CHECKED BY: DMZ	SHEET
DESIGNED BY: MJD	DRAWN BY: MJD	SCALE:	<b>S1</b>
DATE: 3/13/2024	PROJECT NO: 04.0191410.39	REVISION NO:	



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TYPICAL TIMBER MAT DETAIL  
NOT TO SCALE



TEMPORARY CONSTRUCTION ENTRANCE / EXIT  
NOT TO SCALE

NOTES

1. STONE SIZE - USE 2" STONE ( MINIMUM) TO 6" STONE (MAXIMUM).
2. LENGTH - GREATER THAN OR EQUAL TO 50 FEET WITH THICKNESS OF 4".
3. WIDTH - FIFTEEN (15) FOOT TYP., BUT NOT LESS THAN FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
4. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS ENTRANCE. IF PIPING IS IMPRACTICAL, MOUNTABLE BERM SHALL BE PERMITTED.
5. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING AND ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
6. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED.
7. THE CLEAN STONE SHOULD BE INSTALLED OVER A GEOTEXTILE FABRIC. GEOTEXTILE FABRIC MAY BE OMITTED FOR PERMANENT CONSTRUCTION ENTRANCES-EXITS ON A CASE-BY-CASE BASIS WITH THE APPROVAL OF THE NATIONAL GRID ENVIRONMENTAL.
8. FOLLOWING CONSTRUCTION, THE CONSTRUCTION ENTRANCE / EXIT SHALL BE REMOVED AND THE AREA GRADED, SEEDED, AND MULCHED AS NEEDED. ENTRANCE / EXITS MAY REMAIN DEPENDING UPON FUTURE ACCESS NEEDS AND / OR PROJECT-SPECIFIC APPROVALS BUT REQUIRES APPROVALS FROM THE NATIONAL GRID ENVIRONMENTAL AND PROPERTY LEGAL.

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR THE USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

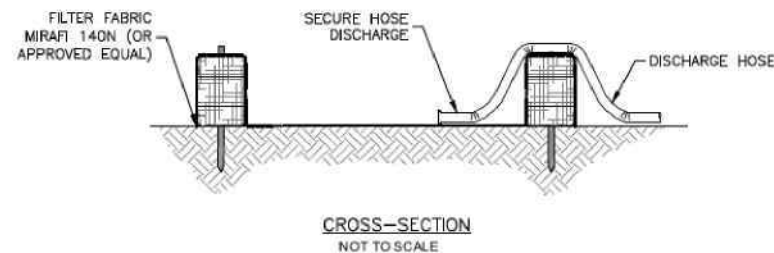
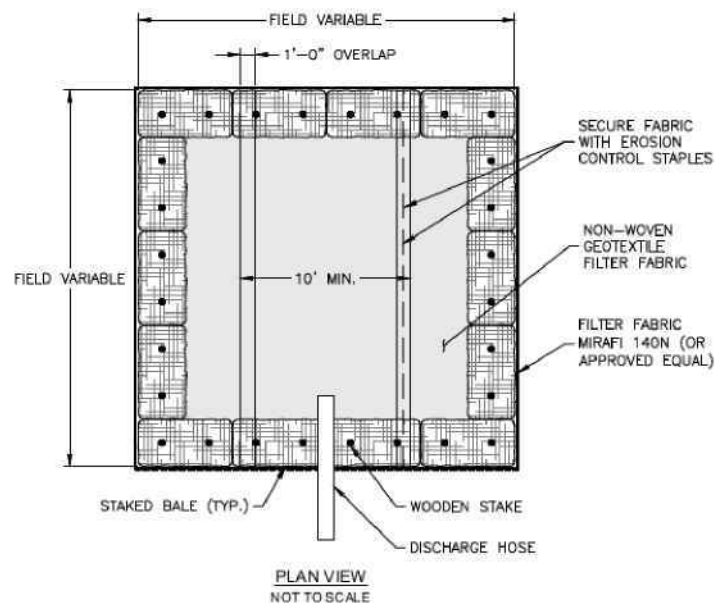
X178 TRANSMISSION LINE REBUILD  
AND OPGW PROJECT  
SUGAR HILL, EASTON, AND WOODSTOCK, NEW HAMPSHIRE

BMP DETAILS

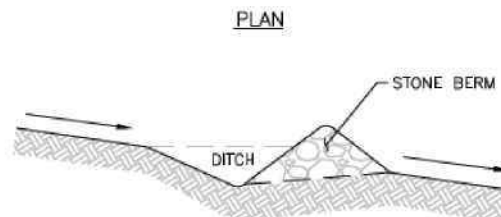
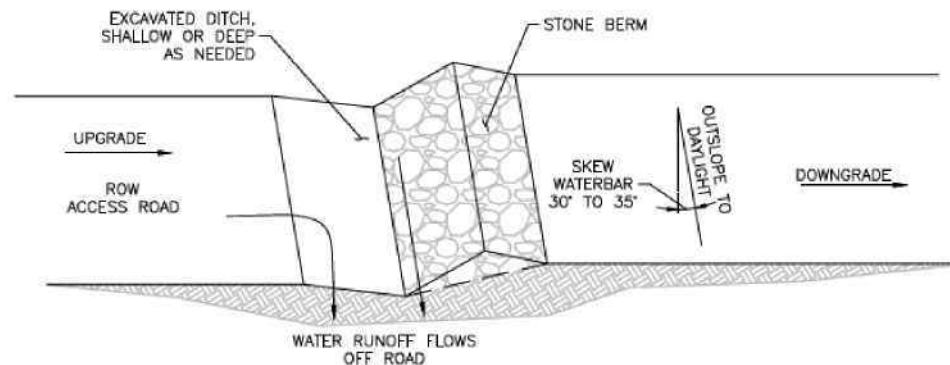
PREPARED BY: <b>GZA</b> GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: <b>EVERSOURCE</b> ENERGY	
PROJ MGR: CEM	REVIEWED BY: TLT	CHECKED BY: DMZ	SHEET
DESIGNED BY: HP	DRAWN BY: LEW	SCALE:	<b>S2</b>
DATE: 3/13/2024	PROJECT NO: 04.0191410.39	REVISION NO.	



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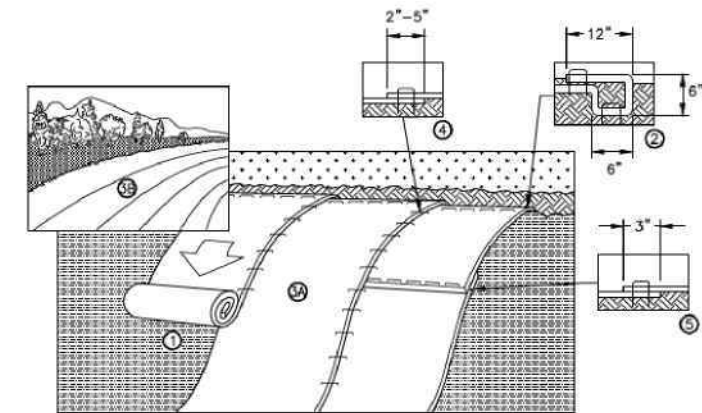
**DEWATERING BASIN DETAIL**



**TYPICAL WATER BAR DETAIL**  
NOT TO SCALE

**NOTES:**

1. DITCHES CAN BE DUG/CONSTRUCTED ALONG SIDE OF ACCESS ROAD, PER ENGINEERS DESIGN.
2. WATER BAR OUTLET SHOULD DRAIN AT A 3% OUT-SLOPE ONTO LEVEL SPREADER, UNDISTURBED LITTER OR VEGETATION.

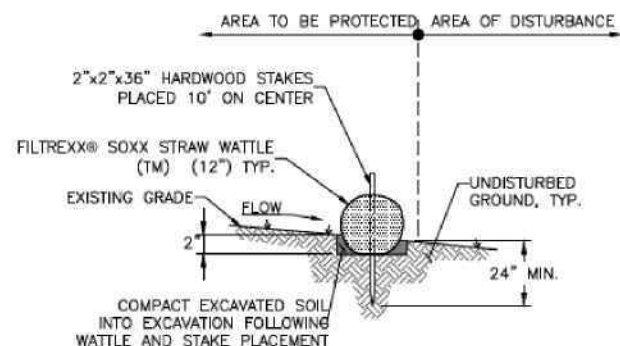


**NOTES:**

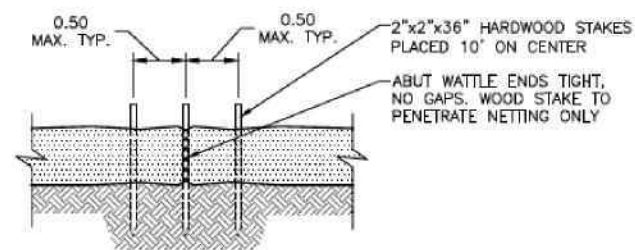
1. EROSION CONTROL BLANKET SHOULD BE INSTALLED VERTICALLY DOWNSLOPE.
2. STAKES/STAPLES SHOULD BE PLACED NO MORE THAN 3 FT. APART VERTICALLY AND 1 FT. APART HORIZONTALLY.
3. SLOPE SURFACES SHOULD BE FREE OF DEBRIS, INCLUDING STICKS, ROCKS AND OTHER OBSTRUCTIONS.
4. BLANKETS SHOULD BE ROLLED OUT LOOSELY AND STAKED/STAPLED TO MAINTAIN DIRECT SOIL CONTACT. DO NOT STRETCH THE BLANKETS.
5. DESIGNER/ENGINEER SHALL CHOOSE THE TYPE OF BLANKET OR MATTING DEPENDING ON SPECIFIC OBJECTIVES AND SITE CONDITIONS.

**INSTALLATION NOTES:**

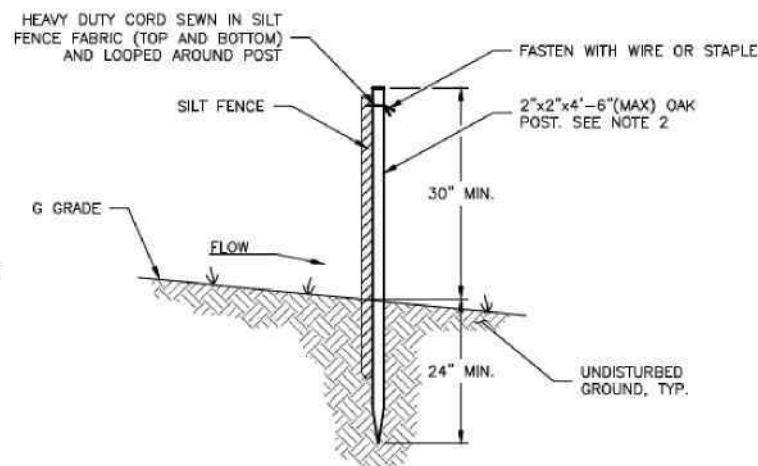
1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 6" (15cm) DEEP x 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE RECP's.
3. ROLL THE RECP's (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE(tm). WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm - 12.5cm) OVERLAP DEPENDING ON RECP'S TYPE.
5. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE RECP'S WIDTH.



**STRAW WATTLE DETAIL**  
NOT TO SCALE



**STRAW WATTLE OVERLAP**  
NOT TO SCALE



**SILT FENCE DETAIL**  
NOT TO SCALE

**NOTES:**

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH NEW HAMPSHIRE ENV-WQ 1506 STANDARDS.
2. SILT FENCE SHOULD BE INSTALLED "TIGHT" AGAINST SILT FENCE. THOROUGHLY COMPACT EXCAVATED SOILS BACK INTO TRENCH AFTER INSTALLATION OF EROSION CONTROL DEVICE. SILT FENCE FABRIC SHALL NOT BE SLIT. STANDARD 9.1.0 POST SHALL BE DRIVEN THROUGH SILT FENCE FABRIC. 2"x2"x4'-6"(MAX) O.C. IN WETLAND AREAS AND 4'-0"(MAX) O.C. IN WETLAND RAVINE GULLY OR DROP OFF AREAS AS SHOWN ON PLANS.
3. 1"x1"x 4'-6"(MIN) POSTS PERMITTED FOR PREFABRICATED SILT FENCE.
4. SILT FENCE SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.

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**X178 TRANSMISSION LINE REBUILD AND OPGW PROJECT**  
SUGAR HILL, EASTON, AND WOODSTOCK, NEW HAMPSHIRE

**BMP DETAILS**

PREPARED BY: <b>GZA</b> GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: <b>EVERSOURCE</b> ENERGY	
PROJ MGR: LEW	REVIEWED BY: TLT	CHECKED BY: DMZ	SHEET <b>S3</b>
DESIGNED BY: HP	DRAWN BY: LEW	SCALE:	
DATE: 3/13/2024	PROJECT NO: 04.0191410.39	REVISION NO.	



**NEW HAMPSHIRE FISH AND GAME AOT PERMIT CONDITIONS IN ACCORDANCE WITH ENV-WQ 1504.18 – WILDLIFE PROTECTION NOTES:**

**NHB22-3461 (WOODSTOCK), NHB22-3462 (LINCOLN), NHB22-3463 (EASTON), NHB22-3464 (SUAGR HILL)**

**NEW HAMPSHIRE FISH AND GAME PERMIT CONDITIONS:**

1. WOOD TURTLES (STATE SPECIES OF SPECIAL CONCERN) OCCUR WITHIN THE VICINITY OF THE PROJECT AREA. ALL OPERATORS AND PERSONNEL WORKING ON OR ENTERING THE SITE SHALL BE MADE AWARE OF THE POTENTIAL PRESENCE OF THESE SPECIES AND SHALL BE PROVIDED FLYERS THAT HELP TO IDENTIFY THESE SPECIES, ALONG WITH NHFG CONTACT INFORMATION. SEE PLAN SHEET 4-5.
2. RARE SPECIES INFORMATION (E.G. IDENTIFICATION, OBSERVATION AND REPORTING OF OBSERVATIONS, WHEN TO CONTACT NHFG IMMEDIATELY AND NHFG CONTACT INFORMATION) SHALL BE POSTED ON SITE AT ALL TIMES AND COMMUNICATED DURING MORNING TAILGATE MEETINGS PRIOR TO WORK COMMENCEMENT.
3. TURTLES AND SNAKES MAY BE ATTRACTED TO DISTURBED GROUND DURING NESTING SEASON. TURTLE NESTING SEASON OCCURS APPROXIMATELY MAY 15TH – JUNE 30TH. NESTING AREAS MAY INCLUDE WORK PADS AND ACCESS ROADS THAT ARE NOT HARD PACK GRAVEL AND OTHER SANDY/GRAVEL WORK AREAS. ALL TURTLE SPECIES NESTS ARE PROTECTED BY NH LAWS. BE AWARE OF THE POTENTIAL TO ENCOUNTER NESTING WILDLIFE IN THESE AREAS.
4. IF A NEST IS OBSERVED OR SUSPECTED, OPERATORS SHALL CONTACT MELISSA WINTERS (603-479-1129) OR JOSH MEGYESY (978-578-0802) AT NHFG IMMEDIATELY FOR FURTHER CONSULTATION. THE NEST OR SUSPECTED NEST SHALL BE MARKED (SURROUNDING ROPED OFF OR CONE BUFFER) AND AVOIDED; THIS SHALL BE COMMUNICATED TO ALL PERSONNEL ONSITE. SITE ACTIVITIES SHALL NOT OCCUR IN THE AREA SURROUNDING THE NEST OR SUSPECTED NEST UNTIL FURTHER GUIDANCE IS PROVIDED BY NHFG.
5. VERNAL POOLS AND POTENTIAL VERNAL POOLS (PVP) SHALL BE FLAGGED PRIOR TO WORK, AND IMPACTS SHALL BE AVOIDED WITH THE FOLLOWING EXCEPTIONS AS DESCRIBED IN THE TABLE EMBEDDED IN THE ATTACHED SCREENSHOT TITLED, "VERNAL POOL SUMMARY EVS X178":
  1. WETLAND WS-75 AND L/ET-16 CONTAIN VERNAL POOLS WITHIN THE PROPOSED WORK PAD AREA FOR STRUCTURES 180 AND 269. THE WORK PADS MAY OVERLAP THESE VERNAL POOLS TO CONSTRUCT A SAFE WORK AREA. TEMPORARY TIMBER MATTING SHALL BE UTILIZED AND RESTORATION SHALL OCCUR FOLLOWING IMPACTS. IMPACTS TO THE VERNAL POOLS SHALL ONLY OCCUR DECEMBER 1 TO MARCH 1. WORK SHALL OCCUR UNDER FROZEN OR DRY CONDITIONS IF POSSIBLE. NHFG SHALL BE NOTIFIED PRIOR TO DISTURBANCE.
6. NO DISTURB VEGETATIVE BUFFERS OF 50' SHALL BE MAINTAINED AROUND VERNAL POOLS WHEREVER POSSIBLE. NHFG ACKNOWLEDGES THE FOLLOWING VERNAL POOL BUFFER IMPACTS AS DESCRIBED IN THE TABLE EMBEDDED IN THE ATTACHED SCREENSHOT TITLED, "VERNAL POOL SUMMARY EVS X178":
  1. WETLANDS WS-64, WS-75, WS-117, L-73, L-66, L-42, L-41, L-40, L/ET-16, LW-1, ET-31, ET-37 CONTAIN VERNAL POOLS. TEMPORARY TIMBER MATTING WILL BE UTILIZED WITHIN 50-FT OF THESE VERNAL POOLS.
7. ALL MATTING WHICH WILL BE PLACED IN WATERBODIES DEEMED SUITABLE FOR HIBERNATING RARE TURTLES WILL BE PLACED PRIOR TO THE START OF THE INACTIVE SEASON (OCTOBER 16-MARCH 31) SO AS TO PREVENT ACCIDENTAL PLACEMENT ATOP HIBERNATING TURTLES. AREAS IDENTIFIED AS SUITABLE HIBERNATION HABITAT SHALL BE IDENTIFIED ON PLAN SHEETS AND PROVIDED TO NHFG AT LEAST TWO WEEKS PRIOR TO BEGINNING WORK.
8. IMMEDIATELY PRIOR TO THE PLACEMENT OF MATTING IN WETLANDS DURING THE ACTIVE SEASON (APRIL 1-OCTOBER 15), THE AREAS SHALL BE CLEARED BY A TRAINED INDIVIDUAL. A TRAINED INDIVIDUAL SHALL BE DEFINED AS ANY CONTRACTOR WHO HAS GONE THROUGH PROJECT-SPECIES PROTECTION EDUCATION CONDUCTED BY THE QUALIFIED BIOLOGIST ON RARE WILDLIFE SPECIES AT THE SITE. CONTACT NHFG IF TURTLES IN MATTING AREAS ARE OBSERVED OR SUSPECTED.
9. FOR ALL WORK PADS, STAGING AREAS, MATTING, AND ACCESS ROADS, SEARCHES AND SWEEPS SHALL BE CONDUCTED BY TRAINED INDIVIDUALS IMMEDIATELY BEFORE THE START OF WORK AND MOVEMENT OF EQUIPMENT IN ORDER TO MINIMIZE THE CHANCE OF ANIMALS ENTERING AN AREA BETWEEN THE SWEEP AND WORK. A TRAINED INDIVIDUAL SHALL BE DEFINED AS ANY CONTRACTOR WHO HAS GONE THROUGH PROJECT-SPECIES PROTECTION EDUCATION CONDUCTED BY THE QUALIFIED BIOLOGIST ON RARE WILDLIFE SPECIES AT THE SITE.
10. ALL WORK ACTIVITIES SHALL BE RESTRICTED TO THE DEFINED ROADS, CONSTRUCTION AREAS, AND STAGING AREAS, WITH NO EQUIPMENT OR MATERIALS STAGED OR STORED OUTSIDE OF THE DEFINED AREAS AS SHOWN ON PLAN SHEETS OR EQUIVALENT DOCUMENT.
  1. MINOR FIELD CHANGES TO ACCESS ROADS AND WORK PADS INCLUDING: SHIFTING ACCESS FROM ONE SIDE OF THE RIGHT OF WAY TO THE OTHER, SHIFTING OF WORK PADS AND STAGING AREAS FORWARD OR BACKWARDS, BUT NOT INCREASING THE OVERALL SQUARE FOOTAGE OF THE WORK PADS OR STAGING AREAS, MAY BE CONSIDERED BASED ON LOCATION. NHFG SHALL BE NOTIFIED OF ANY PROPOSED CHANGES.
11. WORK, PULL PADS, AND ACCESS SHALL BE MINIMIZED TO THE GREATEST EXTENT POSSIBLE.
12. WORK PADS SHALL BE REDUCED POST-CONSTRUCTION TO 30' X 60' AND RESTORED WITH A NATIVE VEGETATIVE SEED MIX.
13. ALL MANUFACTURED EROSION AND SEDIMENT CONTROL PRODUCTS, WITH THE EXCEPTION OF TURF REINFORCEMENT MATS, UTILIZED FOR, BUT NOT LIMITED TO, SLOPE PROTECTION, RUNOFF DIVERSION, SLOPE INTERRUPTION, PERIMETER CONTROL, INLET PROTECTION, CHECK DAMS, AND SEDIMENT TRAPS SHALL NOT CONTAIN PLASTIC, OR MULTIFILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AN OPENING SIZE OF GREATER THAN 1/8 INCHES;
14. ALL OBSERVATIONS OF THREATENED OR ENDANGERED SPECIES ON THE PROJECT SITE SHALL BE REPORTED IMMEDIATELY TO THE NHFG NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM BY PHONE AT 603-271-2461 AND BY EMAIL AT NHFGREVIEW@WILDLIFE.NH.GOV, WITH THE EMAIL SUBJECT LINE CONTAINING THE NHB DATACHECK TOOL RESULTS LETTER ASSIGNED NUMBER, THE PROJECT NAME, AND THE TERM WILDLIFE SPECIES OBSERVATION;
15. PHOTOGRAPHS OF THE OBSERVED SPECIES AND NEARBY ELEMENTS OF HABITAT OR AREAS OF LAND DISTURBANCE SHALL BE PROVIDED TO NHFG IN DIGITAL FORMAT AT THE ABOVE EMAIL ADDRESS FOR VERIFICATION, AS FEASIBLE;
16. IN THE EVENT A THREATENED OR ENDANGERED SPECIES IS OBSERVED ON THE PROJECT SITE DURING THE TERM OF THE PERMIT, THE SPECIES SHALL NOT BE DISTURBED, HANDLED, OR HARMED IN ANY WAY PRIOR TO CONSULTATION WITH NHFG AND IMPLEMENTATION OF CORRECTIVE ACTIONS RECOMMENDED BY NHFG.
  1. SITE OPERATORS OR TRAINED INDIVIDUALS SHALL BE ALLOWED TO RELOCATE WILDLIFE ENCOUNTERED IF DISCOVERED WITHIN THE ACTIVE WORK ZONE AND IF IN DIRECT HARM FROM PROJECT ACTIVITIES. WILDLIFE SHALL BE RELOCATED IN CLOSE PROXIMITY TO THE CAPTURE LOCATION BUT OUTSIDE OF THE WORK ZONE AND IN THE DIRECTION THE INDIVIDUAL WAS HEADING. NHFG SHALL BE CONTACTED IMMEDIATELY IF THIS ACTION OCCURS.
17. THE NHFG, INCLUDING ITS EMPLOYEES AND AUTHORIZED AGENTS, SHALL HAVE ACCESS TO THE PROPERTY DURING THE TERM OF THE PERMIT.



**ADDITIONAL RECOMMENDATIONS:**

1. SMOOTH GREEN SNAKES (STATE SPECIES OF SPECIAL CONCERN) OCCUR WITHIN THE VICINITY OF THE PROJECT SITE. ALL OPERATORS AND PERSONNEL WORKING ON OR ENTERING THE SITE SHOULD BE MADE AWARE OF THE POTENTIAL PRESENCE OF THESE SPECIES AND SHOULD BE PROVIDED FLYERS THAT HELP TO IDENTIFY THESE SPECIES, ALONG WITH NHFG CONTACT INFORMATION. RARE SPECIES INFORMATION (E.G. IDENTIFICATION, OBSERVATION AND REPORTING OF OBSERVATIONS, WHEN TO CONTACT NHFG IMMEDIATELY AND NHFG CONTACT INFORMATION) SHOULD BE POSTED ON SITE AT ALL TIMES AND COMMUNICATED DURING MORNING TAILGATE MEETINGS PRIOR TO WORK COMMENCEMENT. SEE PLAN SHEET 4-5.
2. NEW HAMPSHIRE FISH AND GAME RECOMMENDS THAT THE ABOVE CONSERVATION MEASURES ARE APPLIED TO ALL WORK THROUGHOUT THE LINE, INCLUDING IN THE TOWNS OF WOODSTOCK, LINCOLN, AND SUGAR HILL WHERE THERE WERE NO KNOWN OBSERVATIONS OF RARE SPECIES.

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR THE USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

**X178-2 TRANSMISSION LINE REBUILD AND OPGW PROJECT**  
SUGAR HILL, EASTON, AND WOODSTOCK, NEW HAMPSHIRE

**NOTES**

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PROJ MGR: LEW	REVIEWED BY: TLT	CHECKED BY: DMZ	SHEET <b>S4</b>
DESIGNED BY: MJD	DRAWN BY: MJD	SCALE:	
DATE: 3/13/2024	PROJECT NO: 04.0191410.39	REVISION NO:	



**WOOD TURTLE (GLYPTEMYS INSCULPTA)**

STATE SPECIES OF SPECIAL CONCERN



**WOOD TURTLE IDENTIFICATION**

1. NECK AND FORELIMBS ARE ORANGE.
2. CHARACTERIZED BY ITS HIGHLY SCULPTED SHELL WITH EACH LARGE SCUTE TAKING ON AN IRREGULAR PYRAMIDAL SHAPE.
3. ADULTS CAN BE 5-8 INCHES LONG.

**SMOOTH GREEN SNAKE (LIOCHLOROPHIS VERNALIS)**

SPECIES OF SPECIAL CONCERN



**SMOOTH GREEN SNAKE IDENTIFICATION**



1. A THIN, SLENDER BRIGHT-GREEN SNAKE MEASURING 10-20 INCHES
2. THE UNDERSIDE IS WHILE OR PALE YELLOW

\*ALL PHOTOS AND IDENTIFICATION INFORMATION COURTESY OF NEW HAMPSHIRE FISH AND GAME DEPARTMENT.

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X178-2 TRANSMISSION LINE REBUILD  
AND OPGW PROJECT  
SUGAR HILL, EASTON, AND WOODSTOCK,  
NEW HAMPSHIRE

**WILDLIFE NOTES**

PREPARED BY:  <b>GZA</b> GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: 	
PROJ MGR: LEW	REVIEWED BY: TLT	CHECKED BY: DMZ	SHEET
DESIGNED BY: MJD	DRAWN BY: MJD	SCALE:	
DATE: 3/13/2024	PROJECT NO: 04.0191410.39	REVISION NO:	<b>S5</b>





## **Appendix A – Alteration of Terrain Permit Application Form**





# ALTERATION OF TERRAIN PERMIT APPLICATION

Water Division / Land Resources Management

[Check the status of your application](#)



**RSA / Rule:** RSA 485-A:17, Env-Wq 1500

Administrative Use Only	Administrative Use Only	Administrative Use Only	File Number:
			Check No.
			Amount:
			Initials:

<b>1. APPLICANT INFORMATION (INTENDED PERMIT HOLDER)</b>			
Applicant Name:		Contact Name:	
Email:		Daytime Telephone:	
Mailing Address:			
Town/City:		State:	ZIP Code:
<b>2. APPLICANT'S AGENT INFORMATION</b> If none, check here: <input type="checkbox"/>			
Agent's Name:		Contact Name:	
Email:		Daytime Telephone:	
Address:			
Town/City:		State:	ZIP Code:
<b>3. PROPERTY OWNER INFORMATION (IF DIFFERENT FROM APPLICANT)</b> Check here if more than one property owner, and attach additional sheets as necessary: <input type="checkbox"/>			
Owner's Name:		Contact Name:	
Email:		Daytime Telephone:	
Mailing Address:			
Town/City:		State:	ZIP Code:
<b>4. PROPERTY OWNER'S AGENT INFORMATION</b> If none, check here: <input type="checkbox"/>			
Business Name:		Contact Name:	
Email:		Daytime Telephone:	
Address:			
Town/City:		State:	ZIP Code:
<b>5. CONSULTANT INFORMATION</b> If none, check here: <input type="checkbox"/>			
Engineering Firm:		Contact Name:	
Email:		Daytime Telephone:	
Address:			
Town/City:		State:	ZIP Code:



<b>6. PROJECT TYPE</b>					
<input type="checkbox"/> Excavation Only	<input type="checkbox"/> Residential	<input type="checkbox"/> Commercial	<input type="checkbox"/> Golf Course	<input type="checkbox"/> School	<input type="checkbox"/> Municipal
<input type="checkbox"/> Agricultural	<input type="checkbox"/> Land Conversion	<input type="checkbox"/> Other:			
<b>7. PROJECT LOCATION INFORMATION</b>					
Project Name:					
Street/Road Address:					
Town/City:			County:		
Tax Map:	Block:	Lot Number:		Unit:	
Post-development, will the proposed project withdraw from or directly discharge to any of the following? If yes, identify the purpose.					
1. Stream or Wetland Purpose:		<input type="checkbox"/> Yes	<input type="checkbox"/> Withdrawal	<input type="checkbox"/> Discharge	
		<input type="checkbox"/> No			
2. Artificial pond created by impounding a stream or wetland Purpose:		<input type="checkbox"/> Yes	<input type="checkbox"/> Withdrawal	<input type="checkbox"/> Discharge	
		<input type="checkbox"/> No			
3. Unlined pond dug into the water table Purpose:		<input type="checkbox"/> Yes	<input type="checkbox"/> Withdrawal	<input type="checkbox"/> Discharge	
		<input type="checkbox"/> No			
Post-development, will the proposed project discharge to:					
• Within one-quarter mile of a surface water impaired for phosphorus and/or nitrogen? <input type="checkbox"/> No <input type="checkbox"/> Yes					
• Within one-quarter mile of a Class A surface water or within the watershed area of an Outstanding Resource Water? <input type="checkbox"/> No <input type="checkbox"/> Yes					
• Within one-quarter mile of a lake or pond not covered previously? <input type="checkbox"/> No <input type="checkbox"/> Yes					
Is the project a High Load area? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, specify the type of high load land use or activity:					
Is the project within a Water Supply Intake Protection Area (WSIPA)? <input type="checkbox"/> Yes <input type="checkbox"/> No					
Is the project within a Groundwater Protection Area (GPA)? <input type="checkbox"/> Yes <input type="checkbox"/> No					
Will the well setbacks identified in Env-Wq 1508.02 be met? <input type="checkbox"/> Yes <input type="checkbox"/> No					
For more details on the restrictions in these areas, read Chapter 3.1 in Volume 2 of the NH Stormwater Manual.					
Is any part of the property within the 100-year floodplain? <input type="checkbox"/> Yes <input type="checkbox"/> No					
If yes: Cut volume: cubic feet within the 100-year floodplain.					
Fill volume: cubic feet within the 100-year floodplain.					
<input type="checkbox"/> Project <i>is</i> within ¼ mile of a designated river Name of River:					
<input type="checkbox"/> Project <i>is not</i> within ¼ mile of a designated river.					
<input type="checkbox"/> Project <i>is</i> within a Coastal/Great Bay Region community.					
<input type="checkbox"/> Project <i>is not</i> within a Coastal/Great Bay Region community.					
<b>8. BRIEF PROJECT DESCRIPTION (PLEASE DO NOT REPLY "SEE ATTACHED")</b>					



**9. IF APPLICABLE, DESCRIBE ANY WORK STARTED PRIOR TO RECEIVING PERMIT.**

**10. ADDITIONAL REQUIRED INFORMATION**

A. Date a copy of the application was sent to the municipality, as required by Env-Wq 1503.05(e) (Env-Wq 1503.05(c)(6), requires proof that a completed application form, checklist, plans and specifications, and all other supporting materials have been sent or delivered to the governing body of each municipality in which the project is proposed):  
(Attach proof of delivery)

B. Date a copy of the application was sent to the local river advisory committee, if required by Env-Wq 1503.05(e) (Env-Wq 1503.05(c)(6), requires proof that a completed application form, checklist, plans and specifications, and all other supporting materials have been sent or delivered to the Local River Advisory Committee, if the project is within ¼ mile of a designated river):  
(Attach proof of delivery)

C. Type of plan required:  Land Conversion  Detailed Development  Excavation, Grading and Reclamation  
 Steep Slope

D. Additional plans required:  Stormwater Drainage and Hydrologic Soil Groups  Source Control  
 Chloride Management

E. Total area of disturbance, in square feet

F. Additional impervious cover as a result of the project, in square feet (use “-” to indicate a net reduction in impervious coverage).  
Total final impervious cover, in square feet

G. Total undisturbed cover, in square feet

H. Number of lots proposed:

I. Total length of roadway, in linear feet:

J. Name(s) of receiving water(s):

K. Identify all other NHDES permits required for the project. For each, indicate whether an application has been filed and is pending. If the required approval has been issued, provide the permit number, registration date, or approval letter number, as applicable.

Type of Approval	Application Filed?	Pending?	If Issued
1. Water Supply Approval	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/>	Permit number:
2. Wetlands Permit	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/>	Permit number:
3. Shoreland Permit	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/>	Registration date:
4. UIC Registration	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/>	Approval letter date:
5. Large/Small Community Well Approval	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/>	Permit number:
6. Large Groundwater Withdrawal Permit	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/>	Permit number:
7. Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No		

L. List all species identified by the Natural Heritage Bureau as threatened or endangered or of concern:







**11. CHECK ALL APPLICATION ATTACHMENTS THAT APPLY (SUBMIT WITH APPLICATION IN THE ORDER LISTED BELOW)****LOOSE:**

- Signed application form, with attached proof(s) of delivery.
- Check for the application fee, calculated using the [fee schedule](#) available on the NHDES [Land Development page](#).
- Color copy of a USGS map with the property boundaries outlined (1" = 2,000' scale).
- If the applicant is not the property owner, proof that the applicant will have a legal right to undertake the project on the property if a permit is issued to the applicant.

**BOUND, IN A REPORT, IN THE FOLLOWING ORDER:**

- Copy of the signed application form and application checklist.
- Copy of the check.
- Copy of the USGS map with the property boundaries outlined (1" = 2,000' scale).
- Narrative of the project with a summary table of the peak discharge rate for the off-site discharge points.
- Printout of NHDES [OneStop Mapper](#) with "Surface Water Impairments" layer turned on.
- Printout of NHDES [OneStop Mapper](#) with Alteration of Terrain screening layers turned on.
- Printout of Natural Heritage Bureau [DataCheck Tool](#) letter and any relevant correspondence with New Hampshire Fish and Game.
- USDA [Web Soil Survey Map](#) with project's watershed outlined.
- Aerial photograph (1" = 2,000' scale with the site boundaries outlined).
- Photographs representative of the site.
- Groundwater recharge volume calculations (include one [Best Management Practices worksheet](#) per permit application).
- Drainage analysis, stamped by a professional engineer (see "Application Checklist" at the end of this document).
- Riprap apron or other energy dissipation or stability calculations.
- Site Specific Soil Survey report, stamped and with a certification note prepared by the soil scientist that the survey was done in accordance with the [Site Specific Soil Mapping standards](#) of the Society of Soil Scientists of Northern New England.
- Infiltration Feasibility Report (example online) [Env-Wq 1503.08(f)(3)].
- [Registration and Notification Form](#) for [Stormwater](#) Infiltration to Groundwater (UIC Registration-for underground systems only, including drywells and trenches).
- Inspection and maintenance manual with, if applicable, long term maintenance agreements [Env-Wq 1503.08(g)].
- Source control plan.

**PLANS:**

- One set of design plans on 34 - 36" by 22 - 24" white paper (see Application Checklist for details).
- Pre- and post-development color-coded soil plans on 11" x 17" (see Application Checklist for details).
- Pre- and post-construction drainage area plans on 34 - 36" by 22 - 24" white paper (see Application Checklist for details).

**100-YEAR FLOODPLAIN REPORT:**

- All information required in Env-Wq 1503.09, submitted as a separate report.

**ADDITIONAL INFORMATION RE: NUTRIENTS, CLIMATE**

- See Application Checklist (Attachment A) for details.

- REVIEW APPLICATION FOR COMPLETENESS. CONFIRM INFORMATION LISTED ON THE APPLICATION IS INCLUDED WITH SUBMITTAL.**



**12. REQUIRED SIGNATURES**

By signing below, I certify that:

- The information contained in or otherwise submitted with this application is true, complete, and not misleading to the best of my knowledge and belief;
- I understand that the submission of false, incomplete, or misleading information constitutes grounds for the department to deny the application, revoke any permit that is granted based on the information, and/or refer the matter to the board of professional engineers established by RSA 310-A:3 if I am a professional engineer; and
- I understand that I am subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641:3.

**APPLICANT**

**APPLICANT'S AGENT:**

Signature: 

Date:

Name (print or type):

Title:

**PROPERTY OWNER**

**PROPERTY OWNER'S AGENT:**

Signature: \_\_\_\_\_

Date:

Name (print or type):

Title:



## ALTERATION OF TERRAIN PERMIT ATTACHMENT A: APPLICATION CHECKLIST

Check each box to indicate the item has been provided, or indicate why it does not apply.

### DESIGN PLANS

- Plans printed on 34 - 36" by 22 - 24" white paper.
- Professional Engineer stamp.
- Wetland delineation.
- Temporary erosion control measures.
- Treatment for all stormwater runoff from impervious surfaces such as roadways (including gravel roadways), parking areas, and nonresidential roof runoff. Guidance on treatment BMPs can be found in Volume 2, Chapter 4 of the New Hampshire Stormwater Management Manual.
- Pre-existing 2-foot contours.
- Proposed 2-foot contours.
- Drainage easements protecting the drainage/treatment structures.
- Compliance with state statute governing fill and dredge in [wetlands](#), RSA 482- A. Note that artificial detention in wetlands is prohibited.
- Compliance with the New Hampshire [Shoreland Protection Act](#), RSA 483-B.
- Benching – needed if you have more than 20 feet change in elevation on a 2:1 slope, 30 feet change in elevation on a 3:1 slope, 40 feet change in elevation on a 4:1 slope.
- Check to see if any proposed ponds require [state dam permits](#).

### DETAILS

- Typical roadway cross-section.
- Detention basin with inverts noted on the outlet structure.
- Stone berm level spreader.
- Outlet protection – riprap aprons.
- A general installation detail for an erosion control blanket.
- Silt fences or mulch berm.
- Storm drain inlet protection. Note that since hay bales must be embedded 4 inches into the ground, they are not to be used on hard surfaces such as pavement.
- Hay bale barriers.
- Stone check dams.
- Gravel construction exit.
- Temporary sediment trap.
- The treatment BMPs proposed.
- Any innovative BMPs proposed.



**CONSTRUCTION SEQUENCE / EROSION CONTROL**

- Note that the project must be managed to meet the requirements and intent of RSA 430:53 and Agr 3800 relative to [invasive species](#).
- Note that perimeter controls shall be installed prior to earth moving operations.
- Note that temporary water diversion (swales, basins, etc.) must be used as necessary until areas are stabilized.
- Note that ponds and swales shall be installed early on in the construction sequence (before rough grading the site).
- Note that all ditches and swales shall be stabilized prior to directing runoff to them.
- Note that all roadways and parking lots shall be stabilized within 72 hours of achieving finished grade.
- Note that all cut and fill slopes shall be seeded or loamed within 72 hours of achieving finished grade
- Note that all erosion controls shall be inspected weekly AND after every half-inch of rainfall.
- Note the limits on the open area allowed, see Env-Wq 1505.02 for detailed information.

Example note: The smallest practical area shall be disturbed during construction, but in no case shall exceed 5 acres at any one time before disturbed areas are stabilized.

- Note the definition of the word “stable.”

Example note: An area shall be considered stable if one of the following has occurred:

- Base course gravels have been installed in areas to be paved.
- A minimum of 85 percent vegetated growth has been established.
- A minimum of 3 inches of non-erosive material such stone or riprap has been installed.
- Or, erosion control blankets have been properly installed.

- Note the limit of time an area may be exposed.

Example note: All areas shall be stabilized within 45 days of initial disturbance.

- Provide temporary and permanent seeding specifications. Note that although reed canary grass is listed in the Green Book; it is a problematic species according to the Wetlands Bureau and therefore should not be specified.
- Provide winter construction notes that meet or exceed our standards.

Standard Winter Notes:

- All proposed vegetated areas that do not exhibit a minimum of 85 percent vegetative growth by October 15, or which are disturbed after October 15, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting, elsewhere. The installation of erosion control blankets or mulch and netting shall not occur over accumulated snow or on frozen ground and shall be completed in advance of thaw or spring melt events.
  - All ditches or swales which do not exhibit a minimum of 85 percent vegetative growth by October 15, or which are disturbed after October 15, shall be stabilized temporarily with stone or erosion control blankets appropriate for the design flow conditions.
  - After October 15, incomplete road or parking surfaces where work has stopped for the winter season shall be protected with a minimum of 3 inches of crushed gravel per NHDOT item 304.3.
- Note at the end of the construction sequence that “Lot disturbance, other than that shown on the approved plans, shall not commence until after the roadway has the base course to design elevation and the associated drainage is complete and stable.” – This note is applicable to single/duplex family subdivisions, when lot development is not part of the permit.



**DRAINAGE ANALYSES**

Please provide double-side 8 ½" × 11" sheets where possible but, **do not** reduce the text such that more than one page fits on one side.

- Professional Engineer stamp.
- Rainfall amount obtained from the [Northeast Regional Climate Center](#). Include extreme precipitation table as obtained from this source.
- Drainage analyses, in the following order:
  - Pre-development analysis: Drainage diagram.
  - Pre-development analysis: Area Listing and Soil Listing.
  - Pre-development analysis: Node listing 1-year (if applicable), 2-year, 10-year and 50-year.
  - Pre-development analysis: Full summary of the 10-year storm.
  - Post-development analysis: Drainage diagram.
  - Post-development analysis: Area Listing and Soil Listing.
  - Post-development analysis: Node listing for the 2-year, 10-year and 50-year.
  - Post-development analysis: Full summary of the 10-year storm.
- Review the Area Listing and Soil Listing reports
  - Hydrologic Soil Groups (HSG) match the HSGs on the soil maps provided.
  - There is the same or less HSG A soil area after development (check for each HSG).
  - There is the same or less "woods" cover in the post-development.
  - Undeveloped land was assumed to be in "good" condition.
  - The amount of impervious cover in the analyses is correct.

Note: A good check is to subtract the total impervious area used in the pre-analysis from the total impervious area used in the post-analysis. For residential projects without demolition occurring, a good check is to take this change in impervious area, subtract out the roadway and divide the remaining by the number of houses or units proposed. Do these numbers make sense?

- Check the storage input used to model the ponds.
- Check to see if the artificial berms pass the 50-year storm, i.e., make sure the constructed berms on ponds are not overtopped.
- Check the outlet structure proposed and make sure it matches that modeled.
- Check to see if the total areas in the pre and post analyses are same.
- Confirm the correct NRCS storm type was modeled (Coos, Carroll and Grafton counties are Type II, all others Type III).

**PRE- AND POST-CONSTRUCTION DRAINAGE AREA PLANS**

- Plans printed on 34 - 36" by 22 - 24" on white paper.
- Submit these plans separate from the soil plans.
- A north arrow.
- A scale.
- Labeled subcatchments, reaches and ponds.



- Tc lines.
- A clear delineation of the subcatchment boundaries.
- Roadway station numbers.
- Culverts and other conveyance structures.

**PRE- AND POST-CONSTRUCTION COLOR-CODED SOIL PLANS**

- 11" × 17" sheets suitable, as long as it is readable.
- Submit these plans separate from the drainage area plans.
- A north arrow.
- A scale.
- Name of the soil scientist who performed the survey and date the soil survey took place.
- 2-foot contours (5-foot contours if application is for a gravel pit) as well as other surveyed features.
- Delineation of the soil boundaries and wetland boundaries.
- Delineation of the subcatchment boundaries.
- Soil series symbols (e.g., 26).
- A key or legend identifying each soil series symbol and its associated soil series name (for example: 26 = Windsor).
- The hydrologic soil group color coding (A = Green, B = yellow, C= orange, D=red, Water=blue, and Impervious = gray).

**Please note that excavation projects (including gravel pits) have similar requirements to those above, with the following common exceptions or additions:**

- Drainage report is not needed if site does not have off-site flow.
- 5-foot contours are allowed rather than 2-foot.
- No Professional Engineer stamp is needed on the plans.
- Add a note to the plans that the applicant must provide NHDES a written update of the project and revised plans documenting the project status every five years from the date of the Alteration of Terrain permit.
- Add reclamation notes.
- A description of the subsurface conditions to the planned depth of excavation, including the elevation of the location of the Seasonal High Water Table (SHWT), as observed and described by a certified soil scientist, or an individual holding a valid permit as a permitted designer as issued by the department's Subsurface Systems Bureau.

For more resources, refer to the Natural Resources Conservation Service's [Vegetating New Hampshire Sand and Gravel Pits](#) publication.





## **Appendix B – Abutters List**





Eversource X178-2 Transmission Line Rebuild and OPGW Project Phase 1  
 Woodstock, Easton, and Sugar Hill, New Hampshire

**Appendix B - Parcels Intersecting Project Area**

<b>Woodstock</b>
<b>Tax Map - Lot</b>
106-083
111-004
111-013
111-014
111-015
111-022
111-023
112-002
112-008
113-006
113-014
210-001

<b>Easton</b>
<b>Tax Map - Lot</b>
5-07-00
2-27-0C
2-27-0D
2-27-0E
2-27-0F
2-28-00
2-29-00
2-45-00
2-46-00
3-16-00
3-20-00
3-21-00
5-05-00
5-13-00
5-14-00
5-15-00
5-28-00
5-30-00

<b>Sugar Hill</b>
<b>Tax Map - Lot</b>
204-02-11
204-02-12
208-08
207-03-22
207-03-21
208-09
208-10
208-11-1
208-11-2
210-03-21
210-03-22
210-03-24
209-06
210-09-1
208-13-1
208-13-2
210-03-11
210-03-12
216-15
216-02
216-06-1
216-06-2
216-07
216-09
216-08
218-04
217-22
217-20
217-24
218-05-1
222-04
222-14
222-15
222-16
222-17
222-21
222-28
222-29
217-01
222-20

<b>Sugar Hill Cont.</b>
<b>Tax Map - Lot</b>
218-03
227-19
227-18-1
227-25
230-09
230-11
230-12
230-15
230-16
227-17
227-16
230-14





**Appendix C – New Hampshire Natural Heritage Bureau Report and Email Review from  
NHB and New Hampshire Fish and Game**



## New Hampshire Natural Heritage Bureau NHB DataCheck Results Letter

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**To:** Lindsey White  
5 Commerce Park North  
Suite 201  
Bedford, NH 03110

**From:** NH Natural Heritage Bureau

**Date:** 11/21/2023 (This letter is valid through 11/21/2024)

**Re:** Review by NH Natural Heritage Bureau of request dated 11/21/2023

**Permit Types:** Alteration of Terrain Permit  
Stormwater Pollution Prevention  
Wetland Standard Dredge & Fill - Major  
Woodstock

**NHB ID:** NHB23-3373

**Applicant:** Lindsey White

**Location:** Woodstock  
Tax Map: multiple, Tax Lot: multiple  
Address: Eversource Right-of-way

**Proj. Description:** This NHB request is being submitted for the ongoing X178 Rebuild Project originally under NHB22-3461. The project is anticipated to be completed by the end of 2026.

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

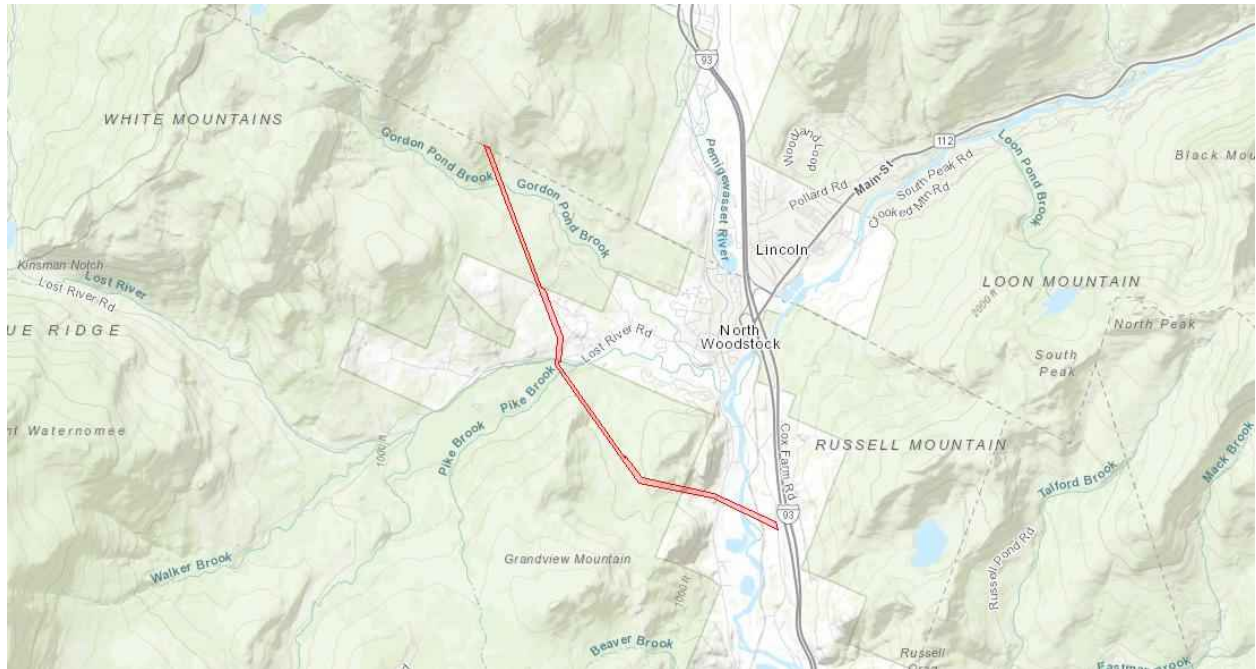
Based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.



New Hampshire Natural Heritage Bureau  
NHB DataCheck Results Letter

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**MAP OF PROJECT BOUNDARIES FOR: NHB23-3373**







## NHB DataCheck Results Letter

NH Natural Heritage Bureau

Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

To: Lindsey White, GZA GeoEnvironmental  
5 Commerce Park North Suite 201  
Bedford, NH 03110  
lindsey.white@gza.com

From: NHB Review  
NH Natural Heritage Bureau  
Main Contact: Ashley Litwinenko - [nhbreview@dncr.nh.gov](mailto:nhbreview@dncr.nh.gov)

cc: NHFG Review

Date: 12/05/2023 (valid until 12/05/2024)

Re: DataCheck Review by NH Natural Heritage Bureau and NH Fish & Game

Permits: MUNICIPAL POR - Easton, NHDES - Alteration of Terrain Permit, NHDES - Wetland Standard Dredge & Fill - Major, USEPA - Stormwater Pollution Prevention

**NHB ID: NHB23-3375**

Town: Easton

Location: Eversource Right-of-way

**Project Description:** This NHB request is being submitted for the ongoing X178 Rebuild Project originally under NHB22-3463. The project is anticipated to be completed by the end of 2026.

### **Next Steps for Applicant:**

NHB's database has been searched for records of rare species and exemplary natural communities. Please carefully read the comments and consultation requirements below.

**NHB Comments:** On 6/22/23 Ashley Litwinenko sent an email regarding NHB22-3463 and stated that NHB has no concerns for this portion of work.

If all proposed plans provided to Ashley are the same for NHB23-3375 then NHB has no further concerns regarding this project.

**NHFG Comments:** Please refer to NHFG consultation requirements below. Please indicate proposed project timing.

### **NHB Consultation**

If this NHB DataCheck letter includes records of rare plants and/or natural communities/systems, please contact NHB and provide any requested supplementary materials by emailing [nhbreview@dncr.nh.gov](mailto:nhbreview@dncr.nh.gov).





## NHB DataCheck Results Letter

NH Natural Heritage Bureau

Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

If this NHB DataCheck letter DOES NOT include any records of rare plants and/or natural communities/systems, no further consultation with NHB is required.

### **NH Fish and Game Department Consultation**

If this NHB DataCheck letter DOES NOT include ANY wildlife species records, then, based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

If this NHB DataCheck letter includes a record for a threatened (T) or endangered (E) wildlife species, consultation with the New Hampshire Fish and Game Department under Fis 1004 may be required. To review the Fis 1000 rules (effective February 3, 2022), please go to <https://www.wildlife.nh.gov/wildlife-and-habitat/nongame-and-endangered-species/environmental-review>. All requests for consultation and submittals should be sent via email to [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov) or can be sent by mail, and **must include the NHB DataCheck results letter number and "Fis 1004 consultation request" in the subject line.**

If the NHB DataCheck response letter does not include a threatened or endangered wildlife species but includes other wildlife species (e.g., Species of Special Concern), consultation under Fis 1004 is not required; however, some species are protected under other state laws or rules, so coordination with NH Fish & Game is highly recommended or may be required for certain permits. While some permitting processes are exempt from required consultation under Fis 1004 (e.g., *statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule*), coordination with NH Fish & Game may still be required under the rules governing those specific permitting processes, and it is recommended you contact the applicable permitting agency. For projects not requiring consultation under Fis 1004, but where additional coordination with NH Fish and Game is requested, please email [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov), and include the NHB DataCheck results letter number and "review request" in the email subject line.

**Contact NH Fish & Game at (603) 271-0467 with questions.**





## NHB DataCheck Results Letter

NH Natural Heritage Bureau

Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

### NHB Database Records:

The following record(s) have been documented in the vicinity of the proposed project. Please see the map and detailed information about the record(s) on the following pages.

Natural Community	State <sup>1</sup>	Federal	Notes
High-elevation spruce - fir forest system	--	--	Threats include logging and climate change.
Vertebrate species	State <sup>1</sup>	Federal	Notes
Wood Turtle ( <i>Glyptemys insculpta</i> )	SC	--	Contact the NH Fish & Game Dept (see below).

<sup>1</sup>Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list.

An asterisk (\*) indicates that the most recent report for that occurrence was 20 or more years ago.

*For all animal reviews, refer to 'IMPORTANT: NHFG Consultation' section above.*

**Disclaimer:** NHB's database can only tell you of known occurrences that have been reported to NHFG/NHB. Known occurrences are based on information gathered by qualified biologists or members of the public, reported to our offices, and verified by NHB/NHFG.

However, many areas have never been surveyed, or have only been surveyed for certain species. NHB recommends surveys to determine what species/natural communities are present onsite.



# New Hampshire Natural Heritage Bureau NHB DataCheck Results Letter

---

**To:** Lindsey White  
5 Commerce Park North  
Suite 201  
Bedford, NH 03110

**From:** NH Natural Heritage Bureau

**Date:** 11/22/2023 (This letter is valid through 11/22/2024)

**Re:** Review by NH Natural Heritage Bureau of request dated 11/22/2023

**Permit Types:** Alteration of Terrain Permit  
Stormwater Pollution Prevention  
Wetland Standard Dredge & Fill - Major  
Sugar Hill

**NHB ID:** NHB23-3380

**Applicant:** Lindsey White

**Location:** Sugar Hill  
Tax Map: Multiple, Tax Lot: Multiple  
Address: Eversource Right-of-way

**Proj. Description:** This NHB request is being submitted for the ongoing X178 Rebuild Project originally under NHB22-3464. The project is anticipated to be completed by the end of 2026.

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

Based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.



New Hampshire Natural Heritage Bureau  
NHB DataCheck Results Letter

MAP OF PROJECT BOUNDARIES FOR: NHB23-3380





## Lindsey White

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**From:** Newton, Kevin <Kevin.M.Newton@wildlife.nh.gov>  
**Sent:** Friday, November 3, 2023 3:29 PM  
**To:** Lindsey White  
**Cc:** Nelson, Kurt I; Winters, Melissa; FGC: NHFG review; Yuengling, Kurt; Schlosser, Michael  
**Subject:** [EXTERNAL] NHB22-3461, NHB22-3462, NHB22-3463, and NHB22-3464 Eversource X178 Further Consultation Sugar Hill Easton Lincoln Woodstock  
**Attachments:** Vernal Pool Summary EVS X178.PNG; Wood Turtle Flyer\_2023 revision.pdf; Smooth green snake flyer.pdf

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Lindsey,

New Hampshire Fish and Game (NHFG) has reviewed the materials submitted for further consultation by GZA on October 5, 2023 for consultation on NHB22-3461, NHB22-3462, NHB22-3463, and NHB22-3464. The proposed project is for structure replacements and OPGW work with associated access on the X178 line in Sugar Hill, Easton, Lincoln and Woodstock. BMP's were issued by NHFG under FIS1004.12 on 8/23/2023. Further Consultation was sought to coordinate further on Recommendation #'s 6, 10, and 16. Updated recommendations resulting from further consultation can be found below.

Permit applications associated with this review:

1. NHDES Standard Dredge and Fill Wetlands Permit
2. NHDES Alteration of Terrain Permit

Please provide permit numbers if obtained.

Notify NHFG if/when phases on this project begin and finish. Please use subject line "NHB22-3463 Eversource X178 Structure Replacement Work Start/End Notification." Notify NHFG if there are any breaks in the schedule for active work zones.

Please note that "active season" dates for rare species are variable based on weather and other environmental factors. NHFG may recommend dates that vary from initial reviews based on available information of animal activity.



Recommended BMPs shall apply to all work areas unless otherwise specified by NHFG.

**Based on the NHB datacheck results letter and the information provided in the submission, we request the following recommended permit conditions. These recommended permit conditions are applicable to all state permits listed above. Please include recommended permit conditions in final plan sheets or environmental resources map as written below (updated highlighted text as applicable) and provide to NHDES for final review, with a copy to NHFG. Permit reviewers will adopt/include NHFG permit conditions in the permit if approved.**

New Hampshire Fish and Game Permit  
Conditions:

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1. Wood turtles (state species of special concern) occur within the vicinity of the project area. All operators and personnel working on or entering the site shall be made aware of the potential presence of these species and shall be provided flyers that help to identify these species, along with NHFG contact information. See Plan Sheet xxxxxx. *Include attached flyers to plan sheet set.*
2. Rare species information (e.g. identification, observation and reporting of observations, when to contact NHFG immediately and NHFG contact information) shall be posted on site at all times and communicated during morning tailgate meetings prior to work commencement.
3. Turtles and snakes may be attracted to disturbed ground during nesting season. Turtle nesting season occurs approximately May 15<sup>th</sup> – June 30<sup>th</sup>. Nesting areas may include work pads and access roads that are not hard pack gravel and other sandy/gravel work areas. All turtle species nests are protected by NH laws. Be aware of the potential to encounter nesting wildlife in these areas.
4. If a nest is observed or suspected, operators shall contact Melissa Winters (603-479-1129) or Josh Megyesy (978-578-0802) at NHFG immediately for further consultation. The nest or suspected nest shall be marked (surrounding roped off or cone buffer) and avoided; this shall be communicated to all personnel onsite. Site activities shall not occur in the area surrounding the nest or suspected nest until further guidance is provided by NHFG.
5. Vernal pools and potential vernal pools (PVP) shall be flagged prior to work, and impacts shall be avoided with the following exceptions as described in the table embedded in the attached screenshot titled, “Vernal Pool Summary EVS X178”:
  1. Wetland WS-75 and L/ET-16 contain vernal pools within the proposed work pad area for structures 180 and 269. The work pads may overlap these vernal pools to construct a safe work area. Temporary timber matting shall be utilized and restoration shall occur following impacts. Impacts to the vernal pools shall only occur December 1 to March 1. Work shall occur under frozen or dry conditions if possible. NHFG shall be notified prior to disturbance.
6. No disturb vegetative buffers of 50’ shall be maintained around vernal pools wherever possible. NHFG acknowledges the following vernal pool buffer impacts as described in the table embedded in the attached screenshot titled, “Vernal Pool Summary EVS X178”:
  1. Wetlands WS-64, WS-75, WS-117, L-73, L-66, L-42, L-41, L-40, L/ET-16, LW-1, ET-31, ET-37 contain vernal pools. Temporary timber matting will be utilized within 50-ft of these vernal pools.



7. All matting which will be placed in waterbodies deemed suitable for hibernating rare turtles will be placed prior to the start of the inactive season (October 16-March 31) so as to prevent accidental placement atop hibernating turtles. Areas identified as suitable hibernation habitat shall be identified on plan sheets and provided to NHFG at least two weeks prior to beginning work.
8. Immediately prior to the placement of matting in wetlands during the active season (April 1-October 15), the areas shall be cleared by a trained individual. A trained individual shall be defined as any contractor who has gone through project-species protection education conducted by the qualified biologist on rare wildlife species at the site. Contact NHFG if turtles in matting areas are observed or suspected.
9. For all work pads, staging areas, matting, and access roads, searches and sweeps shall be conducted by trained individuals immediately before the start of work and movement of equipment in order to minimize the chance of animals entering an area between the sweep and work. A trained individual shall be defined as any contractor who has gone through project-species protection education conducted by the qualified biologist on rare wildlife species at the site.
10. All work activities shall be restricted to the defined roads, construction areas, and staging areas, with no equipment or materials staged or stored outside of the defined areas as shown on plan sheets or equivalent document.
  1. Minor field changes to access roads and work pads including: shifting access from one side of the right of way to the other, shifting of work pads and staging areas forward or backwards, but not increasing the overall square footage of the work pads or staging areas, may be considered based on location. NHFG shall be notified of any proposed changes.
11. Work, pull pads, and access shall be minimized to the greatest extent possible.
12. Work pads shall be reduced post-construction to 30' x 60' and restored with a native vegetative seed mix.
13. All manufactured erosion and sediment control products, with the exception of turf reinforcement mats, utilized for, but not limited to, slope protection, runoff diversion, slope interruption, perimeter control, inlet protection, check dams, and sediment traps shall not contain plastic, or multifilament or monofilament polypropylene netting or mesh with an opening size of greater than 1/8 inches;
14. All observations of threatened or endangered species on the project site shall be reported immediately to the NHFG nongame and endangered wildlife environmental review program by phone at 603-271-2461 and by email at [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov), with the email subject line containing the NHB DataCheck tool results letter assigned number, the project name, and the term Wildlife Species Observation;
15. Photographs of the observed species and nearby elements of habitat or areas of land disturbance shall be provided to NHFG in digital format at the above email address for verification, as feasible;
16. In the event a threatened or endangered species is observed on the project site during the term of the permit, the species shall not be disturbed, handled, or harmed in any way prior to consultation with NHFG and implementation of corrective actions recommended by NHFG.
  1. Site operators or Trained Individuals shall be allowed to relocate wildlife encountered if discovered within the active work zone and if in direct harm from project activities. Wildlife shall be relocated in close proximity to the capture location but outside of the work zone and in the direction the individual was heading. NHFG shall be contacted immediately if this action occurs.
17. The NHFG, including its employees and authorized agents, shall have access to the property during the term of the permit.

Additional Recommendations:



1. Smooth green snakes (state species of special concern) occur within the vicinity of the project site. All operators and personnel working on or entering the site should be made aware of the potential presence of these species and should be provided flyers that help to identify these species, along with NHFG contact information. Rare species information (e.g. identification, observation and reporting of observations, when to contact NHFG immediately and NHFG contact information) should be posted on site at all times and communicated during morning tailgate meetings prior to work commencement. See Plan Sheet **xxxxxxx**. *Include attached flyers to plan sheet set.*
2. New Hampshire Fish and Game recommends that the above conservation measures are applied to all work throughout the line, including in the towns of Woodstock, Lincoln, and Sugar Hill where there were no known observations of rare species.

NHFG has completed our review of materials submitted for further consultation under FIS 1004. No further coordination with NHFG is requested, and the final recommendations have been transmitted to the applicable permitting agency. Questions or concerns on NHFG recommendations must follow FIS 1004.12. Note that NHFG recommendations may be withdrawn pursuant to FIS 1004.13.

Let me know if you have any questions.

Thank you,

Kevin Newton

Wildlife Biologist

NH Fish and Game Department

Wildlife Division

11 Hazen Drive, Concord NH 03301

Phone: 603-271- 5860

New Hampshire Fish and Game requirements for environmental review consultation can be found at:

[https://gencourt.state.nh.us/rules/state\\_agencies/fis1000.html](https://gencourt.state.nh.us/rules/state_agencies/fis1000.html). ALL requests for consultation and submittals should be sent via email to [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov) or can be sent hardcopy by mail. **The NHB datacheck results letter number needs to be included in the email subject line to read as “NHBxx-xxxx\_Project Name\_FIS 1004 Consultation Submittal”.**

The requirements for consultation (Fis 1004) shall not apply to the following: statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule. Review requests for these projects or other project types should be submitted to [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov) or can be sent hardcopy by mail – email or mail subject line for these review requests should read “NHBxx-xxxx\_Project Name\_ Env. Review Request”.



**Please provide shapefiles/KMZ/KMLs of the project site (and relevant features if applicable) with your submittal.** Review statements provided in the NHB Datacheck Results letter for additional guidance.



## Lindsey White

---

**From:** Newton, Kevin <Kevin.M.Newton@wildlife.nh.gov>  
**Sent:** Wednesday, December 20, 2023 8:47 AM  
**To:** Lindsey White; FGC: NHFG review; Winters, Melissa  
**Cc:** Kurt I. Nelson (kurt.nelson@eversource.com); Tracy Tarr  
**Subject:** [EXTERNAL] RE: NHB23-3375, NHB23-3374, NHB23-3373, and NHB23-3380 Eversource X178 Consultation - Easton, Lincoln, Woodstock and Sugar Hill

Thanks Lindsey. Barring any considerations from Melissa, I do not see a problem with your request below to apply recommendations issued by NHFG on November 3, 2023 for NHB23-3375, NHB23-3374, NHB23-3373, and NHB23-3380 Easton, Lincoln, Woodstock and Sugar Hill to the updated datacheck letters (NHB23-3375, NHB23-3374, NHB23-3373, and NHB23-3380). This rationale is based on the results of the updated datacheck letters and scope of work having not changed.

Thank you,

Kevin Newton  
Wildlife Biologist  
NH Fish and Game Department  
Wildlife Division  
11 Hazen Drive, Concord NH 03301  
Phone: 603-271- 5860

New Hampshire Fish and Game requirements for environmental review consultation can be found at: [https://encourt.state.nh.us/rules/state\\_agencies/fis1000.html](https://encourt.state.nh.us/rules/state_agencies/fis1000.html). ALL requests for consultation and submittals should be sent via email to [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov) or can be sent hardcopy by mail. **The NHB datacheck results letter number needs to be included in the email subject line to read as "NHBxx-xxxx\_Project Name\_FIS 1004 Consultation Submittal"**.

The requirements for consultation (Fis 1004) shall not apply to the following: statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule. Review requests for these projects or other project types should be submitted to [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov) or can be sent hardcopy by mail – email or mail subject line for these review requests should read **"NHBxx-xxxx\_Project Name\_ Env. Review Request"**.

**Please provide shapefiles/KMZ/KMLs of the project site (and relevant features if applicable) with your submittal.** Review statements provided in the NHB Datacheck Results letter for additional guidance.

---

**From:** Lindsey White <Lindsey.White@gza.com>  
**Sent:** Monday, December 18, 2023 12:49 PM  
**To:** Newton, Kevin <Kevin.M.Newton@wildlife.nh.gov>; FGC: NHFG review <NHFGreview@wildlife.nh.gov>; Winters, Melissa <Melissa.J.Winters@wildlife.nh.gov>  
**Cc:** Kurt I. Nelson (kurt.nelson@eversource.com) <kurt.nelson@eversource.com>; Tracy Tarr <Tracy.Tarr@gza.com>  
**Subject:** RE: NHB23-3375, NHB23-3374, NHB23-3373, and NHB23-3380 Eversource X178 Consultation - Easton, Lincoln, Woodstock and Sugar Hill

**EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.**

---



Hi Kevin,

That is correct.

Thanks,  
Lindsey

**Lindsey E. White, CPSS**  
**Project Manager**

GZA | 5 Commerce Park North | Bedford, NH 03110  
o: 603.232.8753 | c: 603.851.9287 | [lindsey.white@gza.com](mailto:lindsey.white@gza.com) | [www.gza.com](http://www.gza.com) | [LinkedIn](#)

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**From:** Newton, Kevin <[Kevin.M.Newton@wildlife.nh.gov](mailto:Kevin.M.Newton@wildlife.nh.gov)>  
**Sent:** Monday, December 18, 2023 10:53 AM  
**To:** Lindsey White <[Lindsey.White@gza.com](mailto:Lindsey.White@gza.com)>; FGC: NHFG review <[NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov)>; Winters, Melissa <[Melissa.J.Winters@wildlife.nh.gov](mailto:Melissa.J.Winters@wildlife.nh.gov)>  
**Cc:** Kurt I. Nelson ([kurt.nelson@eversource.com](mailto:kurt.nelson@eversource.com)) <[kurt.nelson@eversource.com](mailto:kurt.nelson@eversource.com)>; Tracy Tarr <[Tracy.Tarr@gza.com](mailto:Tracy.Tarr@gza.com)>  
**Subject:** [EXTERNAL] RE: NHB23-3375, NHB23-3374, NHB23-3373, and NHB23-3380 Eversource X178 Consultation - Easton, Lincoln, Woodstock and Sugar Hill

Hi Lindsey,

Just to confirm - site plans, timing, access routes, and BMP's proposed have not changed? The only information that has changed is the NHB datacheck letters have been updated, with no difference in wildlife records?

Thanks,

Kevin

---

**From:** Lindsey White <[Lindsey.White@gza.com](mailto:Lindsey.White@gza.com)>  
**Sent:** Monday, December 18, 2023 8:08 AM  
**To:** FGC: NHFG review <[NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov)>; Newton, Kevin <[Kevin.M.Newton@wildlife.nh.gov](mailto:Kevin.M.Newton@wildlife.nh.gov)>; Winters, Melissa <[Melissa.J.Winters@wildlife.nh.gov](mailto:Melissa.J.Winters@wildlife.nh.gov)>  
**Cc:** Kurt I. Nelson ([kurt.nelson@eversource.com](mailto:kurt.nelson@eversource.com)) <[kurt.nelson@eversource.com](mailto:kurt.nelson@eversource.com)>; Tracy Tarr <[Tracy.Tarr@gza.com](mailto:Tracy.Tarr@gza.com)>  
**Subject:** NHB23-3375, NHB23-3374, NHB23-3373, and NHB23-3380 Eversource X178 Consultation - Easton, Lincoln, Woodstock and Sugar Hill

**EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.**

Hi Kevin,

Eversource and GZA submitted a consultation request for the X178-2 Transmission Line Rebuild Project in June 2023. As you may recall, NHFG, Eversource and GZA had a couple of email exchanges and meetings to discuss the BMP recommendations from NHFG. We received final BMP consultation on November 3, 2023 (attached) and Eversource intends to incorporate the BMPs into the project. However, the NHB reports for this project expired on November 3, 2023. As a result, GZA submitted the proposed project to the NHB Data Check Tool and referenced the prior 2022 NHB Report ID's. We have received updated 2023 NHB reports (also attached). We noted that the same wood turtle record



identified in Easton in 2022 was included on the 2023 Easton NHB report, and no additional records have been added. The Towns of Lincoln, Woodstock and Sugar Hill did not have NHFG records in 2022 or 2023. Given the final consultation was so recent and no new records have been identified, Eversource is proposing to utilize the BMPs that were provided on November 3, 2023.

<b>Town</b>	<b>2022 NHB ID</b>	<b>2022 RTE Species</b>	<b>2023 NHB ID</b>	<b>2022 RTE Species</b>	<b>Notes</b>
Easton	NHB22-3463	Wood Turtle	NHB23-3375	Wood Turtle	Same record of wood turtle on both reports, no new records identified
Lincoln	NHB22-3462	None	NHB23-3374	None	N/A
Woodstock	NHB22-3461	None	NHB23-3373	None	N/A
Sugar Hill	NHB22-3464	None	NHB23-3380	None	N/A

If this is okay with NHFG, we will incorporate this email chain into our permit applications.

Please let us know if you have any questions.

Thanks!

**Lindsey E. White, CPSS**  
**Project Manager**

GZA | 5 Commerce Park North | Bedford, NH 03110  
 o: 603.232.8753 | c: 603.851.9287 | [lindsey.white@gza.com](mailto:lindsey.white@gza.com) | [www.gza.com](http://www.gza.com) | [LinkedIn](#)

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## **Appendix D – Natural Resources Conservation Service Web Soil Survey**





United States  
Department of  
Agriculture

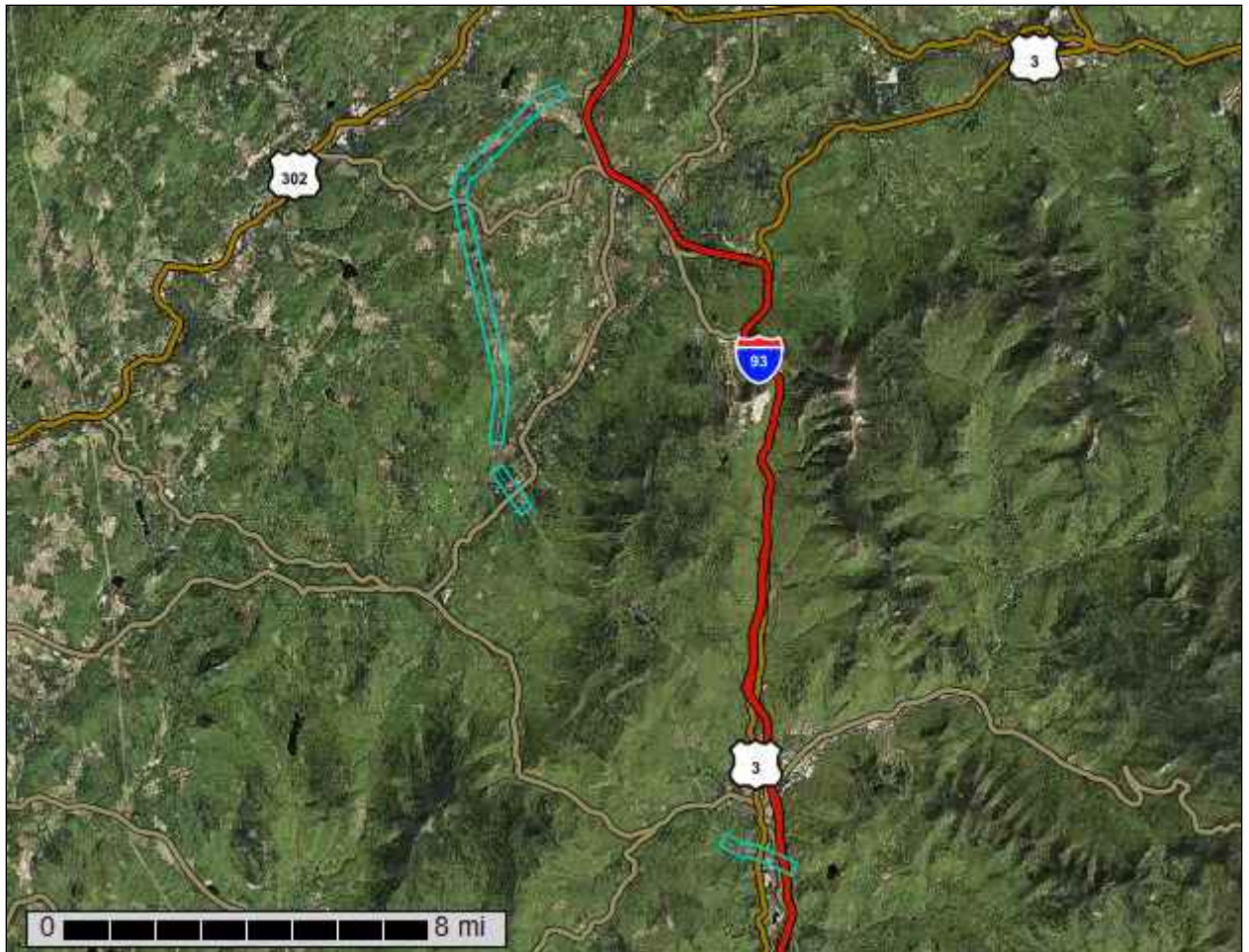
**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for Grafton County, New Hampshire, and White Mountain National Forest, New Hampshire and Maine

## X178 Phase 1





# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil



## Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and



## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.



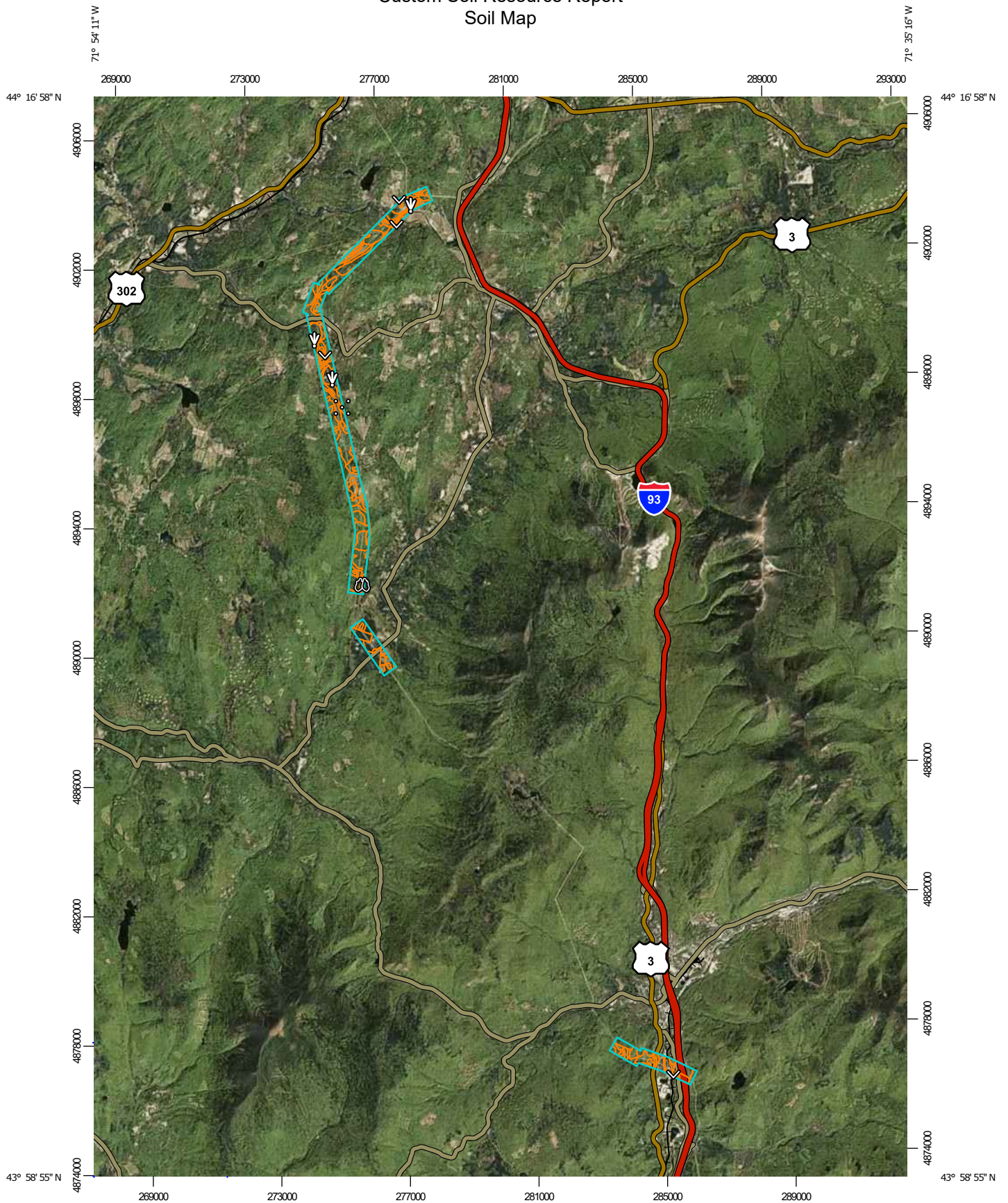
# Soil Map

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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



# Custom Soil Resource Report Soil Map



Map Scale: 1:163,000 if printed on A portrait (8.5" x 11") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84



### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)




















**Soils**

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

**Special Point Features**

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

**Water Features**

 Streams and Canals

**Transportation**

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

**Background**

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Grafton County, New Hampshire  
 Survey Area Data: Version 27, Aug 22, 2023

Soil Survey Area: White Mountain National Forest, New Hampshire and Maine  
 Survey Area Data: Version 6, Aug 22, 2023

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background



**MAP LEGEND**

**MAP INFORMATION**

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
15	Searsport mucky peat	4.4	0.2%
22A	Colton gravelly sandy loam, 0 to 3 percent slopes	58.2	2.7%
22B	Colton gravelly sandy loam, 3 to 8 percent slopes	25.3	1.2%
22C	Colton gravelly sandy loam, 8 to 15 percent slopes	6.9	0.3%
22E	Colton gravelly sandy loam, 15 to 60 percent slopes	6.8	0.3%
36B	Adams loamy sand, 3 to 8 percent slopes	14.3	0.6%
36C	Adams loamy sand, 8 to 15 percent slopes	8.4	0.4%
36E	Adams loamy sand, 15 to 60 percent slopes	11.3	0.5%
56B	Becket fine sandy loam, 3 to 8 percent slopes	2.3	0.1%
57C	Becket fine sandy loam, 8 to 15 percent slopes, very stony	15.4	0.7%
57D	Becket fine sandy loam, 15 to 25 percent slopes, very stony	14.3	0.6%
57E	Becket fine sandy loam, 25 to 35 percent slopes, very stony	54.6	2.5%
59B	Waumbek loamy sand, 3 to 8 percent slopes, very stony	6.1	0.3%
61C	Tunbridge-Lyman-Rock outcrop complex, 8 to 15 percent slopes	11.4	0.5%
61D	Tunbridge-Lyman-Rock outcrop complex, 15 to 25 percent slopes	60.3	2.7%
61E	Tunbridge-Lyman-Rock outcrop complex, 25 to 60 percent slopes	89.0	4.1%
73B	Berkshire fine sandy loam, 0 to 8 percent slopes, very stony	0.2	0.0%
73C	Berkshire fine sandy loam, 8 to 15 percent slopes, very stony	1.4	0.1%
73D	Berkshire fine sandy loam, 15 to 25 percent slopes, very stony	14.8	0.7%
76B	Marlow fine sandy loam, 3 to 8 percent slopes	10.7	0.5%
76C	Marlow fine sandy loam, 8 to 15 percent slopes	17.3	0.8%



## Custom Soil Resource Report

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
77C	Marlow fine sandy loam, 8 to 15 percent slopes, very stony	23.4	1.1%
77D	Marlow fine sandy loam, 15 to 25 percent slopes, very stony	147.8	6.7%
77E	Marlow fine sandy loam, 25 to 50 percent slopes, very stony	171.1	7.8%
78B	Peru fine sandy loam, 3 to 8 percent slopes	11.2	0.5%
78C	Peru fine sandy loam, 8 to 15 percent slopes	32.6	1.5%
79B	Peru fine sandy loam, 0 to 8 percent slopes, very stony	34.6	1.6%
79C	Peru fine sandy loam, 8 to 15 percent slopes, very stony	218.1	9.9%
79D	Peru fine sandy loam, 15 to 25 percent slopes, very stony	159.5	7.3%
90B	Tunbridge-Lyman complex, 3 to 8 percent slopes, rocky	55.0	2.5%
90C	Tunbridge-Lyman complex, 8 to 15 percent slopes, rocky	102.6	4.7%
90D	Tunbridge-Lyman complex, 15 to 25 percent slopes, rocky	130.2	5.9%
101	Ondawa fine sandy loam, 0 to 3 percent slopes, frequently flooded	5.2	0.2%
102	Sunday loamy sand	45.3	2.1%
104	Podunk fine sandy loam, 0 to 3 percent slopes, frequently flooded	3.9	0.2%
105	Rumney fine sandy loam, 0 to 3 percent slopes, frequently flooded	7.6	0.3%
173C	Berkshire fine sandy loam, 3 to 15 percent slopes, extremely stony	0.4	0.0%
254B	Hermon and Monadnock soils, 3 to 8 percent slopes	11.3	0.5%
254C	Hermon and Monadnock soils, 8 to 15 percent slopes	4.0	0.2%
255B	Hermon and Monadnock soils, 0 to 8 percent slopes, very stony	0.4	0.0%
255C	Hermon and Monadnock soils, 8 to 15 percent slopes, very stony	15.6	0.7%
255D	Monadnock and Hermon soils, 15 to 25 percent slopes, very stony	45.9	2.1%
255E	Monadnock and Hermon soils, 25 to 35 percent slopes, very stony	10.0	0.5%



## Custom Soil Resource Report

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
295	Greenwood mucky peat	0.9	0.0%
298	Pits, gravel	6.4	0.3%
347B	Lyme and Moosilauke soils, 3 to 8 percent slopes, very stony	14.8	0.7%
355E	Hermon sandy loam, 15 to 35 percent slopes, extremely bouldery	67.1	3.1%
395	Chocorua mucky peat	7.2	0.3%
559B	Skerry fine sandy loam, 0 to 8 percent slopes, very stony	6.4	0.3%
559C	Skerry fine sandy loam, 8 to 15 percent slopes, very stony	63.0	2.9%
613	Croghan loamy fine sand, 0 to 3 percent slopes	18.7	0.8%
614	Kinsman sand	14.4	0.7%
647B	Pillsbury fine sandy loam, 0 to 8 percent slopes, very stony	101.1	4.6%
703D	Becket-Monadnock association, 15 to 35 percent slopes, very stony	19.3	0.9%
703E	Becket-Monadnock association, 35 to 60 percent slopes, very stony	0.0	0.0%
731	Peacham and ossipee soils, very stony	41.6	1.9%
W	Water	20.2	0.9%
<b>Subtotals for Soil Survey Area</b>		<b>2,050.3</b>	<b>93.4%</b>
<b>Totals for Area of Interest</b>		<b>2,196.3</b>	<b>100.0%</b>

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NOTCOM	No Digital Data Available	146.0	6.6%
<b>Subtotals for Soil Survey Area</b>		<b>146.0</b>	<b>6.6%</b>
<b>Totals for Area of Interest</b>		<b>2,196.3</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some



## Custom Soil Resource Report

observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The



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pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.



## Grafton County, New Hampshire

### 15—Searsport mucky peat

#### Map Unit Setting

*National map unit symbol:* 9fg6  
*Elevation:* 10 to 2,800 feet  
*Mean annual precipitation:* 30 to 65 inches  
*Mean annual air temperature:* 36 to 52 degrees F  
*Frost-free period:* 80 to 160 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Searsport and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Searsport

##### Setting

*Landform:* Outwash terraces

##### Typical profile

*Oe - 0 to 12 inches:* mucky peat  
*Cg1 - 12 to 17 inches:* fine sandy loam  
*Cg2 - 17 to 65 inches:* sand

##### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Very poorly drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.20 to 6.00 in/hr)  
*Depth to water table:* About 0 to 12 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* Frequent  
*Available water supply, 0 to 60 inches:* Moderate (about 6.4 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 5w  
*Hydrologic Soil Group:* A/D  
*Ecological site:* F144BY303ME - Acidic Swamp  
*Hydric soil rating:* Yes

#### Minor Components

##### Chocorua

*Percent of map unit:* 5 percent  
*Landform:* Bogs  
*Hydric soil rating:* Yes

##### Kinsman

*Percent of map unit:* 5 percent  
*Landform:* Outwash terraces



## Custom Soil Resource Report

*Hydric soil rating:* Yes

### **Croghan**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

## **22A—Colton gravelly sandy loam, 0 to 3 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2ym4j

*Elevation:* 10 to 2,000 feet

*Mean annual precipitation:* 31 to 65 inches

*Mean annual air temperature:* 36 to 52 degrees F

*Frost-free period:* 90 to 160 days

*Farmland classification:* Farmland of local importance

### **Map Unit Composition**

*Colton and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Colton**

#### **Setting**

*Landform:* Outwash terraces

*Landform position (two-dimensional):* Summit, backslope

*Landform position (three-dimensional):* Side slope, base slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Sandy-skeletal glaciofluvial deposits

#### **Typical profile**

*Ap - 0 to 7 inches:* gravelly sandy loam

*Bs - 7 to 14 inches:* gravelly loamy sand

*BC - 14 to 24 inches:* very gravelly coarse sand

*C - 24 to 65 inches:* extremely gravelly coarse sand

#### **Properties and qualities**

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Excessively drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(1.42 to 14.17 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Very low (about 2.5 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified



## Custom Soil Resource Report

*Land capability classification (nonirrigated): 4e*  
*Hydrologic Soil Group: A*  
*Ecological site: F144BY601ME - Dry Sand*  
*Hydric soil rating: No*

### Minor Components

#### Adams

*Percent of map unit: 10 percent*  
*Landform: Outwash terraces*  
*Landform position (two-dimensional): Summit, backslope*  
*Landform position (three-dimensional): Side slope*  
*Down-slope shape: Linear*  
*Across-slope shape: Linear*  
*Hydric soil rating: No*

#### Sheepscot

*Percent of map unit: 3 percent*  
*Landform: Outwash terraces*  
*Landform position (two-dimensional): Footslope*  
*Landform position (three-dimensional): Base slope*  
*Down-slope shape: Concave*  
*Across-slope shape: Linear*  
*Hydric soil rating: No*

#### Croghan

*Percent of map unit: 2 percent*  
*Landform: Outwash terraces*  
*Landform position (two-dimensional): Footslope*  
*Landform position (three-dimensional): Base slope*  
*Down-slope shape: Linear*  
*Across-slope shape: Concave*  
*Hydric soil rating: No*

## 22B—Colton gravelly sandy loam, 3 to 8 percent slopes

### Map Unit Setting

*National map unit symbol: 2yfp*  
*Elevation: 10 to 2,000 feet*  
*Mean annual precipitation: 31 to 65 inches*  
*Mean annual air temperature: 36 to 52 degrees F*  
*Frost-free period: 90 to 160 days*  
*Farmland classification: Farmland of local importance*

### Map Unit Composition

*Colton and similar soils: 85 percent*  
*Minor components: 15 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*



## Description of Colton

### Setting

*Landform:* Outwash deltas  
*Landform position (two-dimensional):* Summit, backslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Sandy-skeletal glaciofluvial deposits

### Typical profile

*Ap - 0 to 7 inches:* gravelly sandy loam  
*Bs - 7 to 14 inches:* gravelly loamy sand  
*BC - 14 to 24 inches:* very gravelly coarse sand  
*C - 24 to 65 inches:* extremely gravelly coarse sand

### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(1.42 to 14.17 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Very low (about 2.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3s  
*Hydrologic Soil Group:* A  
*Ecological site:* F146XY071ME - Sandy  
*Hydric soil rating:* No

## Minor Components

### Adams

*Percent of map unit:* 10 percent  
*Landform:* Outwash deltas  
*Landform position (two-dimensional):* Summit, backslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

### Sheepscot

*Percent of map unit:* 3 percent  
*Landform:* Outwash deltas  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

### Croghan

*Percent of map unit:* 2 percent



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*Landform:* Outwash deltas  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

### 22C—Colton gravelly sandy loam, 8 to 15 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2yfn  
*Elevation:* 10 to 2,000 feet  
*Mean annual precipitation:* 31 to 65 inches  
*Mean annual air temperature:* 36 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Colton and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Colton

##### Setting

*Landform:* Outwash terraces  
*Landform position (two-dimensional):* Summit, backslope  
*Landform position (three-dimensional):* Side slope, base slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Sandy-skeletal glaciofluvial deposits

##### Typical profile

*Ap - 0 to 7 inches:* gravelly sandy loam  
*Bs - 7 to 14 inches:* gravelly loamy sand  
*BC - 14 to 24 inches:* very gravelly coarse sand  
*C - 24 to 65 inches:* extremely gravelly coarse sand

##### Properties and qualities

*Slope:* 8 to 15 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(1.42 to 14.17 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Very low (about 2.5 inches)



**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* A  
*Ecological site:* F146XY071ME - Sandy  
*Hydric soil rating:* No

**Minor Components**

**Adams**

*Percent of map unit:* 10 percent  
*Landform:* Outwash terraces  
*Landform position (two-dimensional):* Summit, backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Sheepscot**

*Percent of map unit:* 3 percent  
*Landform:* Outwash terraces  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Croghan**

*Percent of map unit:* 2 percent  
*Landform:* Outwash terraces  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

**22E—Colton gravelly sandy loam, 15 to 60 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 2yjft  
*Elevation:* 10 to 2,000 feet  
*Mean annual precipitation:* 31 to 65 inches  
*Mean annual air temperature:* 36 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Colton and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*



## Description of Colton

### Setting

*Landform:* Kames, eskers  
*Landform position (two-dimensional):* Summit, backslope  
*Landform position (three-dimensional):* Side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Sandy-skeletal glaciofluvial deposits

### Typical profile

*Ap - 0 to 7 inches:* gravelly sandy loam  
*Bs - 7 to 14 inches:* gravelly loamy sand  
*BC - 14 to 24 inches:* very gravelly coarse sand  
*C - 24 to 65 inches:* extremely gravelly coarse sand

### Properties and qualities

*Slope:* 15 to 60 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(1.42 to 14.17 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Very low (about 2.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7e  
*Hydrologic Soil Group:* A  
*Ecological site:* F144BY601ME - Dry Sand  
*Hydric soil rating:* No

## Minor Components

### Adams

*Percent of map unit:* 10 percent  
*Landform:* Kames, eskers  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

### Sheepscot

*Percent of map unit:* 3 percent  
*Landform:* Kames, eskers  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

### Croghan

*Percent of map unit:* 2 percent



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*Landform:* Kames, eskers  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

### 36B—Adams loamy sand, 3 to 8 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2wqnc  
*Elevation:* 10 to 2,000 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Farmland of local importance

#### Map Unit Composition

*Adams and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Adams

##### Setting

*Landform:* Outwash deltas  
*Landform position (two-dimensional):* Summit, backslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Convex  
*Parent material:* Sandy glaciofluvial deposits

##### Typical profile

*Ap - 0 to 7 inches:* loamy sand  
*Bs - 7 to 21 inches:* sand  
*BC - 21 to 27 inches:* sand  
*C - 27 to 65 inches:* sand

##### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(1.42 to 14.17 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 3.6 inches)



**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3s  
*Hydrologic Soil Group:* A  
*Ecological site:* F144BY601ME - Dry Sand  
*Hydric soil rating:* No

**Minor Components**

**Croghan**

*Percent of map unit:* 5 percent  
*Landform:* Outwash deltas  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

**Colton**

*Percent of map unit:* 5 percent  
*Landform:* Outwash deltas  
*Landform position (two-dimensional):* Summit, backslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Nicholville**

*Percent of map unit:* 3 percent  
*Landform:* Outwash deltas  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Sheepscot**

*Percent of map unit:* 2 percent  
*Landform:* Outwash deltas  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**36C—Adams loamy sand, 8 to 15 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 2wqn8  
*Elevation:* 10 to 2,000 feet



## Custom Soil Resource Report

*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Adams and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Adams

#### Setting

*Landform:* Outwash terraces  
*Landform position (two-dimensional):* Summit, backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Sandy glaciofluvial deposits

#### Typical profile

*Ap - 0 to 7 inches:* loamy sand  
*Bs - 7 to 21 inches:* sand  
*BC - 21 to 27 inches:* sand  
*C - 27 to 65 inches:* sand

#### Properties and qualities

*Slope:* 8 to 15 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(1.42 to 14.17 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 3.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* A  
*Ecological site:* F144BY601ME - Dry Sand  
*Hydric soil rating:* No

### Minor Components

#### Colton

*Percent of map unit:* 8 percent  
*Landform:* Outwash terraces  
*Landform position (two-dimensional):* Summit, backslope  
*Landform position (three-dimensional):* Side slope, base slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No



**Croghan**

*Percent of map unit:* 3 percent  
*Landform:* Outwash terraces  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

**Nicholville**

*Percent of map unit:* 2 percent  
*Landform:* Outwash terraces  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Sheepscot**

*Percent of map unit:* 2 percent  
*Landform:* Outwash terraces  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**36E—Adams loamy sand, 15 to 60 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 9fjc  
*Elevation:* 150 to 2,200 feet  
*Mean annual precipitation:* 30 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 70 to 160 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Adams and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Adams**

**Setting**

*Parent material:* Sandy outwash derived mainly from granite, gneiss and schist

**Typical profile**

*H1 - 0 to 6 inches:* loamy sand  
*H2 - 6 to 26 inches:* sand



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*H3 - 26 to 65 inches: sand*

### **Properties and qualities**

*Slope: 15 to 60 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Excessively drained*

*Runoff class: Medium*

*Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water supply, 0 to 60 inches: Low (about 3.3 inches)*

### **Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 7e*

*Hydrologic Soil Group: A*

*Ecological site: F144BY601ME - Dry Sand*

*Hydric soil rating: No*

### **Minor Components**

#### **Not named**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### **Croghan**

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

#### **Kinsman**

*Percent of map unit: 3 percent*

*Landform: Depressions*

*Hydric soil rating: Yes*

#### **Pillsbury**

*Percent of map unit: 3 percent*

*Landform: Ravines*

*Hydric soil rating: Yes*

## **56B—Becket fine sandy loam, 3 to 8 percent slopes**

### **Map Unit Setting**

*National map unit symbol: 2w9pk*

*Elevation: 230 to 1,380 feet*

*Mean annual precipitation: 31 to 65 inches*

*Mean annual air temperature: 36 to 52 degrees F*

*Frost-free period: 90 to 160 days*

*Farmland classification: All areas are prime farmland*



**Map Unit Composition**

*Becket and similar soils: 85 percent*

*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Becket**

**Setting**

*Landform: Hills, mountains*

*Landform position (two-dimensional): Summit, shoulder, backslope*

*Landform position (three-dimensional): Mountainbase, interfluve, nose slope, side slope*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Parent material: Loamy lodgment till derived from granite and gneiss and/or schist over sandy lodgment till derived from granite and gneiss and/or schist*

**Typical profile**

*Ap - 0 to 7 inches: fine sandy loam*

*Bs1 - 7 to 14 inches: fine sandy loam*

*Bs2 - 14 to 24 inches: gravelly sandy loam*

*BC - 24 to 33 inches: gravelly sandy loam*

*Cd - 33 to 65 inches: gravelly loamy sand*

**Properties and qualities**

*Slope: 3 to 8 percent*

*Depth to restrictive feature: 20 to 39 inches to densic material*

*Drainage class: Well drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)*

*Available water supply, 0 to 60 inches: Low (about 4.9 inches)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 2e*

*Hydrologic Soil Group: C*

*Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)*

*Hydric soil rating: No*

**Minor Components**

**Skerry**

*Percent of map unit: 6 percent*

*Landform: Hills, mountains*

*Landform position (two-dimensional): Backslope, footslope*

*Landform position (three-dimensional): Mountainbase, interfluve, nose slope, side slope*

*Microfeatures of landform position: Closed depressions, closed depressions*

*Down-slope shape: Convex, concave*

*Across-slope shape: Linear, concave*

*Hydric soil rating: No*



## Custom Soil Resource Report

### **Pillsbury**

*Percent of map unit:* 4 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Mountainbase, interfluve, nose slope, side slope

*Microfeatures of landform position:* Closed depressions, closed depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

### **Tunbridge**

*Percent of map unit:* 3 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainbase, interfluve, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

### **Monadnock**

*Percent of map unit:* 2 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainbase, interfluve, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

## **57C—Becket fine sandy loam, 8 to 15 percent slopes, very stony**

### **Map Unit Setting**

*National map unit symbol:* 2w9pp

*Elevation:* 200 to 1,570 feet

*Mean annual precipitation:* 31 to 65 inches

*Mean annual air temperature:* 36 to 52 degrees F

*Frost-free period:* 90 to 160 days

*Farmland classification:* Farmland of local importance

### **Map Unit Composition**

*Becket, very stony, and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Becket, Very Stony**

#### **Setting**

*Landform:* Hills, mountains



## Custom Soil Resource Report

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy lodgment till derived from granite and gneiss and/or schist over sandy lodgment till derived from granite and gneiss and/or schist

### Typical profile

*Oi - 0 to 2 inches:* slightly decomposed plant material

*E - 2 to 4 inches:* fine sandy loam

*Bhs - 4 to 5 inches:* fine sandy loam

*Bs1 - 5 to 7 inches:* fine sandy loam

*Bs2 - 7 to 14 inches:* fine sandy loam

*Bs3 - 14 to 24 inches:* gravelly sandy loam

*BC - 24 to 33 inches:* gravelly sandy loam

*Cd - 33 to 65 inches:* gravelly loamy sand

### Properties and qualities

*Slope:* 8 to 15 percent

*Surface area covered with cobbles, stones or boulders:* 1.1 percent

*Depth to restrictive feature:* 21 to 43 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 5.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* C

*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)

*Hydric soil rating:* No

### Minor Components

#### Tunbridge, very stony

*Percent of map unit:* 5 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

#### Skerry, very stony

*Percent of map unit:* 5 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope



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*Microfeatures of landform position:* Open depressions, closed depressions, closed depressions, open depressions  
*Down-slope shape:* Convex, concave  
*Across-slope shape:* Linear, concave  
*Hydric soil rating:* No

### **Pillsbury, very stony**

*Percent of map unit:* 3 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Microfeatures of landform position:* Open depressions, closed depressions, closed depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

### **Monadnock, very stony**

*Percent of map unit:* 2 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

## **57D—Becket fine sandy loam, 15 to 25 percent slopes, very stony**

### **Map Unit Setting**

*National map unit symbol:* 2w9pq  
*Elevation:* 330 to 1,710 feet  
*Mean annual precipitation:* 31 to 65 inches  
*Mean annual air temperature:* 36 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Becket, very stony, and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Becket, Very Stony**

#### **Setting**

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Down-slope shape:* Convex



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*Across-slope shape:* Convex

*Parent material:* Loamy lodgment till derived from granite and gneiss and/or schist  
over sandy lodgment till derived from granite and gneiss and/or schist

### Typical profile

*Oi - 0 to 2 inches:* slightly decomposed plant material

*E - 2 to 4 inches:* fine sandy loam

*Bhs - 4 to 5 inches:* fine sandy loam

*Bs1 - 5 to 7 inches:* fine sandy loam

*Bs2 - 7 to 14 inches:* fine sandy loam

*Bs3 - 14 to 24 inches:* gravelly sandy loam

*BC - 24 to 33 inches:* gravelly sandy loam

*Cd - 33 to 65 inches:* gravelly loamy sand

### Properties and qualities

*Slope:* 15 to 25 percent

*Surface area covered with cobbles, stones or boulders:* 1.1 percent

*Depth to restrictive feature:* 21 to 43 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 5.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* C

*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)

*Hydric soil rating:* No

### Minor Components

#### Lyman, very stony

*Percent of map unit:* 5 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Rises, rises

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

#### Skerry, very stony

*Percent of map unit:* 4 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Open depressions, open depressions

*Down-slope shape:* Convex, concave

*Across-slope shape:* Convex, concave

*Hydric soil rating:* No



**Pillsbury, very stony**

*Percent of map unit:* 3 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Foothlope, toeslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Open depressions, open depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

**Monadnock, very stony**

*Percent of map unit:* 3 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

**57E—Becket fine sandy loam, 25 to 35 percent slopes, very stony**

**Map Unit Setting**

*National map unit symbol:* 2w9ps

*Elevation:* 460 to 2,030 feet

*Mean annual precipitation:* 31 to 65 inches

*Mean annual air temperature:* 36 to 52 degrees F

*Frost-free period:* 90 to 160 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Becket, very stony, and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Becket, Very Stony**

**Setting**

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy lodgment till derived from granite and gneiss and/or schist  
over sandy lodgment till derived from granite and gneiss and/or schist

**Typical profile**

*O<sub>i</sub> - 0 to 2 inches:* slightly decomposed plant material

*E - 2 to 4 inches:* fine sandy loam

*B<sub>hs</sub> - 4 to 5 inches:* fine sandy loam

*B<sub>s1</sub> - 5 to 7 inches:* fine sandy loam



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*Bs2 - 7 to 14 inches:* fine sandy loam  
*Bs3 - 14 to 24 inches:* gravelly sandy loam  
*BC - 24 to 33 inches:* gravelly sandy loam  
*Cd - 33 to 65 inches:* gravelly loamy sand

### Properties and qualities

*Slope:* 25 to 35 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* 21 to 43 inches to densic material  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 5.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* C  
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)  
*Hydric soil rating:* No

### Minor Components

#### Lyman, very stony

*Percent of map unit:* 5 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

#### Skerry, very stony

*Percent of map unit:* 4 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Microfeatures of landform position:* Open depressions, open depressions  
*Down-slope shape:* Convex, concave  
*Across-slope shape:* Convex, concave  
*Hydric soil rating:* No

#### Monadnock, very stony

*Percent of map unit:* 3 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No



**Pillsbury, very stony**

*Percent of map unit:* 3 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Microfeatures of landform position:* Open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

**59B—Waumbek loamy sand, 3 to 8 percent slopes, very stony**

**Map Unit Setting**

*National map unit symbol:* 9fjz  
*Elevation:* 10 to 2,800 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 55 degrees F  
*Frost-free period:* 60 to 160 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Waumbek and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Waumbek**

**Typical profile**

*O - 0 to 4 inches:* slightly decomposed plant material  
*H1 - 4 to 9 inches:* loamy sand  
*H2 - 9 to 25 inches:* very cobbly loamy sand  
*H3 - 25 to 65 inches:* very cobbly loamy sand

**Properties and qualities**

*Slope:* 3 to 8 percent  
*Surface area covered with cobbles, stones or boulders:* 1.6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.20 to 6.00 in/hr)  
*Depth to water table:* About 18 to 30 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 4.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* B



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*Ecological site:* F144BY602ME - Sandy Toeslope  
*Hydric soil rating:* No

**Minor Components**

**Hermon**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

**Lyme**

*Percent of map unit:* 5 percent  
*Landform:* Depressions  
*Hydric soil rating:* Yes

**Moosilauke**

*Percent of map unit:* 5 percent  
*Landform:* Depressions  
*Hydric soil rating:* Yes

**61C—Tunbridge-Lyman-Rock outcrop complex, 8 to 15 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 2trpj  
*Elevation:* 160 to 3,480 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 60 to 160 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Tunbridge, very stony, and similar soils:* 39 percent  
*Lyman, very stony, and similar soils:* 30 percent  
*Rock outcrop:* 19 percent  
*Minor components:* 12 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Tunbridge, Very Stony**

**Setting**

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, mountainbase, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

**Typical profile**

*Oe - 0 to 3 inches:* moderately decomposed plant material



## Custom Soil Resource Report

*Oa - 3 to 5 inches:* highly decomposed plant material  
*E - 5 to 8 inches:* fine sandy loam  
*Bhs - 8 to 11 inches:* fine sandy loam  
*Bs - 11 to 26 inches:* fine sandy loam  
*BC - 26 to 28 inches:* fine sandy loam  
*R - 28 to 38 inches:* bedrock

### Properties and qualities

*Slope:* 8 to 15 percent  
*Surface area covered with cobbles, stones or boulders:* 1.5 percent  
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Moderate (about 6.1 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* C  
*Ecological site:* F144BY702ME - Shallow and Moderately-deep Till  
*Hydric soil rating:* No

## Description of Lyman, Very Stony

### Setting

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, mountainbase, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

### Typical profile

*Oe - 0 to 1 inches:* moderately decomposed plant material  
*A - 1 to 3 inches:* loam  
*E - 3 to 5 inches:* fine sandy loam  
*Bhs - 5 to 7 inches:* loam  
*Bs1 - 7 to 11 inches:* loam  
*Bs2 - 11 to 18 inches:* channery loam  
*R - 18 to 28 inches:* bedrock

### Properties and qualities

*Slope:* 8 to 15 percent  
*Surface area covered with cobbles, stones or boulders:* 1.5 percent  
*Depth to restrictive feature:* 11 to 24 inches to lithic bedrock  
*Drainage class:* Somewhat excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None



## Custom Soil Resource Report

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* D

*Ecological site:* F144BY702ME - Shallow and Moderately-deep Till

*Hydric soil rating:* No

### Description of Rock Outcrop

#### Setting

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountaintop, mountainflank, mountainbase, side slope, crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Igneous and metamorphic rock

#### Typical profile

*R - 0 to 10 inches:* bedrock

#### Properties and qualities

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* 0 inches to lithic bedrock

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to very high (0.00 to 14.17 in/hr)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 8s

*Ecological site:* F144BY801ME - Rockland (reserved)

*Hydric soil rating:* Unranked

### Minor Components

#### Peru, very stony

*Percent of map unit:* 5 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountaintop, mountainflank, mountainbase, side slope, crest

*Microfeatures of landform position:* Closed depressions, closed depressions, open depressions, open depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* No

#### Moosilauke, very stony

*Percent of map unit:* 4 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Mountaintop, mountainflank, mountainbase, side slope, crest

*Microfeatures of landform position:* Closed depressions, closed depressions, open depressions, open depressions



## Custom Soil Resource Report

*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

### **Monadnock, very stony**

*Percent of map unit:* 3 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, mountainbase, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

## **61D—Tunbridge-Lyman-Rock outcrop complex, 15 to 25 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2trpk  
*Elevation:* 520 to 1,970 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 60 to 160 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Tunbridge, very stony, and similar soils:* 40 percent  
*Lyman, very stony, and similar soils:* 29 percent  
*Rock outcrop:* 18 percent  
*Minor components:* 13 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Tunbridge, Very Stony**

#### **Setting**

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

#### **Typical profile**

*Oe - 0 to 3 inches:* moderately decomposed plant material  
*Oa - 3 to 5 inches:* highly decomposed plant material  
*E - 5 to 8 inches:* fine sandy loam



## Custom Soil Resource Report

*Bhs - 8 to 11 inches:* fine sandy loam  
*Bs - 11 to 26 inches:* fine sandy loam  
*BC - 26 to 28 inches:* fine sandy loam  
*R - 28 to 38 inches:* bedrock

### Properties and qualities

*Slope:* 15 to 25 percent  
*Surface area covered with cobbles, stones or boulders:* 1.5 percent  
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Moderate (about 6.1 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* C  
*Ecological site:* F144BY702ME - Shallow and Moderately-deep Till  
*Hydric soil rating:* No

## Description of Lyman, Very Stony

### Setting

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

### Typical profile

*Oe - 0 to 1 inches:* moderately decomposed plant material  
*A - 1 to 3 inches:* loam  
*E - 3 to 5 inches:* fine sandy loam  
*Bhs - 5 to 7 inches:* loam  
*Bs1 - 7 to 11 inches:* loam  
*Bs2 - 11 to 18 inches:* channery loam  
*R - 18 to 28 inches:* bedrock

### Properties and qualities

*Slope:* 15 to 25 percent  
*Surface area covered with cobbles, stones or boulders:* 1.5 percent  
*Depth to restrictive feature:* 11 to 24 inches to lithic bedrock  
*Drainage class:* Somewhat excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)



**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* D  
*Ecological site:* F144BY702ME - Shallow and Moderately-deep Till  
*Hydric soil rating:* No

**Description of Rock Outcrop**

**Setting**

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Igneous and metamorphic rock

**Typical profile**

*R - 0 to 10 inches:* bedrock

**Properties and qualities**

*Slope:* 15 to 25 percent  
*Depth to restrictive feature:* 0 inches to lithic bedrock  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to very high (0.00 to 14.17 in/hr)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8s  
*Ecological site:* F144BY801ME - Rockland (reserved)  
*Hydric soil rating:* Unranked

**Minor Components**

**Peru, very stony**

*Percent of map unit:* 6 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, side slope, crest  
*Microfeatures of landform position:* Open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

**Moosilauke, very stony**

*Percent of map unit:* 4 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, side slope, crest  
*Microfeatures of landform position:* Open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes



**Monadnock, very stony**

*Percent of map unit:* 3 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountaintop, mountainflank, side slope, crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

**61E—Tunbridge-Lyman-Rock outcrop complex, 25 to 60 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 2trph

*Elevation:* 430 to 2,490 feet

*Mean annual precipitation:* 31 to 95 inches

*Mean annual air temperature:* 27 to 52 degrees F

*Frost-free period:* 60 to 160 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Tunbridge, very stony, and similar soils:* 42 percent

*Lyman, very stony, and similar soils:* 31 percent

*Rock outcrop:* 17 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Tunbridge, Very Stony**

**Setting**

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Mountainflank, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

**Typical profile**

*Oe - 0 to 3 inches:* moderately decomposed plant material

*Oa - 3 to 5 inches:* highly decomposed plant material

*E - 5 to 8 inches:* fine sandy loam

*Bhs - 8 to 11 inches:* fine sandy loam

*Bs - 11 to 26 inches:* fine sandy loam

*BC - 26 to 28 inches:* fine sandy loam

*R - 28 to 38 inches:* bedrock



## Custom Soil Resource Report

### Properties and qualities

*Slope:* 25 to 60 percent  
*Surface area covered with cobbles, stones or boulders:* 1.5 percent  
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Moderate (about 6.1 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* C  
*Ecological site:* F144BY702ME - Shallow and Moderately-deep Till  
*Hydric soil rating:* No

### Description of Lyman, Very Stony

#### Setting

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Mountainflank, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

#### Typical profile

*Oe - 0 to 1 inches:* moderately decomposed plant material  
*A - 1 to 3 inches:* loam  
*E - 3 to 5 inches:* fine sandy loam  
*Bhs - 5 to 7 inches:* loam  
*Bs1 - 7 to 11 inches:* loam  
*Bs2 - 11 to 18 inches:* channery loam  
*R - 18 to 28 inches:* bedrock

### Properties and qualities

*Slope:* 25 to 60 percent  
*Surface area covered with cobbles, stones or boulders:* 1.5 percent  
*Depth to restrictive feature:* 11 to 24 inches to lithic bedrock  
*Drainage class:* Somewhat excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* D



## Custom Soil Resource Report

*Ecological site:* F144BY702ME - Shallow and Moderately-deep Till  
*Hydric soil rating:* No

### Description of Rock Outcrop

#### Setting

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Mountainflank, free face, side slope, free face  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Igneous and metamorphic rock

#### Typical profile

*R - 0 to 10 inches:* bedrock

#### Properties and qualities

*Slope:* 25 to 60 percent  
*Depth to restrictive feature:* 0 inches to lithic bedrock  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to very high (0.00 to 14.17 in/hr)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8s  
*Ecological site:* F144BY801ME - Rockland (reserved)  
*Hydric soil rating:* Unranked

### Minor Components

#### Peru, very stony

*Percent of map unit:* 6 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountainflank, side slope  
*Microfeatures of landform position:* Open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

#### Moosilauke, very stony

*Percent of map unit:* 3 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountainflank, side slope  
*Microfeatures of landform position:* Open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

#### Monadnock, very stony

*Percent of map unit:* 1 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Mountainflank, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex



*Hydric soil rating:* No

## **73B—Berkshire fine sandy loam, 0 to 8 percent slopes, very stony**

### **Map Unit Setting**

*National map unit symbol:* 2wllv  
*Elevation:* 200 to 1,380 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Farmland of local importance

### **Map Unit Composition**

*Berkshire, very stony, and similar soils:* 88 percent  
*Minor components:* 12 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Berkshire, Very Stony**

#### **Setting**

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainbase, interflue, base slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial meltout till derived from phyllite and/or loamy supraglacial meltout till derived from granite and gneiss and/or loamy supraglacial meltout till derived from mica schist

#### **Typical profile**

*O<sub>i</sub> - 0 to 2 inches:* slightly decomposed plant material  
*A - 2 to 4 inches:* fine sandy loam  
*E - 4 to 5 inches:* fine sandy loam  
*B<sub>s1</sub> - 5 to 7 inches:* fine sandy loam  
*B<sub>s2</sub> - 7 to 13 inches:* fine sandy loam  
*B<sub>s3</sub> - 13 to 21 inches:* fine sandy loam  
*BC<sub>1</sub> - 21 to 28 inches:* fine sandy loam  
*BC<sub>2</sub> - 28 to 33 inches:* fine sandy loam  
*C - 33 to 65 inches:* fine sandy loam

#### **Properties and qualities**

*Slope:* 0 to 8 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (K<sub>sat</sub>):* Moderately low to high (0.14 to 14.17 in/hr)  
*Depth to water table:* More than 80 inches



## Custom Soil Resource Report

*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* High (about 10.0 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* B  
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)  
*Hydric soil rating:* No

### **Minor Components**

#### **Peru, very stony**

*Percent of map unit:* 5 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Microfeatures of landform position:* Closed depressions, closed depressions  
*Down-slope shape:* Convex, concave  
*Across-slope shape:* Linear, concave  
*Hydric soil rating:* No

#### **Lyman, very stony**

*Percent of map unit:* 4 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

#### **Lyme, very stony**

*Percent of map unit:* 2 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Microfeatures of landform position:* Closed depressions, closed depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

#### **Marlow, very stony**

*Percent of map unit:* 1 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No



## 73C—Berkshire fine sandy loam, 8 to 15 percent slopes, very stony

### Map Unit Setting

*National map unit symbol:* 2wllw  
*Elevation:* 130 to 1,840 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 55 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Farmland of local importance

### Map Unit Composition

*Berkshire, very stony, and similar soils:* 87 percent  
*Minor components:* 13 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Berkshire, Very Stony

#### Setting

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial meltout till derived from phyllite and/or loamy supraglacial meltout till derived from granite and gneiss and/or loamy supraglacial meltout till derived from mica schist

#### Typical profile

*Oi - 0 to 2 inches:* slightly decomposed plant material  
*A - 2 to 4 inches:* fine sandy loam  
*E - 4 to 5 inches:* fine sandy loam  
*Bs1 - 5 to 7 inches:* fine sandy loam  
*Bs2 - 7 to 13 inches:* fine sandy loam  
*Bs3 - 13 to 21 inches:* fine sandy loam  
*BC1 - 21 to 28 inches:* fine sandy loam  
*BC2 - 28 to 33 inches:* fine sandy loam  
*C - 33 to 65 inches:* fine sandy loam

#### Properties and qualities

*Slope:* 8 to 15 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.17 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None



## Custom Soil Resource Report

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* High (about 10.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* B  
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)  
*Hydric soil rating:* No

### Minor Components

#### Peru, very stony

*Percent of map unit:* 5 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Microfeatures of landform position:* Closed depressions, open depressions, closed depressions, open depressions  
*Down-slope shape:* Convex, concave  
*Across-slope shape:* Linear, concave  
*Hydric soil rating:* No

#### Tunbridge, very stony

*Percent of map unit:* 3 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

#### Marlow, very stony

*Percent of map unit:* 3 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

#### Lyme, very stony

*Percent of map unit:* 2 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Microfeatures of landform position:* Closed depressions, open depressions, closed depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes



## 73D—Berkshire fine sandy loam, 15 to 25 percent slopes, very stony

### Map Unit Setting

*National map unit symbol:* 2wllx  
*Elevation:* 460 to 1,840 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 55 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Berkshire, very stony, and similar soils:* 88 percent  
*Minor components:* 12 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Berkshire, Very Stony

#### Setting

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial meltout till derived from phyllite and/or loamy supraglacial meltout till derived from granite and gneiss and/or loamy supraglacial meltout till derived from mica schist

#### Typical profile

*O<sub>i</sub> - 0 to 2 inches:* slightly decomposed plant material  
*A - 2 to 4 inches:* fine sandy loam  
*E - 4 to 5 inches:* fine sandy loam  
*B<sub>s1</sub> - 5 to 7 inches:* fine sandy loam  
*B<sub>s2</sub> - 7 to 13 inches:* fine sandy loam  
*B<sub>s3</sub> - 13 to 21 inches:* fine sandy loam  
*BC<sub>1</sub> - 21 to 28 inches:* fine sandy loam  
*BC<sub>2</sub> - 28 to 33 inches:* fine sandy loam  
*C - 33 to 65 inches:* fine sandy loam

#### Properties and qualities

*Slope:* 15 to 25 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (K<sub>sat</sub>):* Moderately low to high (0.14 to 14.17 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)



## Custom Soil Resource Report

*Available water supply, 0 to 60 inches:* High (about 10.0 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* B

*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)

*Hydric soil rating:* No

### **Minor Components**

#### **Peru, very stony**

*Percent of map unit:* 5 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Open depressions, open depressions

*Down-slope shape:* Convex, concave

*Across-slope shape:* Convex, concave

*Hydric soil rating:* No

#### **Lyman, very stony**

*Percent of map unit:* 4 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Rises, rises

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

#### **Lyme, very stony**

*Percent of map unit:* 2 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Closed depressions, open depressions, closed depressions, open depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

#### **Marlow, very stony**

*Percent of map unit:* 1 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No



## 76B—Marlow fine sandy loam, 3 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* 2ty5f  
*Elevation:* 590 to 1,710 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Marlow and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Marlow

#### Setting

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

#### Typical profile

*Ap - 0 to 4 inches:* fine sandy loam  
*E - 4 to 6 inches:* fine sandy loam  
*Bs1 - 6 to 10 inches:* fine sandy loam  
*Bs2 - 10 to 15 inches:* fine sandy loam  
*Bs3 - 15 to 20 inches:* fine sandy loam  
*BC - 20 to 24 inches:* fine sandy loam  
*Cd - 24 to 65 inches:* fine sandy loam

#### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* 20 to 39 inches to densic material  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 3.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified



## Custom Soil Resource Report

*Land capability classification (nonirrigated): 2e*

*Hydrologic Soil Group: C*

*Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)*

*Hydric soil rating: No*

### Minor Components

#### Peru

*Percent of map unit: 7 percent*

*Landform: Hills, mountains*

*Landform position (two-dimensional): Backslope, footslope*

*Landform position (three-dimensional): Mountainbase, interfluve, nose slope, side slope*

*Microfeatures of landform position: Closed depressions, closed depressions*

*Down-slope shape: Concave*

*Across-slope shape: Concave*

*Hydric soil rating: No*

#### Pillsbury

*Percent of map unit: 3 percent*

*Landform: Hills, mountains*

*Landform position (two-dimensional): Footslope, toeslope*

*Landform position (three-dimensional): Mountainbase, interfluve, nose slope, side slope*

*Microfeatures of landform position: Closed depressions, closed depressions*

*Down-slope shape: Concave*

*Across-slope shape: Concave*

*Hydric soil rating: Yes*

#### Monadnock

*Percent of map unit: 3 percent*

*Landform: Hills, mountains*

*Landform position (two-dimensional): Summit, shoulder, backslope*

*Landform position (three-dimensional): Mountainbase, interfluve, nose slope, side slope*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Hydric soil rating: No*

#### Tunbridge

*Percent of map unit: 2 percent*

*Landform: Hills, mountains*

*Landform position (two-dimensional): Summit, shoulder, backslope*

*Landform position (three-dimensional): Mountainbase, interfluve, nose slope, side slope*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Hydric soil rating: No*



## 76C—Marlow fine sandy loam, 8 to 15 percent slopes

### Map Unit Setting

*National map unit symbol:* 2ty5h

*Elevation:* 490 to 1,740 feet

*Mean annual precipitation:* 31 to 95 inches

*Mean annual air temperature:* 27 to 52 degrees F

*Frost-free period:* 90 to 160 days

*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Marlow and similar soils:* 84 percent

*Minor components:* 16 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Marlow

#### Setting

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

#### Typical profile

*Ap - 0 to 4 inches:* fine sandy loam

*E - 4 to 6 inches:* fine sandy loam

*Bs1 - 6 to 10 inches:* fine sandy loam

*Bs2 - 10 to 15 inches:* fine sandy loam

*Bs3 - 15 to 20 inches:* fine sandy loam

*BC - 20 to 24 inches:* fine sandy loam

*Cd - 24 to 65 inches:* fine sandy loam

#### Properties and qualities

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* 20 to 40 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 3.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified



## Custom Soil Resource Report

*Land capability classification (nonirrigated): 3e*

*Hydrologic Soil Group: C*

*Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)*

*Hydric soil rating: No*

### Minor Components

#### Peru

*Percent of map unit: 7 percent*

*Landform: Hills, mountains*

*Landform position (two-dimensional): Backslope, footslope*

*Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope*

*Microfeatures of landform position: Closed depressions, closed depressions, open depressions, open depressions*

*Down-slope shape: Concave*

*Across-slope shape: Concave*

*Hydric soil rating: No*

#### Berkshire

*Percent of map unit: 4 percent*

*Landform: Hills, mountains*

*Landform position (two-dimensional): Summit, shoulder, backslope*

*Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Hydric soil rating: No*

#### Tunbridge

*Percent of map unit: 3 percent*

*Landform: Hills, mountains*

*Landform position (two-dimensional): Summit, shoulder, backslope*

*Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Hydric soil rating: No*

#### Pillsbury

*Percent of map unit: 2 percent*

*Landform: Hills, mountains*

*Landform position (two-dimensional): Footslope, toeslope*

*Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope*

*Microfeatures of landform position: Closed depressions, closed depressions, open depressions, open depressions*

*Down-slope shape: Concave*

*Across-slope shape: Concave*

*Hydric soil rating: Yes*



## 77C—Marlow fine sandy loam, 8 to 15 percent slopes, very stony

### Map Unit Setting

*National map unit symbol:* 2ty5p  
*Elevation:* 520 to 1,900 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 55 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Farmland of local importance

### Map Unit Composition

*Marlow, very stony, and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Marlow, Very Stony

#### Setting

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

#### Typical profile

*Oi - 0 to 2 inches:* slightly decomposed plant material  
*A - 2 to 5 inches:* fine sandy loam  
*E - 5 to 8 inches:* fine sandy loam  
*Bs1 - 8 to 15 inches:* fine sandy loam  
*Bs2 - 15 to 19 inches:* fine sandy loam  
*BC - 19 to 33 inches:* gravelly fine sandy loam  
*Cd - 33 to 65 inches:* fine sandy loam

#### Properties and qualities

*Slope:* 8 to 15 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* 20 to 41 inches to densic material  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 5.1 inches)



**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* C  
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)  
*Hydric soil rating:* No

**Minor Components**

**Peru, very stony**

*Percent of map unit:* 6 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Microfeatures of landform position:* Closed depressions, closed depressions, open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

**Berkshire, very stony**

*Percent of map unit:* 4 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Tunbridge, very stony**

*Percent of map unit:* 3 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Pillsbury, very stony**

*Percent of map unit:* 2 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Microfeatures of landform position:* Closed depressions, closed depressions, open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes



## 77D—Marlow fine sandy loam, 15 to 25 percent slopes, very stony

### Map Unit Setting

*National map unit symbol:* 2ty5r  
*Elevation:* 560 to 2,000 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Marlow, very stony, and similar soils:* 86 percent  
*Minor components:* 14 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Marlow, Very Stony

#### Setting

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

#### Typical profile

*Oi - 0 to 2 inches:* slightly decomposed plant material  
*A - 2 to 5 inches:* fine sandy loam  
*E - 5 to 8 inches:* fine sandy loam  
*Bs1 - 8 to 15 inches:* fine sandy loam  
*Bs2 - 15 to 19 inches:* fine sandy loam  
*BC - 19 to 33 inches:* gravelly fine sandy loam  
*Cd - 33 to 65 inches:* fine sandy loam

#### Properties and qualities

*Slope:* 15 to 25 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* 20 to 41 inches to densic material  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 5.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified



## Custom Soil Resource Report

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* C

*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)

*Hydric soil rating:* No

### Minor Components

#### **Tunbridge, very stony**

*Percent of map unit:* 5 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

#### **Peru, very stony**

*Percent of map unit:* 4 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Open depressions, open depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* No

#### **Berkshire, very stony**

*Percent of map unit:* 3 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

#### **Pillsbury, very stony**

*Percent of map unit:* 2 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Open depressions, open depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

## **77E—Marlow fine sandy loam, 25 to 50 percent slopes, very stony**

### **Map Unit Setting**

*National map unit symbol:* 2ty5t

*Elevation:* 360 to 2,360 feet

*Mean annual precipitation:* 31 to 95 inches



## Custom Soil Resource Report

*Mean annual air temperature:* 27 to 52 degrees F

*Frost-free period:* 90 to 160 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Marlow, very stony, and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Marlow, Very Stony

#### Setting

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

#### Typical profile

*O<sub>i</sub> - 0 to 2 inches:* slightly decomposed plant material

*A - 2 to 5 inches:* fine sandy loam

*E - 5 to 8 inches:* fine sandy loam

*B<sub>s1</sub> - 8 to 15 inches:* fine sandy loam

*B<sub>s2</sub> - 15 to 19 inches:* fine sandy loam

*BC - 19 to 33 inches:* gravelly fine sandy loam

*Cd - 33 to 65 inches:* fine sandy loam

#### Properties and qualities

*Slope:* 25 to 50 percent

*Surface area covered with cobbles, stones or boulders:* 1.1 percent

*Depth to restrictive feature:* 20 to 41 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (K<sub>sat</sub>):* Moderately low to moderately high (0.01 to 1.42 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 5.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* C

*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)

*Hydric soil rating:* No

### Minor Components

#### Peru, very stony

*Percent of map unit:* 5 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Open depressions, open depressions



## Custom Soil Resource Report

*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

### **Berkshire, very stony**

*Percent of map unit:* 4 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

### **Tunbridge, very stony**

*Percent of map unit:* 4 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

### **Pillsbury, very stony**

*Percent of map unit:* 2 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Microfeatures of landform position:* Open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

## **78B—Peru fine sandy loam, 3 to 8 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2ty5y  
*Elevation:* 230 to 1,770 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Peru and similar soils:* 84 percent  
*Minor components:* 16 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Peru**

#### **Setting**

*Landform:* Hills, mountains



## Custom Soil Resource Report

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainbase, interfluve

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

### Typical profile

*Ap - 0 to 6 inches:* fine sandy loam

*Bhs - 6 to 8 inches:* fine sandy loam

*Bs1 - 8 to 12 inches:* fine sandy loam

*Bs2 - 12 to 18 inches:* fine sandy loam

*Bs3 - 18 to 21 inches:* fine sandy loam

*BC - 21 to 24 inches:* fine sandy loam

*Cd - 24 to 65 inches:* sandy loam

### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* 20 to 39 inches to densic material

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)

*Depth to water table:* About 16 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 3.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* C/D

*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)

*Hydric soil rating:* No

### Minor Components

#### Marlow

*Percent of map unit:* 6 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainbase, interfluve

*Microfeatures of landform position:* Rises, rises

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

#### Cabot

*Percent of map unit:* 4 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Mountainbase, interfluve

*Microfeatures of landform position:* Closed depressions, closed depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes



**Colonel**

*Percent of map unit:* 4 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Mountainbase, interfluve  
*Microfeatures of landform position:* Closed depressions, closed depressions  
*Down-slope shape:* Linear, concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

**Lyman**

*Percent of map unit:* 2 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainbase, interfluve  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**78C—Peru fine sandy loam, 8 to 15 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 2ty60  
*Elevation:* 330 to 1,870 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Peru and similar soils:* 83 percent  
*Minor components:* 17 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Peru**

**Setting**

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

**Typical profile**

*Ap - 0 to 6 inches:* fine sandy loam  
*Bhs - 6 to 8 inches:* fine sandy loam



## Custom Soil Resource Report

*Bs1 - 8 to 12 inches:* fine sandy loam  
*Bs2 - 12 to 18 inches:* fine sandy loam  
*Bs3 - 18 to 21 inches:* fine sandy loam  
*BC - 21 to 24 inches:* fine sandy loam  
*Cd - 24 to 65 inches:* sandy loam

### Properties and qualities

*Slope:* 8 to 15 percent  
*Depth to restrictive feature:* 20 to 39 inches to densic material  
*Drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)  
*Depth to water table:* About 16 to 30 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 3.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* C/D  
*Ecological site:* F142XA020NY - Rich Moist Till Frigid  
*Hydric soil rating:* No

### Minor Components

#### Colonel

*Percent of map unit:* 7 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Microfeatures of landform position:* Closed depressions, closed depressions, open depressions, open depressions  
*Down-slope shape:* Linear, concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

#### Cabot

*Percent of map unit:* 4 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Microfeatures of landform position:* Closed depressions, closed depressions, open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

#### Marlow

*Percent of map unit:* 4 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope



## Custom Soil Resource Report

*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

### **Tunbridge**

*Percent of map unit:* 2 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

## **79B—Peru fine sandy loam, 0 to 8 percent slopes, very stony**

### **Map Unit Setting**

*National map unit symbol:* 2ty63  
*Elevation:* 160 to 1,840 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Farmland of local importance

### **Map Unit Composition**

*Peru, very stony, and similar soils:* 88 percent  
*Minor components:* 12 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Peru, Very Stony**

#### **Setting**

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountainbase, interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

#### **Typical profile**

*Oe - 0 to 1 inches:* moderately decomposed plant material  
*A - 1 to 5 inches:* fine sandy loam  
*E - 5 to 6 inches:* fine sandy loam  
*Bs1 - 6 to 7 inches:* fine sandy loam  
*Bs2 - 7 to 13 inches:* fine sandy loam  
*Bs3 - 13 to 18 inches:* fine sandy loam  
*BC - 18 to 21 inches:* fine sandy loam



## Custom Soil Resource Report

*Cd1 - 21 to 37 inches: fine sandy loam*

*Cd2 - 37 to 65 inches: fine sandy loam*

### Properties and qualities

*Slope: 0 to 8 percent*

*Surface area covered with cobbles, stones or boulders: 1.1 percent*

*Depth to restrictive feature: 21 to 43 inches to densic material*

*Drainage class: Moderately well drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)*

*Depth to water table: About 17 to 34 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)*

*Available water supply, 0 to 60 inches: Low (about 3.6 inches)*

### Interpretive groups

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 6s*

*Hydrologic Soil Group: C/D*

*Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)*

*Hydric soil rating: No*

### Minor Components

#### Marlow, very stony

*Percent of map unit: 5 percent*

*Landform: Hills, mountains*

*Landform position (two-dimensional): Summit, shoulder, backslope*

*Landform position (three-dimensional): Mountainbase, interfluvium*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Hydric soil rating: No*

#### Pillsbury, very stony

*Percent of map unit: 4 percent*

*Landform: Hills, mountains*

*Landform position (two-dimensional): Footslope, toeslope*

*Landform position (three-dimensional): Mountainbase, interfluvium*

*Microfeatures of landform position: Closed depressions, closed depressions*

*Down-slope shape: Concave*

*Across-slope shape: Concave*

*Hydric soil rating: Yes*

#### Lyman, very stony

*Percent of map unit: 2 percent*

*Landform: Hills, mountains*

*Landform position (two-dimensional): Summit, shoulder, backslope*

*Landform position (three-dimensional): Mountainbase, interfluvium*

*Microfeatures of landform position: Rises, rises*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Hydric soil rating: No*

#### Colonel, very stony

*Percent of map unit: 1 percent*

*Landform: Hills, mountains*



## Custom Soil Resource Report

*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Mountainbase, interfluve  
*Microfeatures of landform position:* Closed depressions, closed depressions  
*Down-slope shape:* Linear, concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

### **79C—Peru fine sandy loam, 8 to 15 percent slopes, very stony**

#### **Map Unit Setting**

*National map unit symbol:* 2ty65  
*Elevation:* 360 to 2,160 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Farmland of local importance

#### **Map Unit Composition**

*Peru, very stony, and similar soils:* 84 percent  
*Minor components:* 16 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### **Description of Peru, Very Stony**

##### **Setting**

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

##### **Typical profile**

*Oe - 0 to 1 inches:* moderately decomposed plant material  
*A - 1 to 5 inches:* fine sandy loam  
*E - 5 to 6 inches:* fine sandy loam  
*Bs1 - 6 to 7 inches:* fine sandy loam  
*Bs2 - 7 to 13 inches:* fine sandy loam  
*Bs3 - 13 to 18 inches:* fine sandy loam  
*BC - 18 to 21 inches:* fine sandy loam  
*Cd1 - 21 to 37 inches:* fine sandy loam  
*Cd2 - 37 to 65 inches:* fine sandy loam

##### **Properties and qualities**

*Slope:* 8 to 15 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* 21 to 43 inches to densic material  
*Drainage class:* Moderately well drained



## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)

*Depth to water table:* About 17 to 34 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 3.6 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* C/D

*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)

*Hydric soil rating:* No

### Minor Components

#### Marlow, very stony

*Percent of map unit:* 6 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Microfeatures of landform position:* Rises, rises

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

#### Cabot, very stony

*Percent of map unit:* 4 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Microfeatures of landform position:* Closed depressions, closed depressions, open depressions, open depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

#### Colonel, very stony

*Percent of map unit:* 3 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Footslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Microfeatures of landform position:* Closed depressions, closed depressions, open depressions, open depressions

*Down-slope shape:* Linear, concave

*Across-slope shape:* Concave

*Hydric soil rating:* No

#### Lyman, very stony

*Percent of map unit:* 3 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope



## Custom Soil Resource Report

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

### **79D—Peru fine sandy loam, 15 to 25 percent slopes, very stony**

#### **Map Unit Setting**

*National map unit symbol:* 2ty66  
*Elevation:* 490 to 2,360 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Not prime farmland

#### **Map Unit Composition**

*Peru, very stony, and similar soils:* 83 percent  
*Minor components:* 17 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### **Description of Peru, Very Stony**

##### **Setting**

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

##### **Typical profile**

*Oe - 0 to 1 inches:* moderately decomposed plant material  
*A - 1 to 5 inches:* fine sandy loam  
*E - 5 to 6 inches:* fine sandy loam  
*Bs1 - 6 to 7 inches:* fine sandy loam  
*Bs2 - 7 to 13 inches:* fine sandy loam  
*Bs3 - 13 to 18 inches:* fine sandy loam  
*BC - 18 to 21 inches:* fine sandy loam  
*Cd1 - 21 to 37 inches:* fine sandy loam  
*Cd2 - 37 to 65 inches:* fine sandy loam

##### **Properties and qualities**

*Slope:* 15 to 25 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* 21 to 43 inches to densic material  
*Drainage class:* Moderately well drained



## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)

*Depth to water table:* About 17 to 34 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 3.6 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* C/D

*Ecological site:* F142XA020NY - Rich Moist Till Frigid

*Hydric soil rating:* No

### Minor Components

#### Colonel, very stony

*Percent of map unit:* 6 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Footslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Open depressions, open depressions

*Down-slope shape:* Linear, concave

*Across-slope shape:* Concave

*Hydric soil rating:* No

#### Marlow, very stony

*Percent of map unit:* 5 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Rises, rises

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

#### Cabot, very stony

*Percent of map unit:* 4 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Open depressions, open depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

#### Tunbridge, very stony

*Percent of map unit:* 2 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Rises, rises

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No



## 90B—Tunbridge-Lyman complex, 3 to 8 percent slopes, rocky

### Map Unit Setting

*National map unit symbol:* 2trpl  
*Elevation:* 330 to 1,840 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 60 to 160 days  
*Farmland classification:* Farmland of local importance

### Map Unit Composition

*Tunbridge, rocky, and similar soils:* 50 percent  
*Lyman, rocky, and similar soils:* 33 percent  
*Minor components:* 17 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Tunbridge, Rocky

#### Setting

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainbase, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

#### Typical profile

*Oe - 0 to 3 inches:* moderately decomposed plant material  
*Oa - 3 to 5 inches:* highly decomposed plant material  
*E - 5 to 8 inches:* fine sandy loam  
*Bhs - 8 to 11 inches:* fine sandy loam  
*Bs - 11 to 26 inches:* fine sandy loam  
*BC - 26 to 28 inches:* fine sandy loam  
*R - 28 to 38 inches:* bedrock

#### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Moderate (about 6.1 inches)



**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C  
*Ecological site:* F144BY702ME - Shallow and Moderately-deep Till  
*Hydric soil rating:* No

**Description of Lyman, Rocky**

**Setting**

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainbase, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

**Typical profile**

*Oe - 0 to 1 inches:* moderately decomposed plant material  
*A - 1 to 3 inches:* loam  
*E - 3 to 5 inches:* fine sandy loam  
*Bhs - 5 to 7 inches:* loam  
*Bs1 - 7 to 11 inches:* loam  
*Bs2 - 11 to 18 inches:* channery loam  
*R - 18 to 28 inches:* bedrock

**Properties and qualities**

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* 11 to 24 inches to lithic bedrock  
*Drainage class:* Somewhat excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* D  
*Ecological site:* F144BY702ME - Shallow and Moderately-deep Till  
*Hydric soil rating:* No

**Minor Components**

**Peru, rocky**

*Percent of map unit:* 9 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountaintop, mountainbase, side slope, crest  
*Microfeatures of landform position:* Closed depressions, closed depressions



Custom Soil Resource Report

*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

**Cabot, rocky**

*Percent of map unit:* 5 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountaintop, mountainbase, side slope, crest  
*Microfeatures of landform position:* Closed depressions, closed depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

**Berkshire, rocky**

*Percent of map unit:* 2 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainbase, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Rock outcrop**

*Percent of map unit:* 1 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainbase, side slope, crest  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* Unranked

**90C—Tunbridge-Lyman complex, 8 to 15 percent slopes, rocky**

**Map Unit Setting**

*National map unit symbol:* 2trpn  
*Elevation:* 430 to 1,870 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 60 to 160 days  
*Farmland classification:* Farmland of local importance

**Map Unit Composition**

*Tunbridge, rocky, and similar soils:* 50 percent  
*Lyman, rocky, and similar soils:* 33 percent



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*Minor components: 17 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Tunbridge, Rocky

#### Setting

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, mountainbase, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

#### Typical profile

*Oe - 0 to 3 inches:* moderately decomposed plant material  
*Oa - 3 to 5 inches:* highly decomposed plant material  
*E - 5 to 8 inches:* fine sandy loam  
*Bhs - 8 to 11 inches:* fine sandy loam  
*Bs - 11 to 26 inches:* fine sandy loam  
*BC - 26 to 28 inches:* fine sandy loam  
*R - 28 to 38 inches:* bedrock

#### Properties and qualities

*Slope:* 8 to 15 percent  
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Moderate (about 6.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* C  
*Ecological site:* F144BY702ME - Shallow and Moderately-deep Till  
*Hydric soil rating:* No

### Description of Lyman, Rocky

#### Setting

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, mountainbase, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist



## Custom Soil Resource Report

### Typical profile

*Oe - 0 to 1 inches:* moderately decomposed plant material  
*A - 1 to 3 inches:* loam  
*E - 3 to 5 inches:* fine sandy loam  
*Bhs - 5 to 7 inches:* loam  
*Bs1 - 7 to 11 inches:* loam  
*Bs2 - 11 to 18 inches:* channery loam  
*R - 18 to 28 inches:* bedrock

### Properties and qualities

*Slope:* 8 to 15 percent  
*Depth to restrictive feature:* 11 to 24 inches to lithic bedrock  
*Drainage class:* Somewhat excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* D  
*Ecological site:* F144BY702ME - Shallow and Moderately-deep Till  
*Hydric soil rating:* No

### Minor Components

#### Peru, rocky

*Percent of map unit:* 9 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, mountainbase, side slope, crest  
*Microfeatures of landform position:* Closed depressions, closed depressions, open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

#### Cabot, rocky

*Percent of map unit:* 4 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, mountainbase, side slope, crest  
*Microfeatures of landform position:* Closed depressions, closed depressions, open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

#### Berkshire, rocky

*Percent of map unit:* 3 percent  
*Landform:* Hills, mountains



## Custom Soil Resource Report

*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, mountainbase, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

### **Rock outcrop**

*Percent of map unit:* 1 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, mountainbase, side slope, crest  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* Unranked

## **90D—Tunbridge-Lyman complex, 15 to 25 percent slopes, rocky**

### **Map Unit Setting**

*National map unit symbol:* 2trpm  
*Elevation:* 520 to 1,770 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 60 to 160 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Tunbridge, rocky, and similar soils:* 50 percent  
*Lyman, rocky, and similar soils:* 33 percent  
*Minor components:* 17 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Tunbridge, Rocky**

#### **Setting**

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

#### **Typical profile**

*Oe - 0 to 3 inches:* moderately decomposed plant material



## Custom Soil Resource Report

*Oa* - 3 to 5 inches: highly decomposed plant material  
*E* - 5 to 8 inches: fine sandy loam  
*Bhs* - 8 to 11 inches: fine sandy loam  
*Bs* - 11 to 26 inches: fine sandy loam  
*BC* - 26 to 28 inches: fine sandy loam  
*R* - 28 to 38 inches: bedrock

### Properties and qualities

*Slope*: 15 to 25 percent  
*Depth to restrictive feature*: 20 to 40 inches to lithic bedrock  
*Drainage class*: Well drained  
*Capacity of the most limiting layer to transmit water (Ksat)*: Very low to high (0.00 to 14.03 in/hr)  
*Depth to water table*: More than 80 inches  
*Frequency of flooding*: None  
*Frequency of ponding*: None  
*Available water supply, 0 to 60 inches*: Moderate (about 6.1 inches)

### Interpretive groups

*Land capability classification (irrigated)*: None specified  
*Land capability classification (nonirrigated)*: 4e  
*Hydrologic Soil Group*: C  
*Ecological site*: F144BY702ME - Shallow and Moderately-deep Till  
*Hydric soil rating*: No

## Description of Lyman, Rocky

### Setting

*Landform*: Hills, mountains  
*Landform position (two-dimensional)*: Summit, shoulder, backslope  
*Landform position (three-dimensional)*: Mountaintop, mountainflank, side slope, crest  
*Down-slope shape*: Convex  
*Across-slope shape*: Convex  
*Parent material*: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

### Typical profile

*Oe* - 0 to 1 inches: moderately decomposed plant material  
*A* - 1 to 3 inches: loam  
*E* - 3 to 5 inches: fine sandy loam  
*Bhs* - 5 to 7 inches: loam  
*Bs1* - 7 to 11 inches: loam  
*Bs2* - 11 to 18 inches: channery loam  
*R* - 18 to 28 inches: bedrock

### Properties and qualities

*Slope*: 15 to 25 percent  
*Depth to restrictive feature*: 11 to 24 inches to lithic bedrock  
*Drainage class*: Somewhat excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat)*: Very low to high (0.00 to 14.03 in/hr)  
*Depth to water table*: More than 80 inches  
*Frequency of flooding*: None  
*Frequency of ponding*: None  
*Available water supply, 0 to 60 inches*: Low (about 3.4 inches)



**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* D  
*Ecological site:* F144BY702ME - Shallow and Moderately-deep Till  
*Hydric soil rating:* No

**Minor Components**

**Peru, rocky**

*Percent of map unit:* 10 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, side slope, crest  
*Microfeatures of landform position:* Open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

**Cabot, rocky**

*Percent of map unit:* 5 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, side slope, crest  
*Microfeatures of landform position:* Open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

**Berkshire, rocky**

*Percent of map unit:* 1 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Rock outcrop**

*Percent of map unit:* 1 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountaintop, mountainflank, side slope, crest  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* Unranked



## 101—Ondawa fine sandy loam, 0 to 3 percent slopes, frequently flooded

### Map Unit Setting

*National map unit symbol:* 2qgw0

*Elevation:* 240 to 1,480 feet

*Mean annual precipitation:* 31 to 95 inches

*Mean annual air temperature:* 27 to 54 degrees F

*Frost-free period:* 80 to 160 days

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Ondawa and similar soils:* 88 percent

*Minor components:* 12 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Ondawa

#### Setting

*Landform:* Flood plains

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Coarse-loamy alluvium derived from schist and/or coarse-loamy alluvium derived from quartzite and/or coarse-loamy alluvium derived from granite and gneiss

#### Typical profile

*Ap - 0 to 9 inches:* fine sandy loam

*Bw - 9 to 30 inches:* fine sandy loam

*C - 30 to 65 inches:* loamy fine sand

#### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.17 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* Frequent

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Moderate (about 7.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 1

*Hydrologic Soil Group:* B

*Ecological site:* F144BY120ME - Small Floodplain Riparian Complex (reserved),  
F144BY110ME - Broad Floodplain Riparian Complex

*Hydric soil rating:* No



**Minor Components**

**Podunk**

*Percent of map unit:* 6 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Tread  
*Microfeatures of landform position:* Closed depressions  
*Down-slope shape:* Linear, concave  
*Across-slope shape:* Linear, concave  
*Hydric soil rating:* No

**Sunday**

*Percent of map unit:* 4 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Rumney**

*Percent of map unit:* 2 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Tread  
*Microfeatures of landform position:* Closed depressions  
*Down-slope shape:* Linear, concave  
*Across-slope shape:* Linear, concave  
*Hydric soil rating:* Yes

**102—Sunday loamy sand**

**Map Unit Setting**

*National map unit symbol:* 9ffs  
*Elevation:* 10 to 1,750 feet  
*Mean annual precipitation:* 34 to 65 inches  
*Mean annual air temperature:* 36 to 52 degrees F  
*Frost-free period:* 80 to 160 days  
*Farmland classification:* Farmland of local importance

**Map Unit Composition**

*Sunday and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Sunday**

**Typical profile**

*H1 - 0 to 9 inches:* loamy sand  
*H2 - 9 to 65 inches:* sand



## Custom Soil Resource Report

### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Excessively drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (6.00 to 20.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* Frequent  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 4.2 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3s  
*Hydrologic Soil Group:* A  
*Ecological site:* F144BY120ME - Small Floodplain Riparian Complex (reserved),  
F144BY110ME - Broad Floodplain Riparian Complex  
*Hydric soil rating:* No

### Minor Components

#### Not named

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Ondawa

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Podunk

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

## 104—Podunk fine sandy loam, 0 to 3 percent slopes, frequently flooded

### Map Unit Setting

*National map unit symbol:* 2qgvv  
*Elevation:* 10 to 1,480 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 54 degrees F  
*Frost-free period:* 80 to 160 days  
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Podunk and similar soils:* 86 percent  
*Minor components:* 14 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*



## Description of Podunk

### Setting

*Landform:* Flood plains

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Coarse-loamy alluvium derived from schist and/or coarse-loamy alluvium derived from quartzite and/or coarse-loamy alluvium derived from granite and gneiss

### Typical profile

*Ap - 0 to 10 inches:* fine sandy loam

*Bw1 - 10 to 18 inches:* fine sandy loam

*Bw2 - 18 to 30 inches:* fine sandy loam

*C - 30 to 65 inches:* loamy fine sand

### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.17 in/hr)

*Depth to water table:* About 18 to 36 inches

*Frequency of flooding:* Frequent

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Moderate (about 7.6 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2w

*Hydrologic Soil Group:* B/D

*Ecological site:* F144BY120ME - Small Floodplain Riparian Complex (reserved),

F144BY110ME - Broad Floodplain Riparian Complex

*Hydric soil rating:* No

## Minor Components

### Rumney

*Percent of map unit:* 5 percent

*Landform:* Flood plains

*Landform position (three-dimensional):* Tread

*Microfeatures of landform position:* Closed depressions

*Down-slope shape:* Linear, concave

*Across-slope shape:* Linear, concave

*Hydric soil rating:* Yes

### Ondawa

*Percent of map unit:* 4 percent

*Landform:* Flood plains

*Landform position (three-dimensional):* Tread

*Microfeatures of landform position:* Rises

*Down-slope shape:* Linear, convex

*Across-slope shape:* Linear, convex

*Hydric soil rating:* No



## Custom Soil Resource Report

### **Sunday**

*Percent of map unit:* 2 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Tread  
*Microfeatures of landform position:* Rises  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

### **Medomak**

*Percent of map unit:* 2 percent  
*Landform:* Flood plains  
*Microfeatures of landform position:* Closed depressions  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear, concave  
*Hydric soil rating:* Yes

### **Charles**

*Percent of map unit:* 1 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Tread  
*Microfeatures of landform position:* Closed depressions  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* Yes

## **105—Rumney fine sandy loam, 0 to 3 percent slopes, frequently flooded**

### **Map Unit Setting**

*National map unit symbol:* 2qgvs  
*Elevation:* 0 to 2,440 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 54 degrees F  
*Frost-free period:* 80 to 160 days  
*Farmland classification:* Farmland of local importance

### **Map Unit Composition**

*Rumney and similar soils:* 84 percent  
*Minor components:* 16 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Rumney**

#### **Setting**

*Landform:* Flood plains  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear



## Custom Soil Resource Report

*Parent material:* Coarse-loamy alluvium derived from schist and/or coarse-loamy alluvium derived from quartzite and/or coarse-loamy alluvium derived from granite and gneiss

### Typical profile

*Ap - 0 to 9 inches:* fine sandy loam  
*Bg1 - 9 to 20 inches:* fine sandy loam  
*Bg2 - 20 to 30 inches:* sandy loam  
*Cg - 30 to 65 inches:* loamy sand

### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.17 in/hr)  
*Depth to water table:* About 0 to 12 inches  
*Frequency of flooding:* Frequent  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Moderate (about 6.9 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4w  
*Hydrologic Soil Group:* B/D  
*Ecological site:* F144BY120ME - Small Floodplain Riparian Complex (reserved), F144BY110ME - Broad Floodplain Riparian Complex  
*Hydric soil rating:* Yes

### Minor Components

#### Medomak

*Percent of map unit:* 6 percent  
*Landform:* Flood plains  
*Microfeatures of landform position:* Closed depressions  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

#### Podunk

*Percent of map unit:* 5 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Tread  
*Microfeatures of landform position:* Rises  
*Down-slope shape:* Linear, convex  
*Across-slope shape:* Linear, convex  
*Hydric soil rating:* No

#### Charles

*Percent of map unit:* 3 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* Yes

#### Ondawa

*Percent of map unit:* 2 percent



## Custom Soil Resource Report

*Landform:* Flood plains  
*Landform position (three-dimensional):* Tread  
*Microfeatures of landform position:* Rises  
*Down-slope shape:* Linear, convex  
*Across-slope shape:* Linear, convex  
*Hydric soil rating:* No

### **173C—Berkshire fine sandy loam, 3 to 15 percent slopes, extremely stony**

#### **Map Unit Setting**

*National map unit symbol:* 2wlm1  
*Elevation:* 720 to 1,610 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Not prime farmland

#### **Map Unit Composition**

*Berkshire, extremely stony, and similar soils:* 87 percent  
*Minor components:* 13 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### **Description of Berkshire, Extremely Stony**

##### **Setting**

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope, base slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial meltout till derived from phyllite and/or loamy supraglacial meltout till derived from granite and gneiss and/or loamy supraglacial meltout till derived from mica schist

##### **Typical profile**

*Oi - 0 to 2 inches:* slightly decomposed plant material  
*A - 2 to 4 inches:* fine sandy loam  
*E - 4 to 5 inches:* fine sandy loam  
*Bs1 - 5 to 7 inches:* fine sandy loam  
*Bs2 - 7 to 13 inches:* fine sandy loam  
*Bs3 - 13 to 21 inches:* fine sandy loam  
*BC1 - 21 to 28 inches:* fine sandy loam  
*BC2 - 28 to 33 inches:* fine sandy loam  
*C - 33 to 65 inches:* fine sandy loam

##### **Properties and qualities**

*Slope:* 3 to 15 percent  
*Surface area covered with cobbles, stones or boulders:* 6.0 percent



## Custom Soil Resource Report

*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high  
(0.14 to 14.17 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* High (about 10.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* B  
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)  
*Hydric soil rating:* No

### Minor Components

#### Peru, extremely stony

*Percent of map unit:* 5 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve,  
nose slope, side slope, base slope  
*Microfeatures of landform position:* Closed depressions, open depressions, closed  
depressions, open depressions  
*Down-slope shape:* Convex, concave  
*Across-slope shape:* Linear, concave  
*Hydric soil rating:* No

#### Marlow, extremely stony

*Percent of map unit:* 3 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve,  
nose slope, side slope, base slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

#### Tunbridge, extremely stony

*Percent of map unit:* 3 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve,  
nose slope, side slope, base slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

#### Lyme, extremely stony

*Percent of map unit:* 2 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve,  
nose slope, side slope, base slope



## Custom Soil Resource Report

*Microfeatures of landform position:* Closed depressions, open depressions, closed depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

### 254B—Hermon and Monadnock soils, 3 to 8 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2x9pc  
*Elevation:* 0 to 1,380 feet  
*Mean annual precipitation:* 31 to 65 inches  
*Mean annual air temperature:* 36 to 54 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Farmland of statewide importance

#### Map Unit Composition

*Hermon and similar soils:* 45 percent  
*Monadnock and similar soils:* 40 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Hermon

##### Setting

*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainbase, interflue, base slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Sandy and gravelly supraglacial meltout till derived from granite and gneiss

##### Typical profile

*Ap - 0 to 9 inches:* sandy loam  
*Bs1 - 9 to 16 inches:* very gravelly sandy loam  
*Bs2 - 16 to 32 inches:* extremely gravelly loamy sand  
*C - 32 to 65 inches:* very gravelly coarse sand

##### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (1.42 to 14.17 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 3.9 inches)



**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2s  
*Hydrologic Soil Group:* A  
*Ecological site:* F144BY601ME - Dry Sand  
*Hydric soil rating:* No

**Description of Monadnock**

**Setting**

*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite over sandy and gravelly supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite

**Typical profile**

*Ap - 0 to 7 inches:* fine sandy loam  
*Bs1 - 7 to 9 inches:* fine sandy loam  
*Bs2 - 9 to 19 inches:* gravelly fine sandy loam  
*BC - 19 to 22 inches:* gravelly fine sandy loam  
*2C1 - 22 to 42 inches:* gravelly loamy sand  
*2C2 - 42 to 65 inches:* gravelly loamy sand

**Properties and qualities**

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* 15 to 30 inches to strongly contrasting textural stratification  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 3.3 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2s  
*Hydrologic Soil Group:* B  
*Ecological site:* F144BY505ME - Loamy over Sandy  
*Hydric soil rating:* No

**Minor Components**

**Colton**

*Percent of map unit:* 5 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex



## Custom Soil Resource Report

*Across-slope shape:* Convex  
*Hydric soil rating:* No

### **Lyme**

*Percent of map unit:* 5 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Foothlope, toeslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Microfeatures of landform position:* Closed depressions, closed depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

### **Peru**

*Percent of map unit:* 3 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, foothlope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Microfeatures of landform position:* Closed depressions, closed depressions  
*Down-slope shape:* Convex, concave  
*Across-slope shape:* Linear, concave  
*Hydric soil rating:* No

### **Waumbek**

*Percent of map unit:* 2 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, foothlope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Microfeatures of landform position:* Closed depressions, closed depressions  
*Down-slope shape:* Convex, concave  
*Across-slope shape:* Linear, concave  
*Hydric soil rating:* No

## **254C—Hermon and Monadnock soils, 8 to 15 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2x9pd  
*Elevation:* 0 to 1,540 feet  
*Mean annual precipitation:* 31 to 65 inches  
*Mean annual air temperature:* 36 to 54 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Hermon and similar soils:* 45 percent  
*Monadnock and similar soils:* 40 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*



## Description of Hermon

### Setting

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Sandy and gravelly supraglacial meltout till derived from granite and gneiss

### Typical profile

*Ap - 0 to 9 inches:* sandy loam

*Bs1 - 9 to 16 inches:* very gravelly sandy loam

*Bs2 - 16 to 32 inches:* extremely gravelly loamy sand

*C - 32 to 65 inches:* very gravelly coarse sand

### Properties and qualities

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat excessively drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (1.42 to 14.17 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 3.9 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* A

*Ecological site:* F144BY601ME - Dry Sand

*Hydric soil rating:* No

## Description of Monadnock

### Setting

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite over sandy and gravelly supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite

### Typical profile

*Ap - 0 to 7 inches:* fine sandy loam

*Bs1 - 7 to 9 inches:* fine sandy loam

*Bs2 - 9 to 19 inches:* gravelly fine sandy loam

*BC - 19 to 22 inches:* gravelly fine sandy loam

*2C1 - 22 to 42 inches:* gravelly loamy sand



## Custom Soil Resource Report

2C2 - 42 to 65 inches: gravelly loamy sand

### Properties and qualities

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* 15 to 30 inches to strongly contrasting textural stratification

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.03 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 3.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* B

*Ecological site:* F144BY505ME - Loamy over Sandy

*Hydric soil rating:* No

### Minor Components

#### Colton

*Percent of map unit:* 5 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Microfeatures of landform position:* Rises, rises

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

#### Waumbek

*Percent of map unit:* 4 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Microfeatures of landform position:* Open depressions, closed depressions, closed depressions, open depressions

*Down-slope shape:* Convex, concave

*Across-slope shape:* Linear, concave

*Hydric soil rating:* No

#### Lyme

*Percent of map unit:* 4 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Microfeatures of landform position:* Open depressions, closed depressions, closed depressions, open depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave



## Custom Soil Resource Report

*Hydric soil rating:* Yes

### **Peru**

*Percent of map unit:* 2 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Microfeatures of landform position:* Open depressions, closed depressions, closed depressions, open depressions

*Down-slope shape:* Convex, concave

*Across-slope shape:* Linear, concave

*Hydric soil rating:* No

## **255B—Hermon and Monadnock soils, 0 to 8 percent slopes, very stony**

### **Map Unit Setting**

*National map unit symbol:* 2x9pg

*Elevation:* 0 to 1,380 feet

*Mean annual precipitation:* 31 to 65 inches

*Mean annual air temperature:* 36 to 54 degrees F

*Frost-free period:* 90 to 160 days

*Farmland classification:* Farmland of local importance

### **Map Unit Composition**

*Hermon, very stony, and similar soils:* 45 percent

*Monadnock, very stony, and similar soils:* 40 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Hermon, Very Stony**

#### **Setting**

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainbase, interfluve, base slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Sandy and gravelly supraglacial meltout till derived from granite and gneiss

#### **Typical profile**

*Oa - 0 to 2 inches:* highly decomposed plant material

*E - 2 to 3 inches:* sandy loam

*Bhs - 3 to 9 inches:* sandy loam

*Bs1 - 9 to 16 inches:* very gravelly sandy loam

*Bs2 - 16 to 32 inches:* extremely gravelly loamy sand

*C - 32 to 65 inches:* very gravelly coarse sand



## Custom Soil Resource Report

### Properties and qualities

*Slope:* 0 to 8 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (1.42 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 4.2 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* A  
*Ecological site:* F144BY601ME - Dry Sand  
*Hydric soil rating:* No

### Description of Monadnock, Very Stony

#### Setting

*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite over sandy and gravelly supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite

#### Typical profile

*Oe - 0 to 3 inches:* moderately decomposed plant material  
*E - 3 to 8 inches:* fine sandy loam  
*Bs1 - 8 to 10 inches:* fine sandy loam  
*Bs2 - 10 to 12 inches:* fine sandy loam  
*Bs3 - 12 to 22 inches:* gravelly fine sandy loam  
*BC - 22 to 25 inches:* gravelly fine sandy loam  
*2C1 - 25 to 45 inches:* gravelly loamy sand  
*2C2 - 45 to 65 inches:* gravelly loamy sand

### Properties and qualities

*Slope:* 0 to 8 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* 18 to 36 inches to strongly contrasting textural stratification  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 4.3 inches)



**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* B

*Ecological site:* F144BY505ME - Loamy over Sandy

*Hydric soil rating:* No

**Minor Components**

**Colton, very stony**

*Percent of map unit:* 5 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainbase, interfluve, base slope

*Microfeatures of landform position:* Rises, rises

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

**Waumbek, very stony**

*Percent of map unit:* 4 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainbase, interfluve, base slope

*Microfeatures of landform position:* Closed depressions, closed depressions

*Down-slope shape:* Convex, concave

*Across-slope shape:* Linear, concave

*Hydric soil rating:* No

**Lyme, very stony**

*Percent of map unit:* 3 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Mountainbase, interfluve, base slope

*Microfeatures of landform position:* Closed depressions, closed depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

**Peru, very stony**

*Percent of map unit:* 3 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainbase, interfluve, base slope

*Microfeatures of landform position:* Closed depressions, closed depressions

*Down-slope shape:* Convex, concave

*Across-slope shape:* Linear, concave

*Hydric soil rating:* No



## 255C—Hermon and Monadnock soils, 8 to 15 percent slopes, very stony

### Map Unit Setting

*National map unit symbol:* 2x9ph

*Elevation:* 0 to 1,610 feet

*Mean annual precipitation:* 31 to 65 inches

*Mean annual air temperature:* 36 to 54 degrees F

*Frost-free period:* 90 to 160 days

*Farmland classification:* Farmland of local importance

### Map Unit Composition

*Hermon, very stony, and similar soils:* 45 percent

*Monadnock, very stony, and similar soils:* 40 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Hermon, Very Stony

#### Setting

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Sandy and gravelly supraglacial meltout till derived from granite and gneiss

#### Typical profile

*Oa - 0 to 2 inches:* highly decomposed plant material

*E - 2 to 3 inches:* sandy loam

*Bhs - 3 to 9 inches:* sandy loam

*Bs1 - 9 to 16 inches:* very gravelly sandy loam

*Bs2 - 16 to 32 inches:* extremely gravelly loamy sand

*C - 32 to 65 inches:* very gravelly coarse sand

#### Properties and qualities

*Slope:* 8 to 15 percent

*Surface area covered with cobbles, stones or boulders:* 1.1 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat excessively drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (1.42 to 14.03 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 4.2 inches)



**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* A  
*Ecological site:* F144BY601ME - Dry Sand  
*Hydric soil rating:* No

**Description of Monadnock, Very Stony**

**Setting**

*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite over sandy and gravelly supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite

**Typical profile**

*Oe - 0 to 3 inches:* moderately decomposed plant material  
*E - 3 to 8 inches:* fine sandy loam  
*Bs1 - 8 to 10 inches:* fine sandy loam  
*Bs2 - 10 to 12 inches:* fine sandy loam  
*Bs3 - 12 to 22 inches:* gravelly fine sandy loam  
*BC - 22 to 25 inches:* gravelly fine sandy loam  
*2C1 - 25 to 45 inches:* gravelly loamy sand  
*2C2 - 45 to 65 inches:* gravelly loamy sand

**Properties and qualities**

*Slope:* 8 to 15 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* 18 to 36 inches to strongly contrasting textural stratification  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 4.3 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* B  
*Ecological site:* F144BY505ME - Loamy over Sandy  
*Hydric soil rating:* No

**Minor Components**

**Waumbek, very stony**

*Percent of map unit:* 5 percent  
*Landform:* Mountains, hills



Custom Soil Resource Report

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Microfeatures of landform position:* Closed depressions, open depressions, open depressions, closed depressions

*Down-slope shape:* Convex, concave

*Across-slope shape:* Linear, concave

*Hydric soil rating:* No

**Lyme, very stony**

*Percent of map unit:* 5 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Microfeatures of landform position:* Open depressions, closed depressions, closed depressions, open depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

**Colton, very stony**

*Percent of map unit:* 4 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Microfeatures of landform position:* Rises, rises

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

**Peru, very stony**

*Percent of map unit:* 1 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Microfeatures of landform position:* Open depressions, closed depressions, closed depressions, open depressions

*Down-slope shape:* Convex, concave

*Across-slope shape:* Linear, concave

*Hydric soil rating:* No

**255D—Monadnock and Hermon soils, 15 to 25 percent slopes, very stony**

**Map Unit Setting**

*National map unit symbol:* 2x9pj



## Custom Soil Resource Report

*Elevation:* 430 to 1,540 feet  
*Mean annual precipitation:* 31 to 65 inches  
*Mean annual air temperature:* 36 to 54 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Monadnock, very stony, and similar soils:* 45 percent  
*Hermon, very stony, and similar soils:* 40 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Monadnock, Very Stony

#### Setting

*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite over sandy and gravelly supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite

#### Typical profile

*Oe - 0 to 3 inches:* moderately decomposed plant material  
*E - 3 to 8 inches:* fine sandy loam  
*Bs1 - 8 to 10 inches:* fine sandy loam  
*Bs2 - 10 to 12 inches:* fine sandy loam  
*Bs3 - 12 to 22 inches:* gravelly fine sandy loam  
*BC - 22 to 25 inches:* gravelly fine sandy loam  
*2C1 - 25 to 45 inches:* gravelly loamy sand  
*2C2 - 45 to 65 inches:* gravelly loamy sand

#### Properties and qualities

*Slope:* 15 to 25 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* 18 to 36 inches to strongly contrasting textural stratification  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 4.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* B  
*Ecological site:* F144BY505ME - Loamy over Sandy  
*Hydric soil rating:* No



## Description of Hermon, Very Stony

### Setting

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Sandy and gravelly supraglacial meltout till derived from granite and gneiss

### Typical profile

*Oa - 0 to 2 inches:* highly decomposed plant material

*E - 2 to 3 inches:* sandy loam

*Bhs - 3 to 9 inches:* sandy loam

*Bs1 - 9 to 16 inches:* very gravelly sandy loam

*Bs2 - 16 to 32 inches:* extremely gravelly loamy sand

*C - 32 to 65 inches:* very gravelly coarse sand

### Properties and qualities

*Slope:* 15 to 25 percent

*Surface area covered with cobbles, stones or boulders:* 1.1 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat excessively drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (1.42 to 14.03 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 4.2 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* A

*Ecological site:* F144BY601ME - Dry Sand

*Hydric soil rating:* No

## Minor Components

### Waumbek, very stony

*Percent of map unit:* 8 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Open depressions, open depressions

*Down-slope shape:* Concave, convex

*Across-slope shape:* Concave, convex

*Hydric soil rating:* No

### Lyme, very stony

*Percent of map unit:* 7 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope



*Microfeatures of landform position:* Open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

## **255E—Monadnock and Hermon soils, 25 to 35 percent slopes, very stony**

### **Map Unit Setting**

*National map unit symbol:* 2x9pl  
*Elevation:* 490 to 1,710 feet  
*Mean annual precipitation:* 31 to 65 inches  
*Mean annual air temperature:* 36 to 54 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Monadnock, very stony, and similar soils:* 45 percent  
*Hermon, very stony, and similar soils:* 40 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Monadnock, Very Stony**

#### **Setting**

*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite over sandy and gravelly supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite

#### **Typical profile**

*Oe - 0 to 3 inches:* moderately decomposed plant material  
*E - 3 to 8 inches:* fine sandy loam  
*Bs1 - 8 to 10 inches:* fine sandy loam  
*Bs2 - 10 to 12 inches:* fine sandy loam  
*Bs3 - 12 to 22 inches:* gravelly fine sandy loam  
*BC - 22 to 25 inches:* gravelly fine sandy loam  
*2C1 - 25 to 45 inches:* gravelly loamy sand  
*2C2 - 45 to 65 inches:* gravelly loamy sand

#### **Properties and qualities**

*Slope:* 25 to 35 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* 18 to 36 inches to strongly contrasting textural stratification



## Custom Soil Resource Report

*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high  
(0.14 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 4.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* B  
*Ecological site:* F144BY505ME - Loamy over Sandy  
*Hydric soil rating:* No

### Description of Hermon, Very Stony

#### Setting

*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Sandy and gravelly supraglacial meltout till derived from granite and gneiss

#### Typical profile

*Oa - 0 to 2 inches:* highly decomposed plant material  
*E - 2 to 3 inches:* sandy loam  
*Bhs - 3 to 9 inches:* sandy loam  
*Bs1 - 9 to 16 inches:* very gravelly sandy loam  
*Bs2 - 16 to 32 inches:* extremely gravelly loamy sand  
*C - 32 to 65 inches:* very gravelly coarse sand

#### Properties and qualities

*Slope:* 25 to 35 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(1.42 to 14.03 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 4.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* A  
*Ecological site:* F144BY601ME - Dry Sand  
*Hydric soil rating:* No



## Minor Components

### Waumbek, very stony

*Percent of map unit:* 8 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Open depressions, open depressions

*Down-slope shape:* Concave, convex

*Across-slope shape:* Concave, convex

*Hydric soil rating:* No

### Lyme, very stony

*Percent of map unit:* 7 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Microfeatures of landform position:* Open depressions, open depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

## 295—Greenwood mucky peat

### Map Unit Setting

*National map unit symbol:* 9fh4

*Elevation:* 500 to 2,000 feet

*Mean annual precipitation:* 28 to 95 inches

*Mean annual air temperature:* 36 to 52 degrees F

*Frost-free period:* 60 to 160 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Greenwood and similar soils:* 90 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Greenwood

#### Setting

*Landform:* Bogs

*Parent material:* Herbaceous organic material and/or woody organic material

#### Typical profile

*O1 - 0 to 10 inches:* mucky peat

*O2 - 10 to 65 inches:* mucky peat

#### Properties and qualities

*Slope:* 0 to 2 percent



## Custom Soil Resource Report

*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Very poorly drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 6.00 in/hr)  
*Depth to water table:* About 0 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* Frequent  
*Available water supply, 0 to 60 inches:* Very high (about 31.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7w  
*Hydrologic Soil Group:* A/D  
*Ecological site:* F143XY303ME - Acidic Swamp  
*Hydric soil rating:* Yes

### Minor Components

#### Chocorua

*Percent of map unit:* 3 percent  
*Landform:* Bogs  
*Hydric soil rating:* Yes

#### Peacham

*Percent of map unit:* 3 percent  
*Landform:* Swamps  
*Hydric soil rating:* Yes

#### Water

*Percent of map unit:* 2 percent  
*Hydric soil rating:* Unranked

#### Ossipee

*Percent of map unit:* 2 percent  
*Landform:* Bogs  
*Hydric soil rating:* Yes

## 298—Pits, gravel

### Map Unit Setting

*National map unit symbol:* 9fh5  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 55 degrees F  
*Frost-free period:* 30 to 250 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Pits:* 100 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*



## 347B—Lyme and Moosilauke soils, 3 to 8 percent slopes, very stony

### Map Unit Setting

*National map unit symbol:* 9fhx  
*Elevation:* 460 to 4,000 feet  
*Mean annual precipitation:* 31 to 95 inches  
*Mean annual air temperature:* 27 to 55 degrees F  
*Frost-free period:* 60 to 160 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Lyme and similar soils:* 55 percent  
*Moosilauke and similar soils:* 30 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Lyme

#### Setting

*Landform:* Ground moraines  
*Parent material:* Till

#### Typical profile

*Oe - 0 to 6 inches:* mucky peat  
*H1 - 6 to 11 inches:* cobbly fine sandy loam  
*H2 - 11 to 22 inches:* cobbly fine sandy loam  
*H3 - 22 to 65 inches:* gravelly fine sandy loam

#### Properties and qualities

*Slope:* 3 to 8 percent  
*Surface area covered with cobbles, stones or boulders:* 1.6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Poorly drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.20 to 6.00 in/hr)  
*Depth to water table:* About 0 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Moderate (about 7.9 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* A/D  
*Ecological site:* F144BY305ME - Wet Loamy Flat  
*Hydric soil rating:* Yes

### Description of Moosilauke

#### Setting

*Landform:* Ground moraines  
*Parent material:* Glacial drift



## Custom Soil Resource Report

### Typical profile

*H1 - 0 to 5 inches: fine sandy loam*  
*H2 - 5 to 22 inches: fine sandy loam*  
*H3 - 22 to 65 inches: sand*

### Properties and qualities

*Slope: 3 to 8 percent*  
*Surface area covered with cobbles, stones or boulders: 1.6 percent*  
*Depth to restrictive feature: More than 80 inches*  
*Drainage class: Poorly drained*  
*Runoff class: Low*  
*Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)*  
*Depth to water table: About 0 to 18 inches*  
*Frequency of flooding: None*  
*Frequency of ponding: None*  
*Available water supply, 0 to 60 inches: Low (about 5.7 inches)*

### Interpretive groups

*Land capability classification (irrigated): None specified*  
*Land capability classification (nonirrigated): 7s*  
*Hydrologic Soil Group: A/D*  
*Ecological site: F144BY303ME - Acidic Swamp*  
*Hydric soil rating: Yes*

### Minor Components

#### Not named

*Percent of map unit: 8 percent*  
*Hydric soil rating: No*

#### Not named wet

*Percent of map unit: 7 percent*  
*Landform: Depressions*  
*Hydric soil rating: Yes*

## 355E—Hermon sandy loam, 15 to 35 percent slopes, extremely bouldery

### Map Unit Setting

*National map unit symbol: 2x9nt*  
*Elevation: 560 to 1,740 feet*  
*Mean annual precipitation: 31 to 65 inches*  
*Mean annual air temperature: 36 to 52 degrees F*  
*Frost-free period: 90 to 160 days*  
*Farmland classification: Not prime farmland*

### Map Unit Composition

*Hermon, extremely bouldery, and similar soils: 85 percent*  
*Minor components: 15 percent*



## Custom Soil Resource Report

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Hermon, Extremely Bouldery

#### Setting

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Sandy and gravelly supraglacial meltout till derived from granite and gneiss

#### Typical profile

*Oa - 0 to 2 inches:* highly decomposed plant material

*E - 2 to 3 inches:* sandy loam

*Bhs - 3 to 9 inches:* sandy loam

*Bs1 - 9 to 16 inches:* very gravelly sandy loam

*Bs2 - 16 to 32 inches:* extremely gravelly loamy sand

*C - 32 to 65 inches:* very gravelly coarse sand

#### Properties and qualities

*Slope:* 15 to 35 percent

*Surface area covered with cobbles, stones or boulders:* 6.0 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat excessively drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (1.42 to 14.03 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 4.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* A

*Ecological site:* F144BY601ME - Dry Sand

*Hydric soil rating:* No

### Minor Components

#### Monadnock, extremely bouldery

*Percent of map unit:* 8 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

#### Peru, extremely bouldery

*Percent of map unit:* 4 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope



## Custom Soil Resource Report

*Microfeatures of landform position:* Open depressions, open depressions  
*Down-slope shape:* Convex, concave  
*Across-slope shape:* Convex, concave  
*Hydric soil rating:* No

### **Tunbridge, extremely bouldery**

*Percent of map unit:* 2 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

### **Brayton, extremely bouldery**

*Percent of map unit:* 1 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Microfeatures of landform position:* Open depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

## **395—Chocorua mucky peat**

### **Map Unit Setting**

*National map unit symbol:* 9fjd  
*Elevation:* 10 to 2,800 feet  
*Mean annual precipitation:* 28 to 65 inches  
*Mean annual air temperature:* 36 to 52 degrees F  
*Frost-free period:* 60 to 160 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Chocorua and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Chocorua**

#### **Setting**

*Landform:* Bogs  
*Parent material:* Organic material over outwash

#### **Typical profile**

*O1 - 0 to 5 inches:* mucky peat  
*O2 - 5 to 26 inches:* mucky peat  
*H - 26 to 65 inches:* sand



## Custom Soil Resource Report

### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Very poorly drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 6.00 in/hr)  
*Depth to water table:* About 0 to 6 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* Frequent  
*Available water supply, 0 to 60 inches:* Very high (about 15.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8w  
*Hydrologic Soil Group:* A/D  
*Ecological site:* F144BY302ME - Mucky Swamp  
*Hydric soil rating:* Yes

### Minor Components

#### Not named

*Percent of map unit:* 5 percent  
*Landform:* Swamps  
*Hydric soil rating:* Yes

#### Greenwood

*Percent of map unit:* 4 percent  
*Landform:* Bogs  
*Hydric soil rating:* Yes

#### Searsport

*Percent of map unit:* 4 percent  
*Landform:* Swamps  
*Hydric soil rating:* Yes

#### Water

*Percent of map unit:* 2 percent  
*Hydric soil rating:* Unranked

## 559B—Skerry fine sandy loam, 0 to 8 percent slopes, very stony

### Map Unit Setting

*National map unit symbol:* 2w9pc  
*Elevation:* 160 to 1,380 feet  
*Mean annual precipitation:* 31 to 65 inches  
*Mean annual air temperature:* 36 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Farmland of local importance



### Map Unit Composition

*Skerry, very stony, and similar soils: 85 percent*

*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Skerry, Very Stony

#### Setting

*Landform: Hills, mountains*

*Landform position (two-dimensional): Backslope, footslope*

*Landform position (three-dimensional): Mountainbase, interfluve*

*Down-slope shape: Convex*

*Across-slope shape: Linear*

*Parent material: Loamy lodgment till derived from granite and gneiss and/or schist  
over sandy lodgment till derived from granite and gneiss and/or schist*

#### Typical profile

*Oa - 0 to 2 inches: highly decomposed plant material*

*E - 2 to 4 inches: fine sandy loam*

*Bhs - 4 to 6 inches: fine sandy loam*

*Bs1 - 6 to 20 inches: gravelly fine sandy loam*

*Bs2 - 20 to 25 inches: gravelly fine sandy loam*

*Cd1 - 25 to 34 inches: gravelly loamy sand*

*Cd2 - 34 to 65 inches: gravelly loamy sand*

#### Properties and qualities

*Slope: 0 to 8 percent*

*Surface area covered with cobbles, stones or boulders: 1.1 percent*

*Depth to restrictive feature: 21 to 43 inches to densic material*

*Drainage class: Moderately well drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately low to  
moderately high (0.01 to 1.42 in/hr)*

*Depth to water table: About 19 to 34 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)*

*Available water supply, 0 to 60 inches: Low (about 4.2 inches)*

#### Interpretive groups

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 6s*

*Hydrologic Soil Group: C/D*

*Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)*

*Hydric soil rating: No*

### Minor Components

#### Pillsbury, very stony

*Percent of map unit: 6 percent*

*Landform: Hills, mountains*

*Landform position (two-dimensional): Footslope, toeslope*

*Landform position (three-dimensional): Mountainbase, interfluve*

*Microfeatures of landform position: Closed depressions, closed depressions*

*Down-slope shape: Concave*

*Across-slope shape: Concave*

*Hydric soil rating: Yes*



**Becket, very stony**

*Percent of map unit:* 4 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainbase, interfluve  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Colonel, very stony**

*Percent of map unit:* 4 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Foothills  
*Landform position (three-dimensional):* Mountainbase, interfluve  
*Microfeatures of landform position:* Closed depressions, closed depressions  
*Down-slope shape:* Linear, concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

**Monadnock, very stony**

*Percent of map unit:* 1 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainbase, interfluve  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**559C—Skerry fine sandy loam, 8 to 15 percent slopes, very stony**

**Map Unit Setting**

*National map unit symbol:* 2w9pd  
*Elevation:* 160 to 1,540 feet  
*Mean annual precipitation:* 31 to 65 inches  
*Mean annual air temperature:* 36 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Farmland of local importance

**Map Unit Composition**

*Skerry, very stony, and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Skerry, Very Stony**

**Setting**

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, foothills



## Custom Soil Resource Report

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Loamy lodgment till derived from granite and gneiss and/or schist over sandy lodgment till derived from granite and gneiss and/or schist

### Typical profile

*Oa - 0 to 2 inches:* highly decomposed plant material

*E - 2 to 4 inches:* fine sandy loam

*Bhs - 4 to 6 inches:* fine sandy loam

*Bs1 - 6 to 20 inches:* gravelly fine sandy loam

*Bs2 - 20 to 25 inches:* gravelly fine sandy loam

*Cd1 - 25 to 34 inches:* gravelly loamy sand

*Cd2 - 34 to 65 inches:* gravelly loamy sand

### Properties and qualities

*Slope:* 8 to 15 percent

*Surface area covered with cobbles, stones or boulders:* 1.1 percent

*Depth to restrictive feature:* 21 to 43 inches to densic material

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)

*Depth to water table:* About 19 to 34 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 4.2 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* C/D

*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)

*Hydric soil rating:* No

### Minor Components

#### Becket, very stony

*Percent of map unit:* 6 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Microfeatures of landform position:* Rises, rises

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

#### Monadnock, very stony

*Percent of map unit:* 3 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Microfeatures of landform position:* Rises, rises

*Down-slope shape:* Convex



## Custom Soil Resource Report

*Across-slope shape:* Convex  
*Hydric soil rating:* No

### **Colonel, very stony**

*Percent of map unit:* 3 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Microfeatures of landform position:* Open depressions, closed depressions, closed depressions, open depressions  
*Down-slope shape:* Concave, linear  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

### **Pillsbury, very stony**

*Percent of map unit:* 3 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope  
*Microfeatures of landform position:* Open depressions, closed depressions, closed depressions, open depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

## **613—Croghan loamy fine sand, 0 to 3 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2wqnz  
*Elevation:* 150 to 2,300 feet  
*Mean annual precipitation:* 36 to 65 inches  
*Mean annual air temperature:* 37 to 46 degrees F  
*Frost-free period:* 90 to 135 days  
*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Croghan and similar soils:* 80 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Croghan**

#### **Setting**

*Landform:* Outwash deltas  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear



## Custom Soil Resource Report

*Parent material:* Sandy glaciofluvial deposits

### Typical profile

*Ap - 0 to 7 inches:* loamy fine sand  
*Bs - 7 to 17 inches:* loamy fine sand  
*BC - 17 to 30 inches:* fine sand  
*C - 30 to 65 inches:* sand

### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(1.42 to 14.17 in/hr)  
*Depth to water table:* About 18 to 30 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 3.6 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2w  
*Hydrologic Soil Group:* A  
*Ecological site:* F144BY602ME - Sandy Toeslope  
*Hydric soil rating:* No

### Minor Components

#### Naumburg

*Percent of map unit:* 10 percent  
*Landform:* Outwash deltas  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

#### Adams

*Percent of map unit:* 5 percent  
*Landform:* Outwash deltas  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

#### Colton

*Percent of map unit:* 3 percent  
*Landform:* Outwash deltas  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

#### Sheepscot

*Percent of map unit:* 2 percent



## Custom Soil Resource Report

*Landform:* Outwash deltas  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

### 614—Kinsman sand

#### Map Unit Setting

*National map unit symbol:* 9fk3  
*Elevation:* 10 to 2,800 feet  
*Mean annual precipitation:* 30 to 65 inches  
*Mean annual air temperature:* 36 to 52 degrees F  
*Frost-free period:* 80 to 160 days  
*Farmland classification:* Farmland of local importance

#### Map Unit Composition

*Kinsman and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Kinsman

##### Setting

*Landform:* Outwash terraces  
*Parent material:* Outwash

##### Typical profile

*H1 - 0 to 8 inches:* sand  
*H2 - 8 to 24 inches:* sand  
*H3 - 24 to 65 inches:* gravelly sand

##### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Poorly drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (6.00 to 20.00 in/hr)  
*Depth to water table:* About 0 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.5 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4w  
*Hydrologic Soil Group:* A/D  
*Ecological site:* F144BY303ME - Acidic Swamp  
*Hydric soil rating:* Yes



**Minor Components**

**Croghan**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Chocorua**

*Percent of map unit: 3 percent*  
*Landform: Bogs*  
*Hydric soil rating: Yes*

**Searsport**

*Percent of map unit: 3 percent*  
*Landform: Swamps*  
*Hydric soil rating: Yes*

**647B—Pillsbury fine sandy loam, 0 to 8 percent slopes, very stony**

**Map Unit Setting**

*National map unit symbol: 2ty6x*  
*Elevation: 360 to 2,070 feet*  
*Mean annual precipitation: 31 to 95 inches*  
*Mean annual air temperature: 27 to 52 degrees F*  
*Frost-free period: 90 to 140 days*  
*Farmland classification: Not prime farmland*

**Map Unit Composition**

*Pillsbury, very stony, and similar soils: 79 percent*  
*Minor components: 21 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Pillsbury, Very Stony**

**Setting**

*Landform: Hills, mountains*  
*Landform position (two-dimensional): Footslope, toeslope*  
*Landform position (three-dimensional): Mountainbase, interfluvium, base slope*  
*Down-slope shape: Concave*  
*Across-slope shape: Concave*  
*Parent material: Loamy lodgment till derived from gneiss and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from granite*

**Typical profile**

*Oe - 0 to 1 inches: mucky peat*  
*A - 1 to 6 inches: fine sandy loam*  
*Bg1 - 6 to 13 inches: cobbly fine sandy loam*  
*Bg2 - 13 to 23 inches: cobbly fine sandy loam*  
*Cd - 23 to 65 inches: cobbly fine sandy loam*

**Properties and qualities**

*Slope: 0 to 8 percent*



## Custom Soil Resource Report

*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* 21 to 43 inches to densic material  
*Drainage class:* Poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)  
*Depth to water table:* About 0 to 12 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 3.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* D  
*Ecological site:* F144BY305ME - Wet Loamy Flat  
*Hydric soil rating:* Yes

### Minor Components

#### Peru, very stony

*Percent of map unit:* 9 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear, convex  
*Hydric soil rating:* No

#### Peacham, very stony

*Percent of map unit:* 5 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Microfeatures of landform position:* Closed depressions, closed depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

#### Wonsqueak

*Percent of map unit:* 4 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Footslope, toeslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Microfeatures of landform position:* Closed depressions, closed depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

#### Lyman, very stony

*Percent of map unit:* 3 percent  
*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainbase, interfluve, base slope  
*Microfeatures of landform position:* Rises, rises  
*Down-slope shape:* Convex



## Custom Soil Resource Report

*Across-slope shape:* Convex  
*Hydric soil rating:* No

### **703D—Becket-Monadnock association, 15 to 35 percent slopes, very stony**

#### **Map Unit Setting**

*National map unit symbol:* 2x9q4  
*Elevation:* 750 to 2,200 feet  
*Mean annual precipitation:* 31 to 65 inches  
*Mean annual air temperature:* 36 to 52 degrees F  
*Frost-free period:* 90 to 160 days  
*Farmland classification:* Not prime farmland

#### **Map Unit Composition**

*Becket, very stony, and similar soils:* 45 percent  
*Monadnock, very stony, and similar soils:* 40 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### **Description of Becket, Very Stony**

##### **Setting**

*Landform:* Hills, mountains  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy lodgment till derived from granite and gneiss and/or schist over sandy lodgment till derived from granite and gneiss and/or schist

##### **Typical profile**

*Oi - 0 to 2 inches:* slightly decomposed plant material  
*E - 2 to 4 inches:* fine sandy loam  
*Bhs - 4 to 5 inches:* fine sandy loam  
*Bs1 - 5 to 7 inches:* fine sandy loam  
*Bs2 - 7 to 14 inches:* fine sandy loam  
*Bs3 - 14 to 24 inches:* gravelly sandy loam  
*BC - 24 to 33 inches:* gravelly sandy loam  
*Cd - 33 to 65 inches:* gravelly loamy sand

##### **Properties and qualities**

*Slope:* 15 to 35 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* 21 to 43 inches to densic material  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None



## Custom Soil Resource Report

*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 5.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* C  
*Ecological site:* F144BY505ME - Loamy over Sandy, F144BY501ME - Loamy  
Slope (Northern Hardwoods)  
*Hydric soil rating:* No

### Description of Monadnock, Very Stony

#### Setting

*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, nose slope, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy supraglacial meltout till derived from granite and gneiss  
and/or mica schist and/or phyllite over sandy and gravelly supraglacial meltout  
till derived from granite and gneiss and/or mica schist and/or phyllite

#### Typical profile

*Oe - 0 to 3 inches:* moderately decomposed plant material  
*E - 3 to 8 inches:* fine sandy loam  
*Bs1 - 8 to 10 inches:* fine sandy loam  
*Bs2 - 10 to 12 inches:* fine sandy loam  
*Bs3 - 12 to 22 inches:* gravelly fine sandy loam  
*BC - 22 to 25 inches:* gravelly fine sandy loam  
*2C1 - 25 to 45 inches:* gravelly loamy sand  
*2C2 - 45 to 65 inches:* gravelly loamy sand

#### Properties and qualities

*Slope:* 15 to 35 percent  
*Surface area covered with cobbles, stones or boulders:* 1.1 percent  
*Depth to restrictive feature:* 18 to 36 inches to strongly contrasting textural stratification  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high  
(0.14 to 14.17 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 4.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* B  
*Ecological site:* F144BY505ME - Loamy over Sandy  
*Hydric soil rating:* No



**Minor Components**

**Skerry, very stony**

*Percent of map unit:* 8 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank, nose slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

**Lyman, very stony**

*Percent of map unit:* 3 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountaintop, mountainflank, side slope, crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

**Pillsbury, very stony**

*Percent of map unit:* 2 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Mountainflank, mountainbase, interfluve, nose slope, side slope

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

**Peacham, very stony**

*Percent of map unit:* 2 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Mountainbase, interfluve, base slope

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

**703E—Becket-Monadnock association, 35 to 60 percent slopes, very stony**

**Map Unit Setting**

*National map unit symbol:* 2x9q5

*Elevation:* 850 to 2,030 feet

*Mean annual precipitation:* 31 to 65 inches

*Mean annual air temperature:* 36 to 52 degrees F



## Custom Soil Resource Report

*Frost-free period:* 90 to 160 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Becket, very stony, and similar soils:* 50 percent

*Monadnock, very stony, and similar soils:* 35 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Becket, Very Stony

#### Setting

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy lodgment till derived from granite and gneiss and/or schist  
over sandy lodgment till derived from granite and gneiss and/or schist

#### Typical profile

*Oi - 0 to 2 inches:* slightly decomposed plant material

*E - 2 to 4 inches:* fine sandy loam

*Bhs - 4 to 5 inches:* fine sandy loam

*Bs1 - 5 to 7 inches:* fine sandy loam

*Bs2 - 7 to 14 inches:* fine sandy loam

*Bs3 - 14 to 24 inches:* gravelly sandy loam

*BC - 24 to 33 inches:* gravelly sandy loam

*Cd - 33 to 65 inches:* gravelly loamy sand

#### Properties and qualities

*Slope:* 35 to 60 percent

*Surface area covered with cobbles, stones or boulders:* 1.1 percent

*Depth to restrictive feature:* 21 to 43 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to  
moderately high (0.01 to 1.42 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 5.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* C

*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods),  
F144BY505ME - Loamy over Sandy

*Hydric soil rating:* No

### Description of Monadnock, Very Stony

#### Setting

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, side slope



## Custom Soil Resource Report

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite over sandy and gravelly supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite

### Typical profile

*Oe - 0 to 3 inches:* moderately decomposed plant material

*E - 3 to 8 inches:* fine sandy loam

*Bs1 - 8 to 10 inches:* fine sandy loam

*Bs2 - 10 to 12 inches:* fine sandy loam

*Bs3 - 12 to 22 inches:* gravelly fine sandy loam

*BC - 22 to 25 inches:* gravelly fine sandy loam

*2C1 - 25 to 45 inches:* gravelly loamy sand

*2C2 - 45 to 65 inches:* gravelly loamy sand

### Properties and qualities

*Slope:* 35 to 60 percent

*Surface area covered with cobbles, stones or boulders:* 1.1 percent

*Depth to restrictive feature:* 18 to 36 inches to strongly contrasting textural stratification

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.03 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 4.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* B

*Ecological site:* F144BY505ME - Loamy over Sandy

*Hydric soil rating:* No

### Minor Components

#### Skerry, very stony

*Percent of map unit:* 10 percent

*Landform:* Hills, mountains

*Landform position (two-dimensional):* Backslope, footslope

*Landform position (three-dimensional):* Mountainflank, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

#### Hermon, very stony

*Percent of map unit:* 3 percent

*Landform:* Mountains, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Mountainflank, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No



**Lyman, very stony**

*Percent of map unit:* 2 percent  
*Landform:* Mountains, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Mountainflank, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**731—Peacham and ossipee soils, very stony**

**Map Unit Setting**

*National map unit symbol:* 9flq  
*Elevation:* 380 to 3,560 feet  
*Mean annual precipitation:* 28 to 95 inches  
*Mean annual air temperature:* 27 to 55 degrees F  
*Frost-free period:* 60 to 160 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Peacham and similar soils:* 41 percent  
*Ossipee and similar soils:* 39 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Peacham**

**Setting**

*Landform:* Ground moraines  
*Parent material:* Basal lodgement till derived from granite and gneiss and/or basal lodgement till derived from schist

**Typical profile**

*Oa - 0 to 7 inches:* muck  
*H1 - 7 to 15 inches:* gravelly fine sandy loam  
*H2 - 15 to 65 inches:* sandy loam

**Properties and qualities**

*Slope:* 0 to 2 percent  
*Surface area covered with cobbles, stones or boulders:* 1.6 percent  
*Depth to restrictive feature:* 10 to 39 inches to densic material  
*Drainage class:* Very poorly drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* About 0 to 6 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* Frequent  
*Available water supply, 0 to 60 inches:* Low (about 4.6 inches)



**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 5s  
*Hydrologic Soil Group:* D  
*Ecological site:* F144BY301ME - Loamy Till Swamp  
*Hydric soil rating:* Yes

**Description of Ossipee**

**Setting**

*Landform:* Bogs  
*Parent material:* Organic material over till

**Typical profile**

*Oe1 - 0 to 6 inches:* mucky peat  
*Oe2 - 6 to 41 inches:* mucky peat  
*H - 41 to 65 inches:* silt loam

**Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Very poorly drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.20 to 2.00 in/hr)  
*Depth to water table:* About 0 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* Frequent  
*Available water supply, 0 to 60 inches:* Very high (about 24.5 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8w  
*Hydrologic Soil Group:* A/D  
*Ecological site:* F144BY302ME - Mucky Swamp  
*Hydric soil rating:* Yes

**Minor Components**

**Greenwood**

*Percent of map unit:* 10 percent  
*Landform:* Bogs  
*Hydric soil rating:* Yes

**Not named wet**

*Percent of map unit:* 5 percent  
*Landform:* Ground moraines  
*Hydric soil rating:* Yes

**Lyme**

*Percent of map unit:* 3 percent  
*Landform:* Ground moraines  
*Hydric soil rating:* Yes

**Pillsbury**

*Percent of map unit:* 2 percent  
*Landform:* Ground moraines  
*Hydric soil rating:* Yes



**W—Water**

**Map Unit Composition**

*Water: 100 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*



## White Mountain National Forest, New Hampshire and Maine

### NOTCOM—No Digital Data Available

#### Map Unit Composition

*Notcom: 100 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Notcom

**Properties and qualities**



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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>



## Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

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## **Appendix E – Photograph Log**



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 1: Looking westerly at Structure 170, located within the Woodstock Substation.



Photograph No. 2: Looking easterly at proposed access and work pad location for Structure 171.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 3: Looking westerly at proposed access toward Structure 172.



Photograph No. 4: Looking westerly at proposed access toward Structure 173.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 5: Looking easterly at proposed access toward Structure 174.



Photograph No. 6: Looking westerly at proposed access toward Structure 175 (right).



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 7: Looking easterly at proposed access toward Structure 176.



Photograph No. 8: Looking easterly at proposed access toward Structure 177.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 9: Looking westerly at proposed access toward Structure 178.



Photograph No. 10: Looking easterly at proposed access toward Structure 179.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 11: Looking easterly at proposed access toward Structure 180.



Photograph No. 12: Looking southerly at proposed access toward Structure 181.



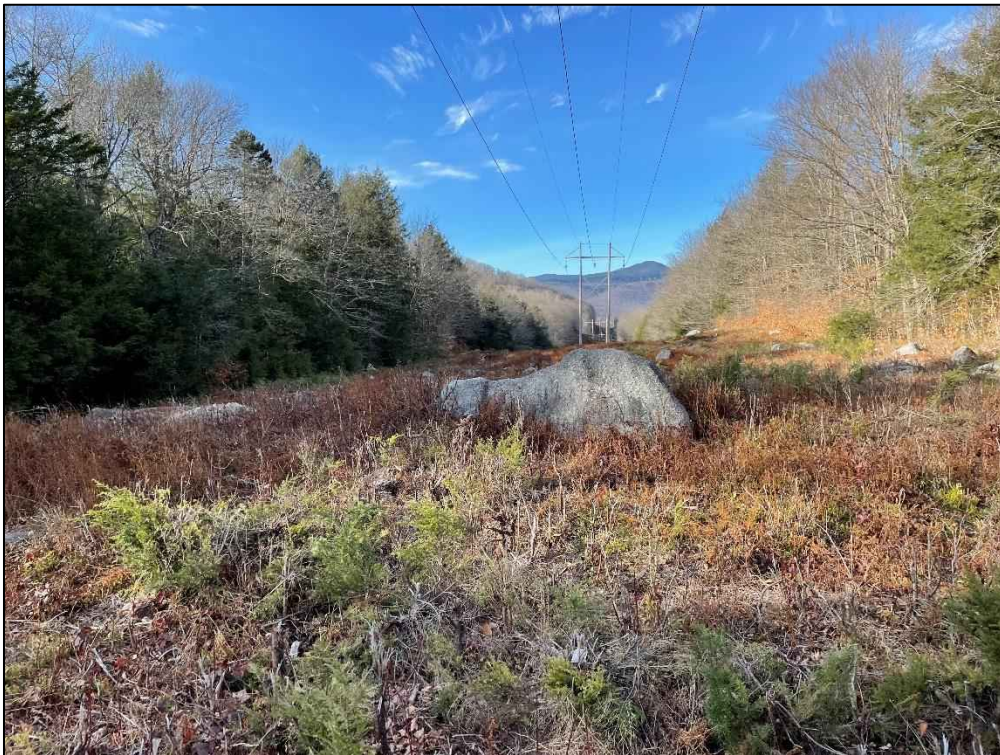
**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 13: Looking northwesterly at proposed access toward Structure 182.



Photograph No. 14: Looking northwesterly at proposed access toward Structure 183.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 15: Looking westerly at proposed access toward Structure 292.



Photograph No. 16: Looking westerly at proposed access toward Structure 293.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 17: Looking westerly at proposed access and work pad location for Structure 294.



Photograph No. 18: Looking westerly at proposed access and work pad location for Structure 297.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 19: Looking westerly at proposed access toward Structure 298.



Photograph No. 20: Looking westerly at proposed access toward Structure 299.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 21: Looking southerly at proposed access toward Structure 315.



Photograph No. 22: Looking southerly at proposed access toward Structure 316.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 23: Looking southerly at proposed access and work pad location for Structure 317.



Photograph No. 24: Looking southerly at proposed access and work pad location for Structure 318.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 25: Looking southerly at proposed access toward Structure 319.



Photograph No. 26: Looking southerly at proposed access toward Structure 320.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 27: Looking southerly at proposed access toward Structure 321.



Photograph No. 28: Looking southeasterly at proposed access and work pad location for Structure 322.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 29: Looking southerly at proposed access toward Structure 323.



Photograph No. 30: Looking southerly at proposed work pad location for Structure 324.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 31: Looking southerly at proposed access toward Structure 325.



Photograph No. 32: Looking southerly at proposed access toward Structure 326.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 33: Looking southerly at proposed access toward Structure 327.



Photograph No. 34: Looking southerly at proposed access toward Structure 328.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 35: Looking southerly at proposed access toward Structure 329.



Photograph No. 36: Looking southerly at proposed access toward Structure 330.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 37: Looking southerly at proposed access toward Structure 331.



Photograph No. 38: Looking southerly at proposed access toward Structure 332.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 39: Looking southerly at proposed access toward Structure 333.



Photograph No. 40: Looking southeasterly at proposed work pad location for Structure 334.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 41: Looking southerly at proposed access toward Structure 335.



Photograph No. 42: Looking southerly at proposed access and work pad location for Structure 336.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 43: Looking southerly at proposed work pad location for Structure 337.



Photograph No. 44: Looking southerly at proposed access toward Structure 338.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 45: Looking southerly at proposed access toward Structure 339.



Photograph No. 46: Looking northerly at proposed access toward Structure 340.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 47: Looking northerly at proposed access toward Structure 341.



Photograph No. 48: Looking northerly at proposed access toward Structure 342.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 49: Looking southerly at proposed access and work pad location for Structure 343.



Photograph No. 50: Looking northwesterly at proposed access and work pad location for Structure 344.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 51: Looking northwesterly at proposed access toward Structure 345 from Presley Road.



Photograph No. 52: Looking northerly at proposed access and work pad location for Structure 347.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 53: Looking northerly at proposed access and work pad location for Structure 348.



Photograph No. 54: Looking northerly at proposed access toward Structure 349.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 55: Looking northerly at proposed access toward Structure 350.



Photograph No. 56: Looking northerly at proposed access toward Structure 351.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 57: Looking southerly at proposed access toward Structure 352.



Photograph No. 58: Looking northerly at proposed access toward Structure 353.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 59: Looking northeasterly at proposed access toward Structure 354.



Photograph No. 60: Looking northerly at proposed access toward Structure 355.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 61: Looking at proposed access and work pad location for Structure 356.



Photograph No. 62: Looking northerly at proposed access toward Structure 357.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 63: Looking northerly at proposed access toward Structure 358.



Photograph No. 64: Looking northerly at proposed access toward Structure 359.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 65: looking northerly at proposed access toward Structure 360.



Photograph No. 66: Looking northerly at proposed access toward Structure 361.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 67: Looking northerly at proposed access toward Structure 362 from Pearl Lake Road.



Photograph No. 68: Looking northerly at proposed access toward Structure 363.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 69: Looking northerly at proposed access toward Structure 364.



Photograph No. 70: Looking northwesterly at proposed access and work pad location for Structure 365.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 71: Looking northerly at proposed access toward Structure 366.



Photograph No. 72: Looking northerly at proposed access toward Structure 367.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 73: Looking northwesterly at proposed work pad location for Structure 368.



Photograph No. 74: Looking northwesterly at proposed access toward Structure 369 (right).



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 75: Looking northerly at proposed access toward Structure 370.



Photograph No. 76: Looking northerly at proposed access and work pad location for Structure 371.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 77: Looking northerly at proposed access and work pad location for Structure 372.



Photograph No. 78: Looking northerly at proposed access toward Structure 373.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 79: Looking southwesterly at proposed access toward Structure 374.



Photograph No. 80: Looking northeasterly at proposed access toward Structure 375.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 81: Looking northwesterly at proposed access south of Center District Road.



Photograph No. 82: Looking northerly at proposed access and work pad location for Structure 376.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 83: Looking northeasterly at proposed access toward Structure 377.



Photograph No. 84: Looking northerly at proposed access toward Structure 378.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 85: Looking northwesterly at proposed access toward Structure 379.



Photograph No. 86: Looking northeasterly at proposed access toward Structure 380.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 87: Looking southwestly at proposed work pad location for Structure 381.



Photograph No. 88: Looking northeasterly at proposed access toward Structure 382.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 89: Looking northeasterly at proposed access toward Structure 383.



Photograph No. 90: Looking northeasterly at proposed access toward Structure 384.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 91: Looking northwesterly at proposed access toward Structure 385.



Photograph No. 92: Looking northeasterly at proposed access toward Structure 386.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 93: Looking northeasterly at proposed access toward Structure 387.



Photograph No. 94: Looking northerly at proposed access toward Structure 388.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 95: Looking northeasterly at proposed access toward Structure 389.



Photograph No. 96: Looking northeasterly at proposed access toward Structure 390.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 97: Looking northeasterly at proposed access toward Structure 391.



Photograph No. 98: Looking northeasterly at proposed access and work pad location for Structure 392.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 99: Looking northeasterly at proposed access toward Structure 393.



Photograph No. 100: Looking southwesterly at proposed work pad location for Structure 394.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 101: Looking northeasterly at proposed access toward Structure 395.



Photograph No. 102: Looking southwesterly at proposed access toward Structure 396.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 103: Looking northeasterly toward Structure 397.



Photograph No. 104: Looking northeasterly at proposed access and work pad location for Structure 398.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 105: Looking northeasterly at proposed access and work pad location for Structure 399.



Photograph No. 106: Looking northeasterly at proposed access and work pad location for Structure 400.



**PHOTO LOG**

**X178-2 Transmission Line Rebuild & OPGW Project Phase 1  
Woodstock, Easton, and Sugar Hill, New Hampshire**

**Photos Taken: November 15, 29, 30, December 7, 8, 13, 14, 2022, and May 1, 2, 3, 8, 9, 10, 18, 2023**



Photograph No. 107: Looking northeasterly at proposed access toward Structure 401.





## **Appendix F – Waiver Request**



## Alteration of Terrain Waiver Request

RSA/Rule: RSA 485-A:17, Env – WQ 1500

Water Division / Alteration of Terrain Bureau / Land resources Management  
29 Hazen Drive, PO Box 95  
Concord, New Hampshire 03302-0095

A. PROJECT INFORMATION		
X178-2 Transmission Line Rebuild and OPGW Project Phase 1 <b>Project Name</b>		
Existing X178-2 Transmission Line Right-of-Way <b>Street Address</b>		
Woodstock, Easton, and Sugar Hill <b>City/Town</b>	Multiple <b>Zip Code</b>	
Multiple – see attached plans <b>Tax Map/Lot Number</b>		
B. APPLICANT/OWNER INFORMATION		
Kurt <b>First Name</b>	Nelson <b>Last Name</b>	
Eversource Energy <b>Organization</b>		
13 Legends Drive <b>Street Address</b>		
Hooksett <b>City/Town</b>	New Hampshire <b>State</b>	03106 <b>Zip Code</b>
Kurt.nelson@eversource.com <b>Email</b>	603-634-3256 <b>Telephone Number</b>	
C. APPLICANT/OWNER AGENT INFORMATION		
Lindsey <b>First Name</b>	White <b>Last Name</b>	
GZA GeoEnvironmental, Inc. <b>Organization</b>		
5 Commerce Park North, Suite 201 <b>Street Address</b>		
Bedford <b>City/Town</b>	New Hampshire <b>State</b>	03110 <b>Zip Code</b>
<a href="mailto:lindsey.white@gza.com">lindsey.white@gza.com</a> <b>Email</b>	603-232-8753 <b>Telephone Number</b>	



<b>D. WAIVER REQUESTS</b>	
Env-Wq 1503.12 (d)(1&2)  <b>Rule Section Waiver Request</b>	Measurement of Contiguous Area Disturbed; Inclusion in Plans  <b>Name of Rule</b>
<b>Reason for Waiver Request</b> Eversource is requesting a waiver for including past terrain disturbance in the measurement of contiguous disturbed area included in this X178-2 Line AOT application. Future disturbance, beyond the scope of X178-2 Line Rebuild and OPGW project described in this application is not known at this time.	
<b>Waiver Timeline</b> Permanent	
<b>Proposed Alternative</b> Any existing trails or access roads that may have been created within the last 10 years will be utilized and/or improved as part of this project and have been included in the current calculations within this application. Future structure maintenance may occur within the X178-2 ROW. Eversource, through consultation with NHDES, will evaluate whether future terrain disturbances within the X178-2 ROW will be permitted with an amendment to this application or subject to a new, separate application.	
<b>Compliance with Env-Wq 1503.12 (d)(1&amp;2)</b> The project proposes to improve access routes and work pads around utility structures for the purpose of maintaining existing utility infrastructure. This project is necessary to maintain the safety and reliability of the electrical infrastructure. Proposed disturbances anticipated for 2024 within the X178-2 ROW are included in this application and shown on Figures 3 and 4. Project disturbances included in this application and subsequent permit approvals will be considered if future structure maintenance is proposed within the X178-2 ROW. Eversource respectfully requests a waiver from including past disturbance in this application. Future disturbances within the X178-2 ROW will be evaluated and discussed with NHDES and permit amendments or new permit applications will be submitted, if necessary.	

**E. SIGNATURES**



Applicant/Owner, **Kurt Nelson,**  
**Eversource Energy**

3/20/2024

Date



## Alteration of Terrain Waiver Request

RSA/Rule: RSA 485-A:17, Env – WQ 1500

Water Division / Alteration of Terrain Bureau / Land resources Management  
29 Hazen Drive, PO Box 95  
Concord, New Hampshire 03302-0095

A. PROJECT INFORMATION		
X178-2 Transmission Line Rebuild and OPGW Project Phase 1 <b>Project Name</b>		
Existing X178-2 Transmission Line Right-of-Way <b>Street Address</b>		
Woodstock, Easton, and Sugar Hill <b>City/Town</b>	Woodstock, Easton, and Sugar Hill <b>City/Town</b>	
Multiple – see attached plans <b>Tax Map/Lot Number</b>		
B. APPLICANT/OWNER INFORMATION		
Kurt <b>First Name</b>	Nelson <b>Last Name</b>	
Eversource Energy <b>Organization</b>		
13 Legends Drive <b>Street Address</b>		
Hooksett <b>City/Town</b>	New Hampshire <b>State</b>	Hooksett <b>City/Town</b>
Kurt.nelson@eversource.com <b>Email</b>	603-634-3256 <b>Telephone Number</b>	
C. APPLICANT/OWNER AGENT INFORMATION		
Lindsey <b>First Name</b>	White <b>Last Name</b>	
GZA GeoEnvironmental, Inc. <b>Organization</b>		
5 Commerce Park North, Suite 201 <b>Street Address</b>		
Bedford <b>City/Town</b>	New Hampshire <b>State</b>	03310 <b>Zip Code</b>
Lindsey.white@gza.com <b>Email</b>	603-232-3396 <b>Telephone Number</b>	



**D. WAIVER REQUESTS**

<b>Env-Wq 1503.21 (d)(6&amp;7)</b> <b>Rule Section Waiver Request</b>	<b>Notification; Certification</b> <b>Name of Rule</b>
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**Reason for Waiver Request**  
Eversource is requesting a waiver for deviations from the approved plans without applying for an amended permit or a new permit if shifts in the proposed project layout occur. Changes in project layout are frequently identified during construction by Eversource and their contractors and may be necessary to safely perform the work. Access shifts would be limited to the extent necessary for safety, would not impact new resources, and access would remain within the existing and maintained ROW. The need for additional permit applications can impact construction schedules and incur costly delays.

**Waiver Timeline**  
Permanent

**Proposed Alternative**  
Allow for the access road centerlines to be relocated during construction, if necessary, up to a distance equal to the approximate width of the ROW (approximately 170-350 feet on the X178-2 Line). Shifts would not create greater than 5% increase in disturbed area along the individual access segment, which is assumed to be the length of the access road between two work pads/structures.  
  
Allow for the center point of the parking area, assumed to be the structure replacement work pads for transmission line projects, to be relocated during construction, if necessary, up to a distance equal to half the approximate width of the ROW (approximately 170-350 feet on the X178-2 Line). Shifts would not create greater than 5% increase in disturbed area at each work pad.  
  
This would allow contractors to avoid steep terrain or other hazardous areas, or areas that may require significant grading or earthwork that may not have been identified during initial constructability reviews. Landowners may also request layout changes be made after project permitting is complete. In most cases this shift is done to reduce the amount of disturbed area.

**Compliance with Env-Wq 1503.21 (d)(6&7)**  
The project proposes to improve access routes and work pads around utility structures for the purpose of maintaining existing utility infrastructure. This project is necessary to maintain the safety and reliability of the electrical infrastructure. Proposed disturbances shown on Figures 3 and 4 are the result of avoidance and minimization measures and constructability reviews. Layout changes and shifts will be limited to the proposed alternative above. A reduction in disturbed area is often the result. As previously mentioned, access shifts would be limited to the extent necessary to safely perform work. Access routes will remain within the existing and maintained ROW and would not disturb new resources. Best Management Practices will be utilized to protect wetlands from erosion, sedimentation, or other environmental degradation as originally proposed. Eversource respectfully requests a waiver from limiting shifts of the project road centerlines and parking areas to 20 feet.

**E. SIGNATURES**

  
\_\_\_\_\_  
Applicant/Owner, **Kurt Nelson,**  
**Eversource Energy**

3/20/2024  
\_\_\_\_\_  
Date



## Alteration of Terrain Waiver Request

RSA/Rule: RSA 485-A:17, Env – WQ 1500

Water Division / Alteration of Terrain Bureau / Land resources Management  
29 Hazen Drive, PO Box 95  
Concord, New Hampshire 03302-0095

A. PROJECT INFORMATION	
X178-2 Transmission Line Rebuild and OPGW Project Phase 1 <b>Project Name</b>	
Existing X178-2 Transmission Line Right-of-Way <b>Street Address</b>	
Woodstock, Easton, and Sugar Hill <b>City/Town</b>	Woodstock, Easton, and Sugar Hill <b>City/Town</b>
Multiple – see attached plans <b>Tax Map/Lot Number</b>	

B. APPLICANT/OWNER INFORMATION		
Ashley <b>First Name</b>	Kurt <b>First Name</b>	
Eversource Energy <b>Organization</b>		
13 Legends Drive <b>Street Address</b>		
Hooksett <b>City/Town</b>	New Hampshire <b>State</b>	Hooksett <b>City/Town</b>
Ashley.friend@eversource.com <b>Email</b>	Kurt.nelson@eversource.com <b>Email</b>	

C. APPLICANT/OWNER AGENT INFORMATION		
Lindsey <b>First Name</b>	White <b>Last Name</b>	
GZA GeoEnvironmental, Inc. <b>Organization</b>		
5 Commerce Park North, Suite 201 <b>Street Address</b>		
Bedford <b>City/Town</b>	New Hampshire <b>State</b>	03110 <b>Zip Code</b>
Lindsey.white@gza.com <b>Email</b>	603-232-8753 <b>Telephone Number</b>	



<b>D. WAIVER REQUESTS</b>	
<p>Env-Wq 1504.09</p> <p><b>Rule Section Waiver Request</b></p>	<p>Stormwater Drainage Report; Drainage Area Plans; Hydrologic Soil Group Plans</p> <p><b>Name of Rule</b></p>
<p><b>Reason for Waiver Request</b></p> <p>Eversource is requesting a waiver for preparing a Stormwater Drainage Report, Drainage Area Plans and Hydrologic Soil Group Plans for proposed access improvements and work pad grading associated with maintenance of the existing X178-2 Transmission Line structures. The proposed access and work pad improvements for continued transmission line maintenance work will not result in new impervious surfaces. As a result, stormwater treatment practices are not proposed.</p>	
<p><b>Waiver Timeline</b></p> <p>Permanent</p>	
<p><b>Proposed Alternative</b></p> <p>The proposed access and work pad improvements will not result in new impervious surface. Therefore, there is no proposed alternative to substitute the requirements of Env-Wq 1504.09.</p>	
<p><b>Compliance with Env- WQ 1509.04</b></p> <p>The project proposes to improve access routes and work pads around utility structures for the purpose of maintaining existing utility infrastructure. This project is necessary in order to maintain the safety and reliability of the electrical infrastructure. Access and work pad improvements will be completed using stone and gravel, and therefore stormwater drainage should not be affected by the proposed project. In addition, it is not anticipated that stormwater drainage area plans would show significant differences between existing and proposed conditions. An NRCS Web Soil Survey report was generated to show general soil information within the project area. Since there is no new impervious surface area proposed and stormwater drainage is not anticipated to be affected by the proposed project, it is not anticipated that soils will be significantly impacted by the project.</p> <p>Best Management Practices will be utilized to protect wetlands from erosion, sedimentation, or other environmental degradation. In addition, gravel work pads will be coated with seed and mulch to allow vegetation growth on the surface, further minimizing and preventing erosion and sedimentation. As a result, Eversource respectfully requests that a Stormwater Drainage Report, Drainage Area Plans, and Hydrologic Soil Group Plans be waived for the purposes of the proposed utility line maintenance project.</p>	
<b>E. SIGNATURES</b>	

Applicant/Owner, **Kurt Nelson,**  
**Eversource Energy**

3/20/2024

Date





**Appendix G – Certified Mail Receipts**  
**[Reserved for DES Certified Mailing Receipts]**



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<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
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Town of Woodstock  
C/O Town Clerk  
165 Lost River Road  
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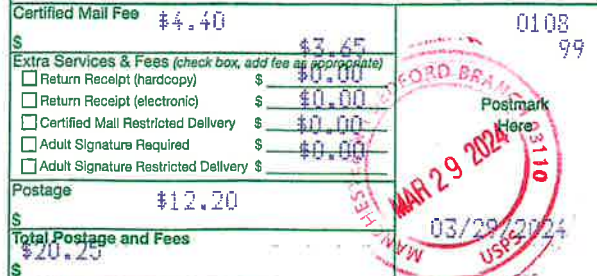
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Certified Mail Fee	\$4.40
Extra Services & Fees (check box, add fee as appropriate)	\$3.65
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

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Easton, NH 03580



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Sugar Hill, NH 03586

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Extra Services & Fees (check box, add fee as appropriate)	\$3.65
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

Postage \$12.20  
Total Postage and Fees \$20.25

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City, State, ZIP+4®

Town of Sugar Hill  
C/O Town Clerk  
1141 Rte 117  
Sugar Hill, NH 03586



PS Form 3800, Janu





GZA GeoEnvironmental, Inc.