

Original Alteration of Terrain Permit Application



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379 & N186 Transmission Line Structure Replacement Project

Eversource Energy

Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam,
New Hampshire

NHDES Alteration of Terrain Permit Application

May 16, 2022

GZA File No. 04.0191410.10



PREPARED FOR:
Eversource Energy
Hooksett, New Hampshire

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May 16, 2022
GZA File No. 04.0191410.10

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

Re: Alteration of Terrain Permit
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, 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 379 and N186 Transmission Line Structure Replacement Project in accordance with Terrain Alteration Law (RSA 485-A:17), Administrative Rules (Env-Wq 1500), and discussions between New Hampshire Department of Environmental Services (NHDES) AoT Bureau and Eversource.

The proposed project includes the replacement of 36 existing utility structures, including 10 structures along the N186 Transmission Line and 26 structures along the 379 Transmission Line that exceed AoT impact thresholds. The proposed project crosses through portions of Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire, for approximately 20 miles. Replacement of the existing utility structures is necessary to maintain the safety and reliability of the system. To more efficiently conduct routine maintenance of the existing N186 and 379 Transmission Line, work pad grading and access road improvements are proposed as part of this project in upland areas. 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 of 50,000 square feet of contiguous disturbance within the protected shoreland as defined in RSA 483- B (i.e., the shared N186 and 379 Utility Line Corridor).

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-ft is enclosed as required by Env-Wq 1509.04. The proposed project is



scheduled to start in June 2022 and continue through June 2023. 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 us with any questions.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

A handwritten signature in black ink that reads "Lindsey White". The signature is written in a cursive, flowing style.

Lindsey White, CPSS
Project Manager

A handwritten signature in black ink that reads "Deborah M. Zarta Gier". The signature is written in a cursive, flowing style.

Deborah M. Zarta Gier, CNRP
Consultant/Reviewer

A handwritten signature in black ink that reads "Tracy Tarr". The signature is written in a cursive, flowing style.

Tracy Tarr, CWS, CWB, CESSWI
Associate Principal

LEW: jkm

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Attachments: Alteration of Terrain Permit Application

cc: Town of Hinsdale, New Hampshire
Town of Winchester, New Hampshire
Town of Richmond, New Hampshire
Town of Troy, New Hampshire
Town of Fitzwilliam, New Hampshire
Connecticut River Local Advisory Committee
Ashuelot River Local Advisory Committee



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1.0 PROJECT BACKGROUND AND PURPOSE

The proposed project involves the replacement of 36 existing utility structures, including 10 structures along the N186 Transmission Line and 26 structures along the 379 Transmission Line in portions of Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire. The proposed replacement structures are old and worn and must be replaced in order for the transmission lines 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 614,969 square feet (sq. ft.) of total impact, including 105,511 sq. ft. of temporary wetland matting, 33,552 sq. ft. of temporary upland matting, and 475,906 sq. ft. of ground disturbance. The proposed project to replace a total of 36 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:

- 1) Area A, Town of Hinsdale – approximately 133,300 sq. ft. of work pad grading and associated access improvements at N186 Structures 261 to 259, 256 to 254, 249 to 244, and 379 Structure 581.
- 2) Area B, Town of Winchester – approximately 194,390 sq. ft. of work pad grading and associated access improvements at 379 Structures 549 to 546, 544, 542 to 540, 531, 529, 524, and 523.
- 3) Area C, Town of Richmond – approximately 23,909 sq. ft. of work pad grading and associated access improvements at 379 Structures 479 to 477 and 456 to 452.
- 4) Area D, Town of Troy – approximately 89,203 sq. ft. of work pad grading and associated access improvements at 379 Structures 456 to 452 and 440.
- 5) Area E, Town of Fitzwilliam – approximately 35,104 sq. ft. of work pad grading and associated access improvements at 379 Structure 439 to 436.

2.0 SITE INFORMATION

2.1 SITE LOCATION AND DESCRIPTION

Area A includes a portion of the shared N186 and 379 Transmission Line Right of Way (ROW) from Brattleboro Road to the Chestnut Substation. The total work area in this portion of the ROW is approximately 1.4 miles in length and approximately 350-ft in width.

Area B includes the portion of the 379 Transmission Line ROW just east of Purcell Road and continues easterly for approximately 1.04 miles to Structure 540 east of Old Chesterfield Road. The ROW in this portion is approximately 245- ft in width. Area B continues just east of the Ashuelot River for approximately 1.15 miles to Forest Lake Road. The ROW in this portion is approximately 170-ft in width.

Area C includes the portion of the 379 Transmission Line ROW that begins at Fish Hatchery Road and continues easterly for approximately 0.4 miles to Structure 477. The ROW in this portion of the work area is approximately 170-ft in width.

Area D includes the portion of the 379 Transmission Line ROW that begins adjacent to Structure 460, with access originating off-ROW from Richmond Road to the north. The work area extends easterly for approximately 1.04 miles to Structure 452. Area D then continues just west of the Troy and Fitzwilliam town border at Structure 440 and continues for approximately 150-ft easterly to the Troy and Fitzwilliam town line. The ROW in Area D is approximately 170-ft in width



Area E includes the portion of the 379 Transmission Line ROW that begins at the Troy and Fitzwilliam town line and continues easterly for approximately 0.38 miles to NH Route 12 North. The ROW in this portion of the work area is approximately 170-ft in width.

The total project area is approximately 4.8 miles in length and includes the replacement of 36 utility structures in total. The project area primarily crosses privately owned rural/residential properties (see **Figure 1 – USGS Topographic Map**). There are approximately 65 wetlands along the project route located in the towns of Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam. 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 holds easements across all parcels along the ROW (see **Figure 4**). There are approximately 27 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 abutters 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 resource and alteration of terrain 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

Wetlands were originally delineated and classified by GZA in 2016 within this ROW. GZA confirmed wetland boundaries, photographed resources, completed additional wetland documentation, and recorded data relevant to functions and values provided by these natural resources within the ROW in 2020 and 2021. GZA delineated wetland boundaries in accordance with the United States Army Corps of Engineers (ACOE) 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 ACOE.

GZA conducted a vernal pool evaluation in 2016 in accordance with “Identification and Documentation of Vernal Pools in New Hampshire,” 2016, New Hampshire Fish and Game Department, Nongame and Endangered Wildlife Program. Vernal pool areas exist as confined basins and must exhibit vernal pool criteria outlined in the New Hampshire Code of Administrative Rules, Env-Wt 103.64, 104.15, and 104.44. Since vernal pool observations were conducted outside the typical vernal pool breeding season of April through June, dry basin surveys were conducted to the extent possible to identify potential vernal pools. One potential vernal pool was identified in Troy within Wetland TW-4. It is typical that all potential vernal pools are considered vernal pools for the purposes of impact avoidance and minimization for Eversource maintenance projects. Therefore, no temporary or permanent impacts are proposed to any potential vernal pools as a result of this project.

2.3.2 Identification of Surface Waters

Jurisdictional limits of surface waters of the State of New Hampshire were delineated by GZA in 2020 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

The Natural Heritage Bureau (NHB) did not identify any rare, threatened, or endangered species records within the vicinity of the 379 Transmission Line ROW in the Towns of Hinsdale, Winchester, Fitzwilliam, and Richmond (See Appendix C for the NHB Reports). In the Town of Troy, the NHB and New Hampshire Fish and Game (NHFG) identified records of northern black racer and spotted turtle in the vicinity of the 379 Transmission Line ROW. 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 northern black racer snake and spotted turtle. Species information will be incorporated into project plans. In addition, construction personnel will be made aware of the potential to encounter Blanding's turtle, wood turtle, and spotted turtle more frequently during turtle nesting season from late May through the beginning of July. GZA will notify the NHFG and NHB of any rare species observations for inclusion in the statewide database.

Correspondence is ongoing between Eversource and the NHFG. Eversource is proposing the following Protective Measures for northern black racer and spotted turtle:

a. Northern black racer:

- 1) Avoid work in known habitat (i.e., Natural Heritage Bureau polygons) during the active season (April 1 - October 31) if possible (none of the Site is located in NHB polygons).
- 2) If work must occur during the active season, contractors working within the ROW will be trained by a qualified biologist on the identification and response protocols for northern black racers.
- 3) Prior to the start of construction within known habitat, trained contractors will search the work area. If a northern black racer is discovered, the snake shall be photographed and either removed or allowed to migrate on its own outside the work area. The observing contractor will then contact the project Environmental Licensing & Permitting specialist from Eversource, who will contact NH F&G as follows:
 - i. Brendan Clifford 603-944-0885;
 - ii. Melissa Winters 603-479-1129; and
 - iii. If NHF&G staff are unable to be reached, contact the Wildlife Administrator at 603- 271- 2461.

b. Spotted turtle:

- 1) During Active Period (April 1 - October 15):
 - i. If work must occur during the active season, all contractors working within known habitats will be trained by a qualified biologist on the identification and response protocols for spotted turtles.
 - ii. Immediately prior to the placement of matting in wetlands within spotted turtle habitat, the areas shall be cleared by a qualified biologist or herpetologist.



- 2) Avoid permanent impacts in any wet meadows and seasonal pools. If possible, limit or avoid equipment use within 50 ft of streams or brooks. The project shall avoid bringing off-Site fill-in spotted turtle NHB polygons (the Site does not overlap NHB polygons).
- 3) During Inactive Period (October 16 - March 31):
 - a. All contractors working within known habitats will be trained by a qualified biologist on the identification and response protocols for spotted turtles and instructed to notify the appropriate authorities to relocate any observed turtle.
 - b. All matting which will be placed in waterbodies deemed suitable for hibernating spotted or Blanding's turtles (i.e., TW26) will be placed prior to the start of the inactive season so as to prevent accidental placement atop hibernating turtles. Prior to matting placement in these wetlands, the area shall be swept by a qualified biologist or herpetologist to ensure any turtles relocate away from the area to be matted.
- 4) Prior to the start of construction within known habitat, trained contractors will search the work area. If a spotted or other state-listed turtle is observed, the turtle shall be photographed and placed in a safe location outside the work area. The observing contractor will then contact the project Environmental Licensing & Permitting specialist from Eversource, who will contact NH F&G as follows:
 - i. Brendan Clifford 603-944-0885; or
 - ii. Melissa Winters 603-479-1129.

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

2.3.4 Identification of Cultural and Historical Resources

GZA will submit a Request for Project Review (RPR) to the New Hampshire Division of Historical Resources (NHDHR) for the proposed project.

Commonwealth Heritage Group (CHG) completed Phase IA Archeological Assessment for the N186 and 379 ROW in 2016 in support of other maintenance work. Phase IB work has been completed in various portions of the ROW between 2016 and 2021 by various archeological consultants, including CHG, SEARCH, Heritage Consultants, Victoria Bunker, Inc., and Independent Archaeological Consulting (IAC). GZA engaged IAC and SEARCH in 2022 to complete Phase IB Archeological Survey in four archeological sensitivity areas in support of this proposed maintenance project. Results of this work will be submitted to DHR in support of this project.

3.0 EXISTING CONDITIONS

The proposed project is located within the existing and maintained 379 and N186 Transmission Line ROWs. The proposed project work areas subject to the Alteration of Terrain permit cross through portions of five 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 loamy sands, fine sandy loams, and complexes, with some being very stony. Slopes are variable and generally range from 0 to 93%, with an average of approximately 15%.

The project includes areas of uplands and wetlands located in primarily rural farmland and forested areas. In uplands, the shrub layer contains sweet fern (*Comptonia peregrina*), witch hazel (*Hamamelis virginiana*), raspberry



(*Rubus idaeus*), white pine (*Pinus strobus*), eastern hemlock (*Tsuga canadensis*), American beech (*Fagus grandifolia*), and sugar maple (*Acer saccharum*). The herbaceous layer contains goldenrod (*Solidago* spp.), hay-scented fern (*Dennstaetia punctilobula*), and bracken fern (*Pteridium aquilinum*).

Wetlands in the ROW primarily consist of palustrine emergent (PEM) or palustrine scrub-shrub (PSS) systems that are seasonally saturated. Dominant species observed in the shrub layer include white meadowsweet (*Spiraea alba*), steeplebush (*Spiraea tomentosa*), red maple (*Acer rubrum*), highbush blueberry (*Vaccinium corymbosum*), gray birch (*Betula populifolia*), speckled alder (*Alnus incana*), and quaking aspen (*Populus tremuloides*). The herbaceous layer contains a variety of species, including goldenrod, cinnamon fern (*Osmundastrum cinnamomeum*), sensitive fern (*Onoclea sensibilis*), fringed sedge (*Carex crinita*), sphagnum moss (*Sphagnum* spp.), lurid sedge (*Carex lurida*), woolgrass (*Scirpus cyperinus*), swamp dewberry (*Rubus hispidus*), royal fern (*Osmundum regalis*), jewel weed (*Impatiens capensis*), and broad-leaved cattail (*Typha latifolia*).

Existing conditions along the 379 and N186 Transmission Lines are discussed below by areas subject to jurisdiction under the Alteration of Terrain Law and Rules and consistent with discussions with the AoT Bureau for Eversource Line projects.

3.1 AOT AREA A – TOWN OF HINSDALE

Area A includes a portion of the shared N186 and 379 Transmission Line Right of Way (ROW) from Brattleboro Road to the Chestnut Substation. The total work area in this portion of the ROW is approximately 1.4 miles in length and approximately 350-ft in width. This area includes upland and wetland areas with elevations ranging from approximately 244 feet above sea level (fasl) in Wetland HIW-7 between structures 254 and 255 to 574 fasl adjacent to N186 Structure 243. This portion of the ROW is located in primarily forested undeveloped areas of Hinsdale and abuts some residential areas. This area also lacks documented drainage structures in the proposed access route.

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 A includes:

- Work pads associated with N186 Structures 244 to 249, 254 to 256, 259, 260;
- Work pads associated with 379 Structure 581; and
- Access from Old Chester Road to Ferncroft Drive and Taryn Lane.

3.1.1 Surface and Groundwater Protection – Area A

There is one named watercourse (Sprague Brook) within this portion of the project area associated with Wetlands HiW-10 (see **Figure 3 – Surface Water and Groundwater Overlay Plans**). This portion of the project area includes temporary wetland matting in four wetland systems for access and work pad placement. A NHDES Statutory Permit by Notification (SPN) will be submitted for temporary wetland impacts for the proposed project in the Town of Hinsdale. Temporary wetland matting totals are summarized in the table below. The AoT disturbance area is summarized in *Section 5.1.2*.

Temporary Matting	Impact (sq. ft.)
Wetland Matting	4,163

According to **Figure 3**, Area A is not located within any of the additional AoT screening layers. These layers include "Outstanding Resource Water Watershed," "Class A Surface Water (RSA 485 A9) Watersheds," "Surface Waters with Impairments (2016)" buffer, "Watersheds with Chloride Impairments 2016," "All Lakes within a quarter-mile buffer," "Wellhead Protection Areas," "Groundwater Classification Areas GA1," "Groundwater Classification Areas GAA," and "Water Supply Intake Protection."



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

According to the FEMA Flood Insurance layer on Figure 3, Area B is not located within a mapped 100-year floodplain area identified as Zone A. According to the Consolidated List of Water Bodies Subject to RSA 483-B (May 11, 2020), there is no proposed work or access located within 250-ft of a Protected Waterbody. In accordance with the NHDES Designated River Corridor Web Map, N186 Structures 259 to 260 and associated access and work pads are located within a quarter-mile of the Connecticut River protected under RSA 483.

3.2 AOT AREA B – TOWN OF WINCHESTER

Area B includes the portion of the 379 Transmission Line ROW just east of Purcell Road and continues easterly for approximately 1.04 miles to Structure 540 east of Old Chesterfield Road. The ROW in this portion is approximately 245- ft in width. Area B continues just east of the Ashuelot River for approximately 1.15 miles to Forest Lake Road. The ROW in this portion is approximately 170-ft in width. This stretch includes upland and wetland areas with elevations ranging from approximately 430 fasl by 379 Structure 531 at the Ashuelot River to approximately 830 fasl by 379 Structure 544. This portion of the ROW is located in a primarily forested undeveloped areas in the Town of Winchester.

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 B includes:

- Work Pads associated with 379 Structures 549 to 546, 544, 542 to 540, 531, 529, 524, and 523, and
- Access roads from 379 Structure 539 to 379 Structure 540, and from 379 Structure 531 to Forest Lake Road.

3.2.1 Surface and Groundwater Protection – Area B

There is one named river (Ashuelot River) and two unnamed streams within this portion of the project area associated with Wetlands WW-39 (Ashuelot River), WW-34 (Unnamed Stream), and WW-41 and WW-42 (unnamed stream) (see **Figure 3 – Surface Water and Groundwater Overlay Plans**). This portion of the project area includes temporary wetland matting in 9 wetland systems for access and work pad placement. A NHDES SPN will be submitted for temporary wetland impacts for the proposed project in the Town of Winchester. Temporary wetland matting totals are summarized in the table below. AoT disturbance area is summarized in *Section 5.1.2*.

Temporary Matting	Impact (sq. ft.)
Wetland Matting	24,188

According to Figure 3, a portion of Area B from 379 Structure 531 to Keene Road is located within the "Designated River quarter-mile buffer" and the "Surface Water with Impairments quarter-mile buffer" areas. An additional portion of Area B from Forest Lake Campground Road to 379 Structure 523 in located within the "Surface Water with Impairments quarter-mile buffer" and the "All Lakes within a quarter-mile buffer" areas. Area B is not located within any remaining screening layers. These layers include "Outstanding Resource Water Watershed," "Water Supply Intake Protection Area," "Class A Surface Water (RSA 485 A9) Watersheds," "Watersheds with Chloride Impairments 2016," "Wellhead Protection Areas," "Groundwater Classification Areas," and "Water Supply Intake Protection."

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

According to the FEMA Flood Insurance layer on Figure 3, a portion of, including access and work pad placement at 379 Structure 531, is located within a mapped 100-year floodplain area identified as Zone AE. According to the Consolidated List of Water Bodies Subject to RSA 483-B (May 11, 2020), the proposed work pad and access for 379 Structure 531 is also located within the 50-ft, 150-ft, and 250-ft Protected Shoreland Zones of the Ashuelot River. A NHDES Shoreland Permit by Notification will be submitted for the proposed project. In accordance with the NHDES Designated River



Corridor Web Map, 379 Structures 531 and 529 and associated access and work pads are located within a quarter-mile of the Ashuelot River, protected under RSA 483.

3.3 AOT AREA C – TOWN OF RICHMOND

Area C begins at Fish Hatchery Road and continues easterly for approximately 0.4 miles to 379 Structure 477. This stretch includes upland and wetland areas with elevations ranging from approximately 634 fasl adjacent to the access road entrance off Fish Hatchery Road to approximately 818 fasl adjacent to 379 Structure 477. This portion of the ROW is located in a primarily forested undeveloped areas with some agricultural and rural residential areas in the Town of Richmond.

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:

- 379 Structures 477 through 479 Work Pads; and
- Access roads from Fish Hatchery Road to 379 Structure 477.

3.3.1 Surface and Groundwater Protection – Area C

There is one unnamed stream within this portion of the project area associated with Wetland RW-37 (see **Figure 3 – Surface Water and Groundwater Overlay Plans**). This portion of the project area includes temporary wetland matting in three wetland systems for access and work pad placement. A NHDES SPN will be submitted for temporary wetland impacts for the proposed project in the Town of Richmond. Temporary wetland matting totals are summarized in the table below. AoT disturbance area is summarized in *Section 5.1.2*.

Temporary Matting	Impact (sq. ft.)
Wetland Matting	7,059

According to Figure 3, Area C is not located within any screening layers. These layers include "Designated River quarter-mile buffer," "Groundwater Classification Areas GA2," "Wellhead Protection Area," "Outstanding Resource Water Watershed," "Water Supply Intake Protection Area," "Surface Water with Impairments quarter-mile buffer," "Class A Surface Water (RSA 485 A9) Watersheds," "Watersheds with Chloride Impairments 2016," "All Lakes within a quarter-mile buffer," and "Groundwater Classification Area GA1 or GAA."

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

According to the FEMA Flood Insurance layer on Figure 3, Area C is not located within a mapped 100-year floodplain area. According to the Consolidated List of Water Bodies Subject to RSA 483-B (May 11, 2020), there is no proposed work within the 250-ft of a protected shoreland. Based on the NHDES Designated River Corridor Web Map, there is no proposed work within a quarter-mile of a designated river protected under RSA 483.

3.4 AOT AREA D – TOWN OF TROY

Area D includes the portion of the 379 Transmission Line ROW that begins adjacent to Structure 460, with access originating off-ROW from Richmond Road to the north. The work area extends easterly for approximately 1.04 miles to Structure 452. Area D then continues just west of the Troy and Fitzwilliam town border at Structure 440 and continues for approximately 150-ft easterly to the Troy and Fitzwilliam town line. Area D includes upland and wetland areas with elevations ranging from approximately 1,114 fasl adjacent to 379 Structure 440 to approximately 1,550 fasl adjacent to 379 Structure 455. This portion of the ROW is located in a primarily forested undeveloped areas in the Town of Troy.



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 D includes:

- 379 Structures 440 and 452 through 456; and
- Access roads from 379 Structures 452 to 457 and Structure 440 to the Troy and Fitzwilliam Town Line.

3.4.1 Surface and Groundwater Protection – Area D

There are no rivers or streams within Area D (see **Figure 3 – Surface Water and Groundwater Overlay Plans**). This portion of the project area includes temporary wetland matting in five wetland systems for access and work pad placement. A NHDES SPN will be submitted for temporary wetland impacts for the proposed project in the Town of Troy. Temporary wetland matting totals are summarized in the table below. AoT disturbance area is summarized in *Section 5.1.2*.

Temporary Matting	Impact (sq. ft.)
Wetland Matting	29,245

According to Figure 3, a portion of Area D from 379 Structure 440 is located within "Surface Water with Impairments 2016 with quarter-mile buffer." Area D is not located within "Outstanding Resource Water Watershed," "Water Supply Intake Protection Area," "Class A Surface Water (RSA 485 A9) Watersheds," "Watersheds with Chloride Impairments 2016," "All Lakes within a quarter-mile Buffer," "Designated River quarter-mile buffer," "Groundwater Classification Area GA1, GA2, or GAA," Or "Wellhead Protection Areas."

3.4.2 FEMA 100-year Floodplain, Shoreland Protection, Designated Rivers – Area D

According to the FEMA Flood Insurance layer on Figure 3, Area C is not located within a mapped 100-year floodplain area. According to the Consolidated List of Water Bodies Subject to RSA 483-B (May 11, 2020), there is no proposed work within the 250-ft of a protected shoreland. Based on the NHDES Designated River Corridor Web Map, there is no proposed work within a quarter-mile of a designated river protected under RSA 483.

3.5 AOT AREA E – TOWN OF FITZWILLIAM

Area E includes the portion of the 379 Transmission Line ROW that begins at the Troy and Fitzwilliam town line and continues easterly for approximately 0.38 miles to NH Route 12 North. Area E includes upland and wetland areas with elevations ranging from approximately 1,118 fasl the Troy and Fitzwilliam Town Line to approximately 1,184 fasl by the assess entrance off NH Route 12N. This portion of the ROW is located in a primarily rural residential and some forested undeveloped areas in the Town of Fitzwilliam.

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 E includes:

- 379 Structures 436 through 439 Work Pads; and
- Access roads from the Troy and Fitzwilliam Town Line to NH Route 12N.

3.5.1 Surface and Groundwater Protection – Area E

There is one unnamed stream within this portion of the project area associated with Wetland FW-8 (see **Figure 3 – Surface Water and Groundwater Overlay Plans**). This portion of the project area includes temporary wetland matting in two wetland systems for access and work pad placement. A NHDES SPN will be submitted for temporary wetland impacts for the proposed project in the Town of Fitzwilliam. Temporary wetland matting totals are summarized in the table below. AoT disturbance area is summarized in *Section 5.1.2*.



Temporary Matting	Impact (sq. ft.)
Wetland Matting	39,386

According to Figure 3, the entirety of Area E is located within "Surface Water with Impairments 2016 with quarter -mile buffer." Area E is not located within "Outstanding Resource Water Watershed," "Water Supply Intake Protection Area," "Class A Surface Water (RSA 485 A9) Watersheds," "Watersheds with Chloride Impairments 2016," "All Lakes within a quarter-mile buffer," "Designated River quarter-mile buffer," "Groundwater Classification Area GA1 , GA2, or GAA," or "Wellhead Protection Areas."

3.5.2 FEMA 100-year Floodplain, Shoreland Protection, Designated Rivers – Area E

According to the FEMA Flood Insurance layer on Figure 3, Area E is not located within a mapped 100-year floodplain area. According to the Consolidated List of Water Bodies Subject to RSA 483-B (May 11, 2020), there is no proposed work within the 250-ft of a protected shoreland. Based on the NHDES Designated River Corridor Web Map, there is no proposed work within a quarter-mile of a designated river protected under RSA 483.

4.0 PROJECT DESCRIPTION

4.1 STRUCTURE REPLACEMENT AND MAINTENANCE

As previously mentioned, the proposed project includes the replacement of 36 existing utility structures within AoT areas. The structures must be replaced due to environmental damage. The process for replacing structures consists of drilling approximately 4-ft 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. Spoils produced from drilling will be disposed in approved upland areas at a minimum distance of 100 ft from wetland areas. 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 structure replacement project utilizes existing access routes within the existing 379 and N186 ROW to the greatest extent practicable. The majority of existing access routes have been improved due to prior maintenance work or are comprised of dirt or grassy areas and are proposed to be improved as part of this project. Proposed access routes are shown on the plans in both **Figures 3 and 4**. 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.

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 – Photo Log**).



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 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 June 2022. The work is proposed to be undertaken during the summer of 2022 into the fall and winter of 2022 into 2023 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, removal of old structures, removal of old wire, and installation of OPGW wire.
- 5) 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.
- 6) Remove temporary timber matting and stabilized exposed soils within the ROW, and restore temporarily disturbed wetland areas with appropriate wetland seed mix, as necessary.
- 7) 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 five AoT regulated areas (referred to respectively as Areas A, B, C, D, and E) along the 379 and N186 Transmission Line ROWs 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 15.09)

Per Env-Wq 1509.02, 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 379 and N186 Line AOT application. Existing terrain alteration associated with past transmission line maintenance within the 379 and N186 ROWs 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 379 and N186 structure replacement 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 E115 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 560,565 square feet (sq. ft.) of total impact, including 91,703 sq. ft. of temporary wetland matting, 33,552 sq. ft. of temporary upland matting, and 435,310 sq. ft. of ground disturbance along the N186 and 379 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**.

<u>AoT Area A – Town of Hinsdale</u>	
Map Sheets 1 to 10	
Disturbance Type	Impact (sq. ft)
New Access	14,993
Gravel Work Pad	118,307
<u>Total AoT Disturbed Area</u>	<u>133,300</u>
-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: 100-ft x 100-ft; Access Road width: 16-ft	

<u>AoT Area B – Town of Winchester</u>	
Map Sheets 11 to 22	
Disturbance Type	Impact (sq. ft)
New Access	97,279
Gravel Work Pad	97,111
<u>Total AoT Disturbed Area</u>	<u>194,390</u>
-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10-year period, cumulatively exceeds 100,000 square feet of contiguous area or cumulatively exceeds 50,000 square feet of contiguous area if any portion of the disturbance is within the protected shoreland as defined in RSA 483-B."	
-Work pad dimensions: 100-ft x 100-ft; Access Road width: 16-ft	

<u>AoT Area C – Town of Richmond</u>	
Map Sheets 23 to 25	
Disturbance Type	Impact (sq. ft)
New Access	0
Gravel Work Pad	23,909
<u>Total AoT Disturbed Area</u>	<u>23,909</u>
-Criteria: Env-Wq 1502.58 (b) (2) "An area that, 10-year period, cumulatively exceeds 100,000 square feet of contiguous area." *Impact in Richmond contributes to the larger project area and therefore accumulates over 100,000 square feet.	
-Work pad dimensions: 100-ft x 100-ft; Access Road width: 16-ft	



<u>AoT Area D – Town of Troy</u>	
Map Sheets 26 to 33	
Disturbance Type	Impact (sq. ft)
New Access	36,119
Gravel Work Pad	53,084
<u>Total AoT Disturbed Area</u>	<u>89,203</u>
-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10-year period, cumulatively exceeds 100,000 square feet of contiguous area." *Impact in Troy contributes to the larger project area and therefore accumulates over 100,000 square feet.	
-Work pad dimensions: 100-ft x 100-ft; Access Road width: 16-ft	
<u>AoT Area E – Town of Fitzwilliam</u>	
Map Sheets 33 to 35	
Disturbance Type	Impact (sq. ft)
New Access	15,681
Gravel Work Pad	19,423
<u>Total AoT Disturbed Area</u>	<u>35,104</u>
-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10-year period, cumulatively exceeds 100,000 square feet of contiguous area." *Impact in Fitzwilliam contributes to the larger project area, and therefore accumulates over 100,000 square feet.	
-Work pad dimensions: 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 - None</i>		
<i>State</i>		
NHDES	Statutory Permit by Notification	
	Town/City	SPN File No.
	Hinsdale	TBD
	Winchester	TBD
	Richmond	TBD
	Troy Fitzwilliam	TBD TBD
<i>Pending</i>		
NHDES	Shoreland Permit by Notification	
	Waterbody/Town	PBN File No.
	Winchester – Ashuelot River Winchester – Forest Lake	TBD TBD
<i>Pending</i>		
NHDOT	Driveway Permits	<i>Pending</i>
<i>Federal</i>		
EPA (Construction General Permit)	Stormwater Pollution Prevention Plan (SWPPP)	<i>Pending</i>



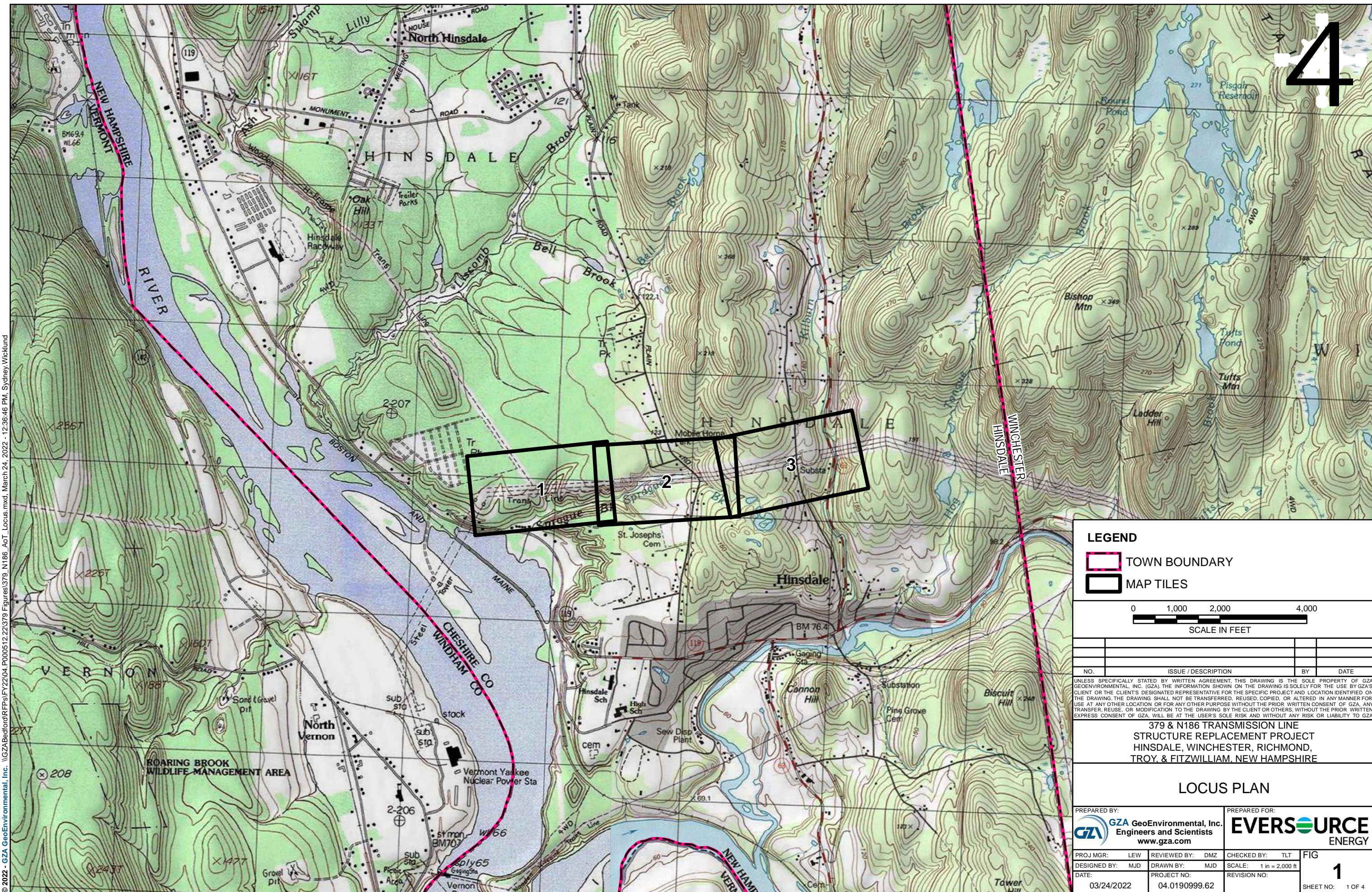
The proposed project includes the replacement of 36 existing utility structures along the 379 and N186 Transmission Lines that exceed AoT impact thresholds, including 10 structures along the N186 Transmission Line and 26 along the 379 Transmission Line. This includes a total of approximately 475,906 sq. ft. of the impact associated with access improvements and work pad grading across five separate work areas broken out by Town.

\\GZABedford\Jobs\04\Jobs\0191400s\04.0191410.00 - EE Siting Permitting 2019-2022\04.0191410.10 - 2022 379 Transmission Line Structure Replacement Project\Work\State Permitting\AoT\FINAL 04 0191410.10 379 & N186 Trans Line AoT Application 5-13-22.docx The proposed project is necessary for routine maintenance of the 379 and N186 Transmission Lines and to ensure the long-term safety and reliability of the electrical infrastructure.



Figure 1 – USGS Topographic Map

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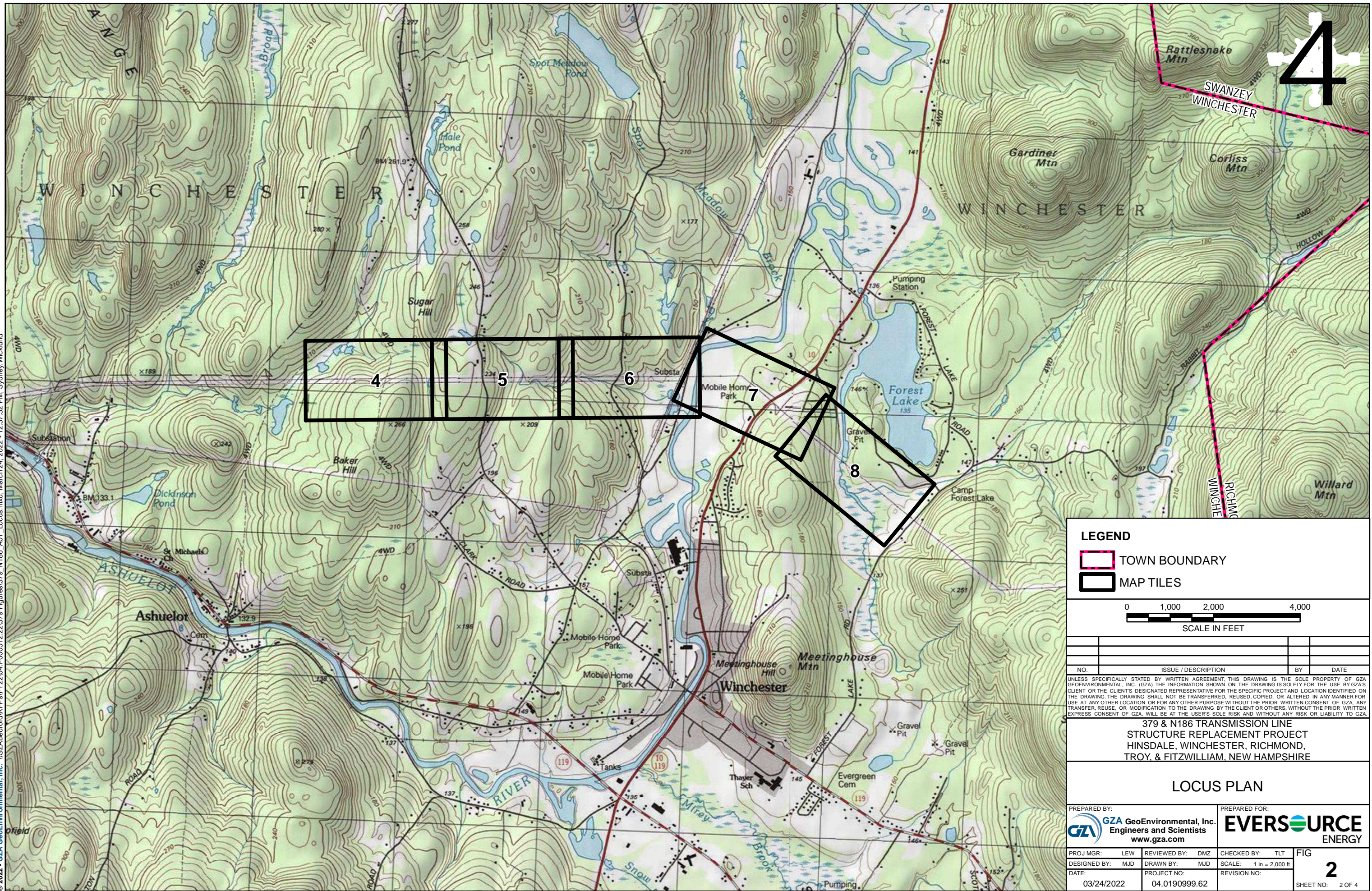
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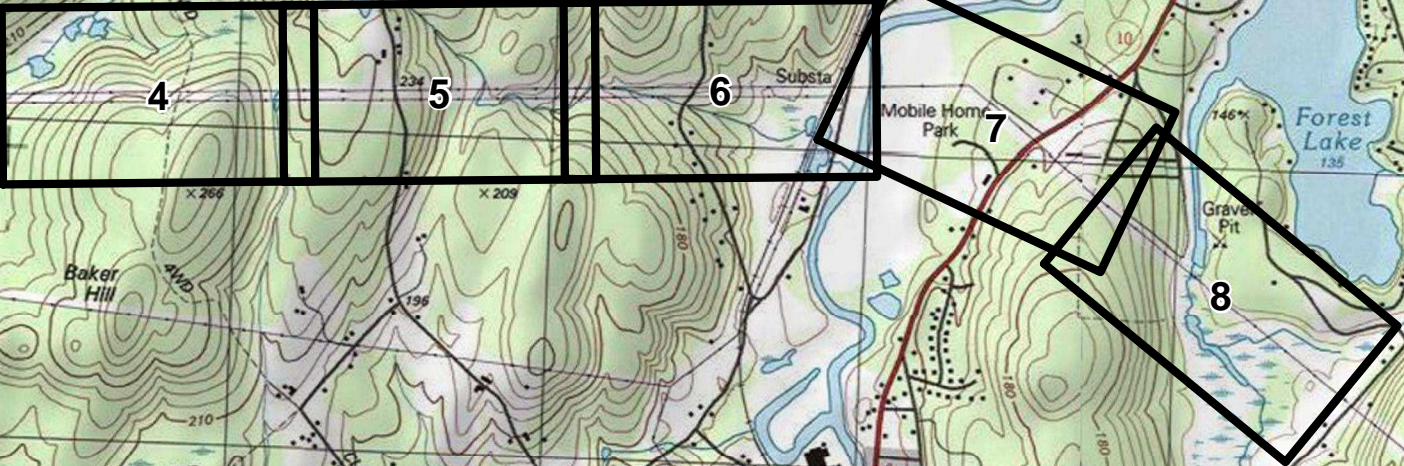
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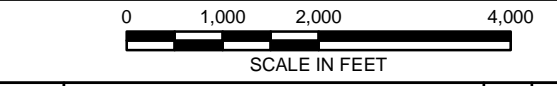


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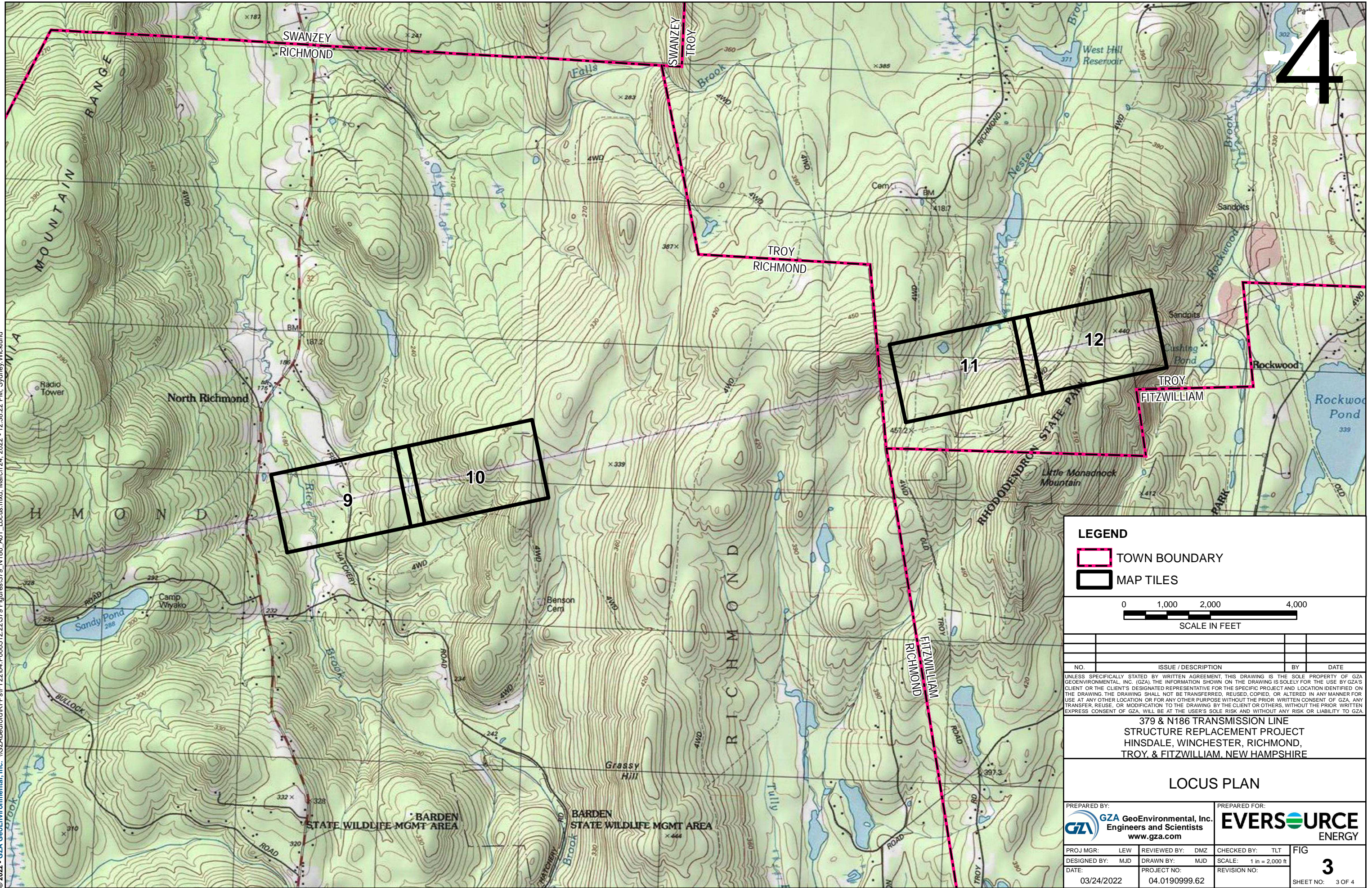
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TROY, & FITZWILLIAM, NEW HAMPSHIRE**

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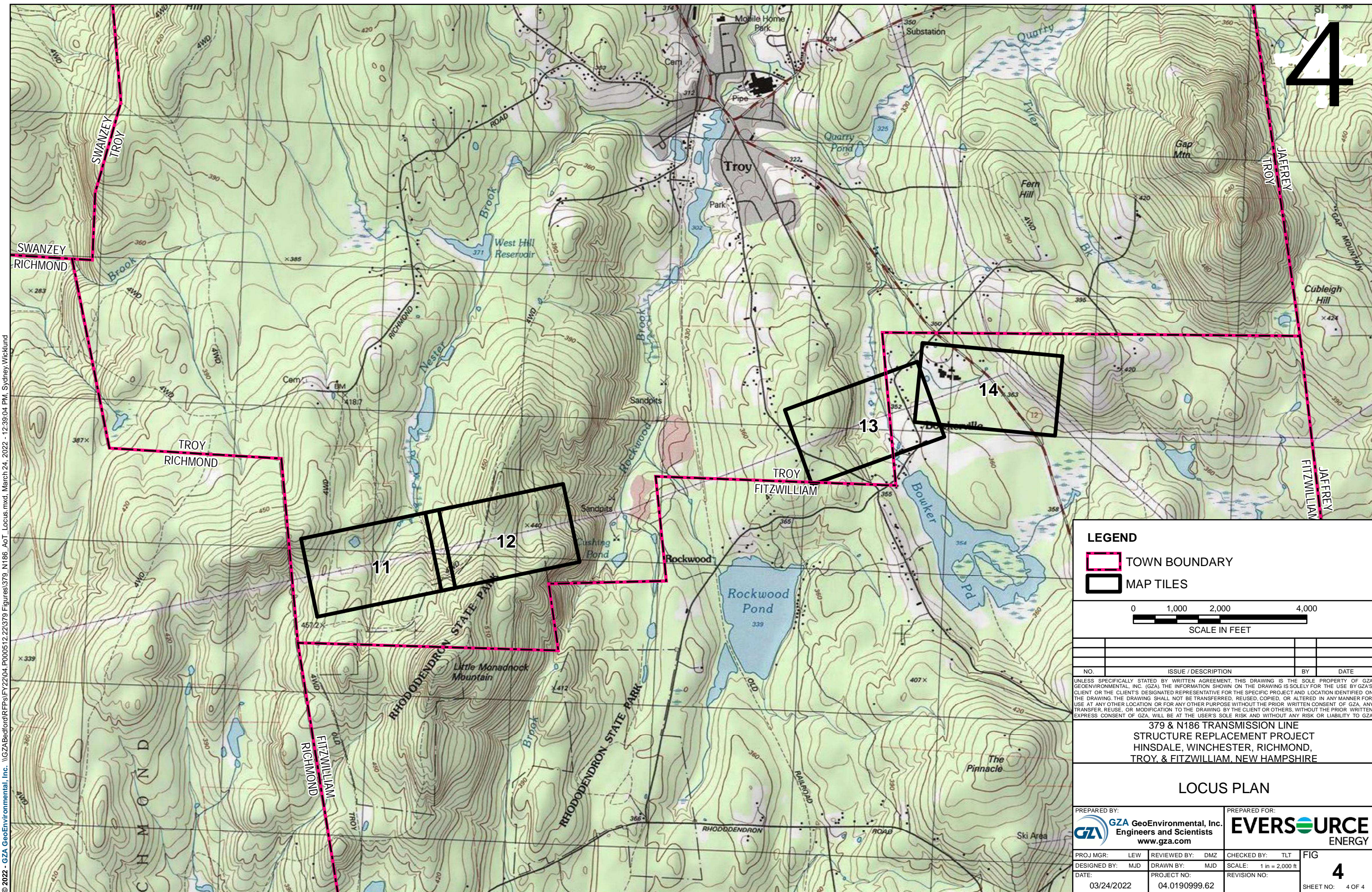
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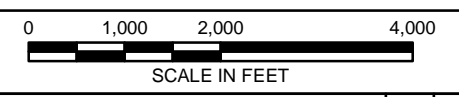
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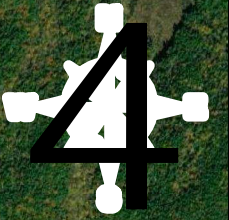
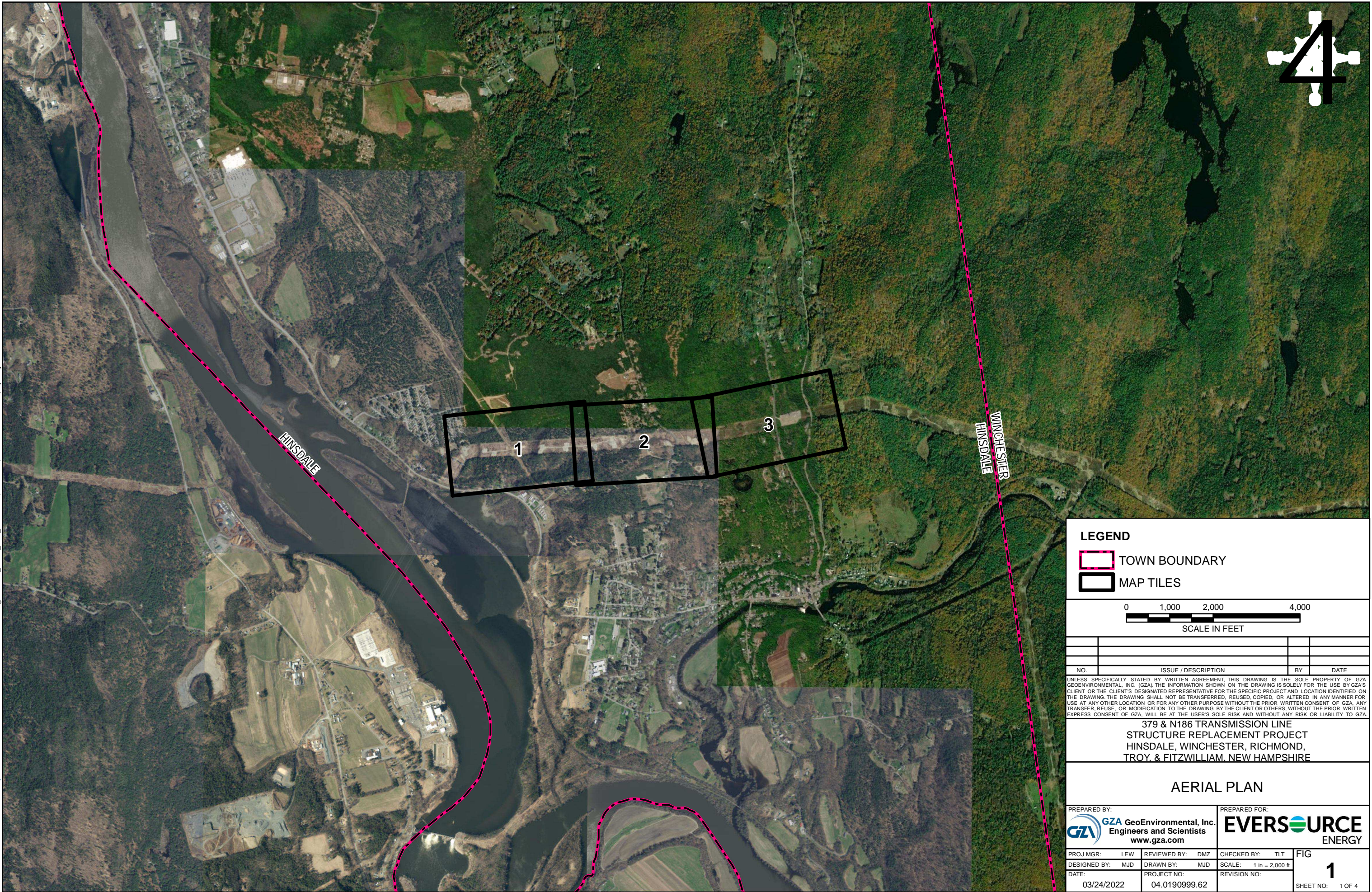
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Figure 2 – Orthophotograph Site Map



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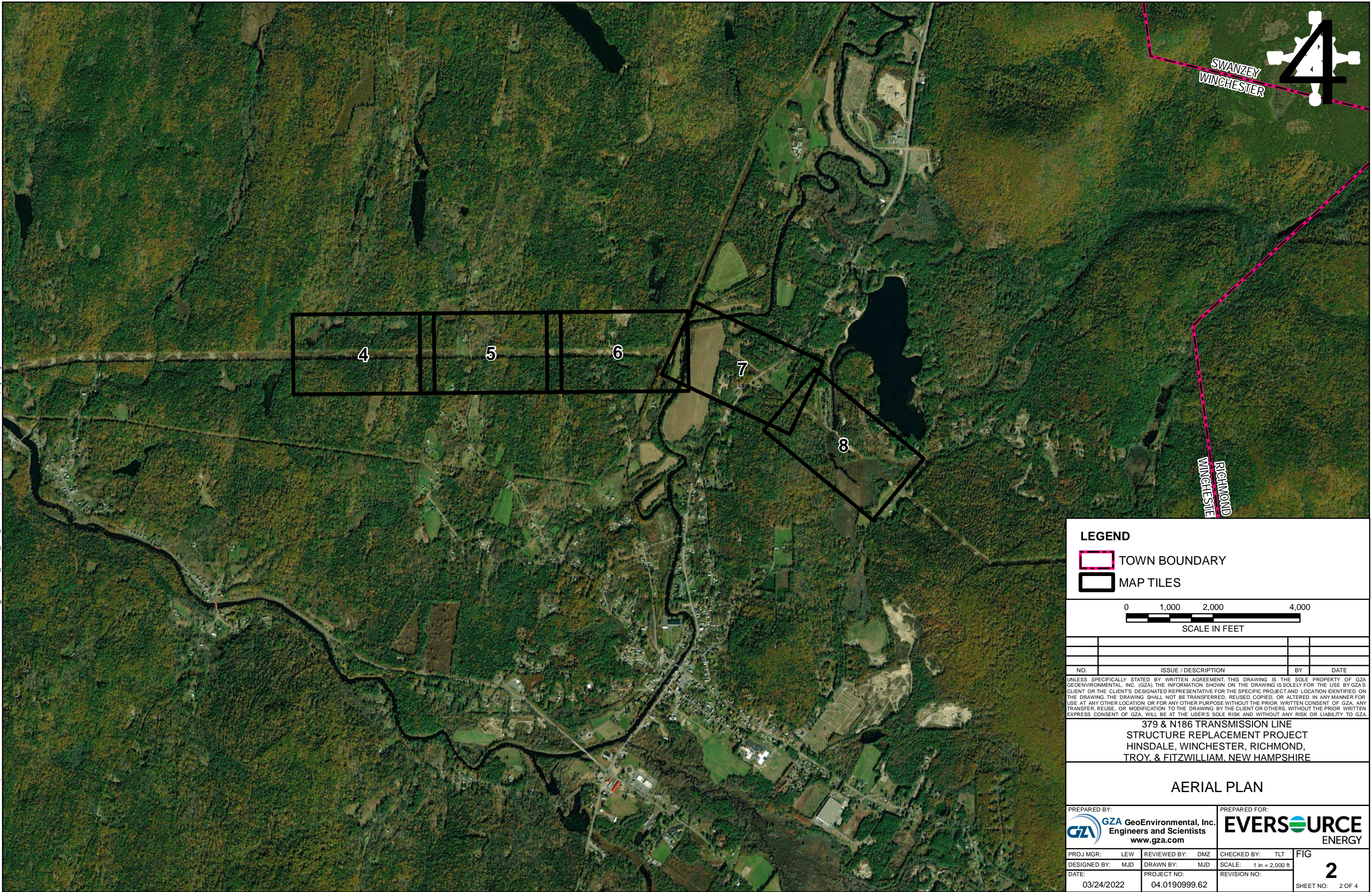
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**379 & N186 TRANSMISSION LINE
STRUCTURE REPLACEMENT PROJECT
HINSDALE, WINCHESTER, RICHMOND,
TROY, & FITZWILLIAM, NEW HAMPSHIRE**

AERIAL PLAN

<p>PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com</p>	<p>PREPARED FOR: EVERSOURCE ENERGY</p>
PROJ MGR: LEW REVIEWED BY: DMZ CHECKED BY: TLT FIG DESIGNED BY: MJD DRAWN BY: MJD SCALE: 1 in = 2,000 ft DATE: 03/24/2022 PROJECT NO: 04.0190999.62 REVISION NO:	1
SHEET NO: 1 OF 4	



LEGEND

- TOWN BOUNDARY
- MAP TILES

0 1,000 2,000 4,000
SCALE IN FEET

NO.	ISSUE / DESCRIPTION	BY	DATE

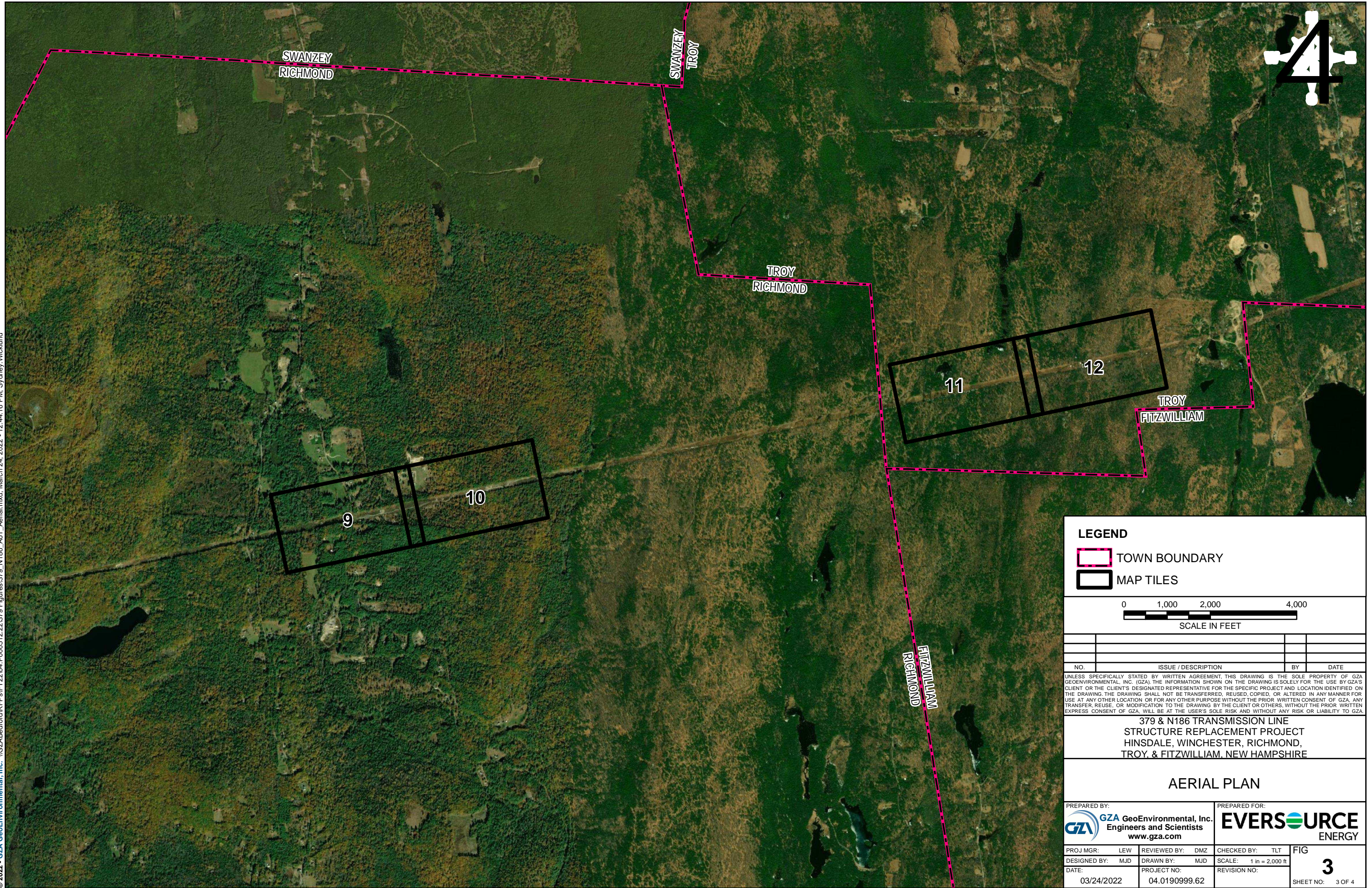
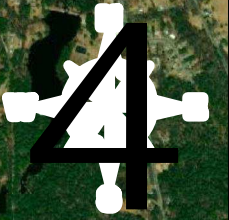
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**379 & N186 TRANSMISSION LINE
STRUCTURE REPLACEMENT PROJECT
HINSDALE, WINCHESTER, RICHMOND,
TROY, & FITZWILLIAM, NEW HAMPSHIRE**

AERIAL PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR:
PROJ MGR: LEW DESIGNED BY: MJD DATE: 03/24/2022	REVIEWED BY: DMZ DRAWN BY: MJD PROJECT NO: 04.0190999.62
CHECKED BY: TLT SCALE: 1 in = 2,000 ft REVISION NO:	FIG 2 SHEET NO: 2 OF 4

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TOWN BOUNDARY

MAP TILES

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SCALE IN FEET

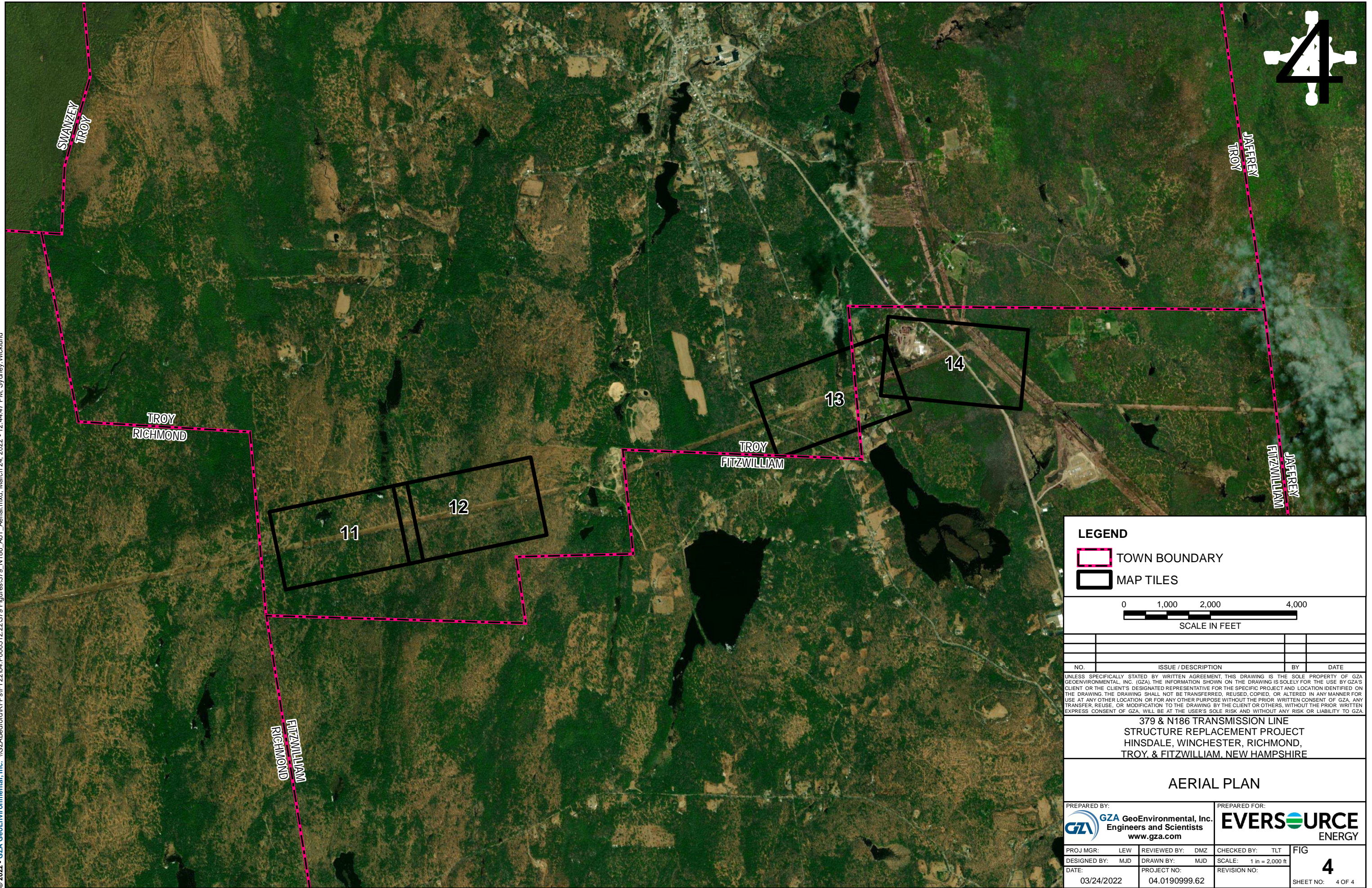
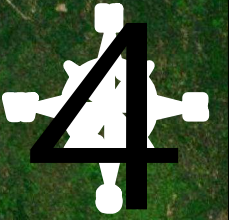
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**379 & N186 TRANSMISSION LINE
STRUCTURE REPLACEMENT PROJECT
HINSDALE, WINCHESTER, RICHMOND,
TROY, & FITZWILLIAM, NEW HAMPSHIRE**

AERIAL PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: EVERSOURCE ENERGY		
PROJ MGR: LEW	REVIEWED BY: DMZ	CHECKED BY: TLT	FIG
DESIGNED BY: MJD	DRAWN BY: MJD	SCALE: 1 in = 2,000 ft	3
DATE: 03/24/2022	PROJECT NO: 04.0190999.62	REVISION NO:	



LEGEND

- TOWN BOUNDARY
- MAP TILES

0 1,000 2,000 4,000
SCALE IN FEET

NO.	ISSUE / DESCRIPTION	BY	DATE

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**379 & N186 TRANSMISSION LINE
STRUCTURE REPLACEMENT PROJECT
HINSDALE, WINCHESTER, RICHMOND,
TROY, & FITZWILLIAM, NEW HAMPSHIRE**

AERIAL PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: EVERSOURCE ENERGY		
PROJ MGR: LEW	REVIEWED BY: DMZ	CHECKED BY: TLT	FIG
DESIGNED BY: MJD	DRAWN BY: MJD	SCALE: 1 in = 2,000 ft	4
DATE: 03/24/2022	PROJECT NO: 04.0190999.62	REVISION NO:	

SHEET NO: 4 OF 4

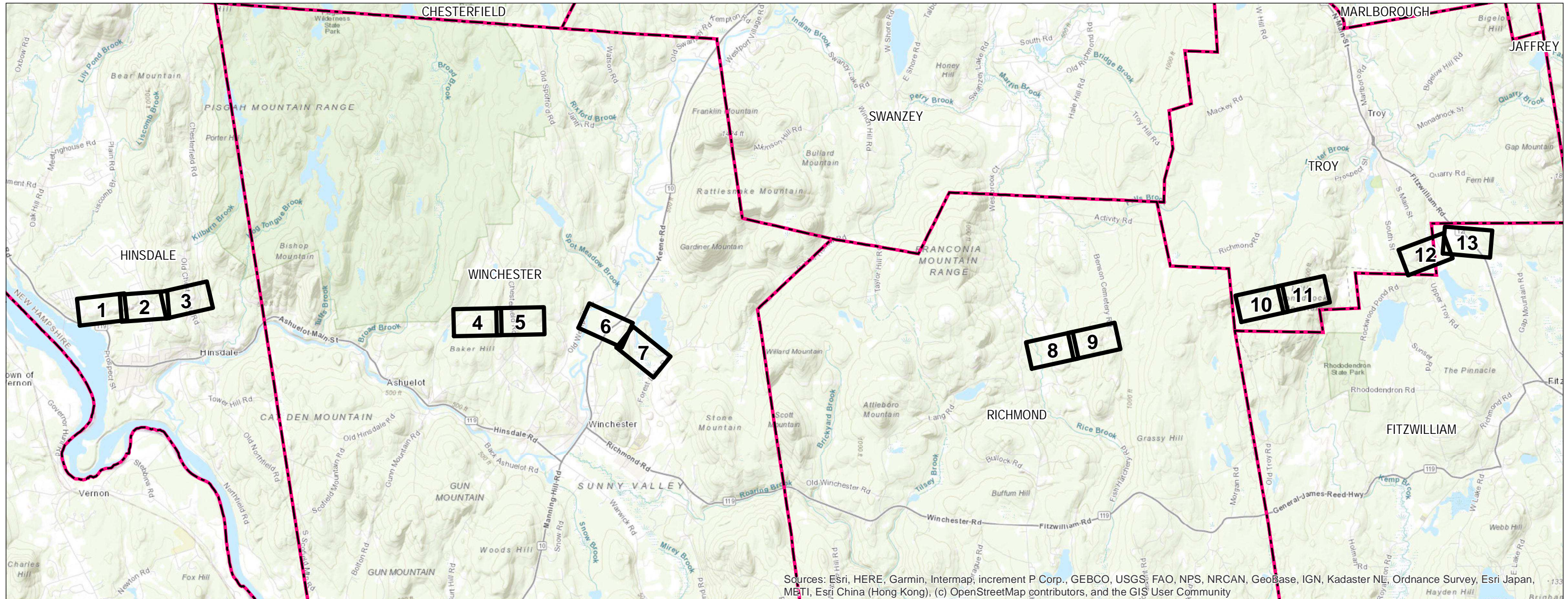


Figure 3 – Surface Water and Groundwater Overlay Plans

379 Transmission Line - 2022 Structure Replacement Project

HINSDALE, WINCHESTER, RICHMOND, TROY, AND FITZWILLIAM, NEW HAMPSHIRE
Environmental Permitting Planset

Date: May 05, 2022



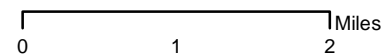
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PREPARED FOR:



13 Legends Drive
Hooksett, NH 03106

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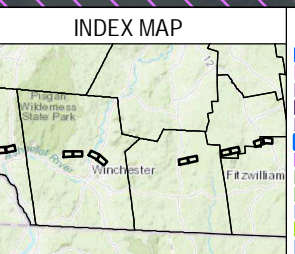
PREPARED BY:



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Engineers and Scientists
www.gza.com



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| # Local Potential Contamination Sources | <ul style="list-style-type: none"> AOT DISTURBANCE AREA EXISTING ACCESS PROPOSED ACCESS OFF-ROW ACCESS PENDING RIGHTS WORKPAD TEMPORARY WETLAND IMPACT TEMPORARY UPLAND MATTING PUBLIC ROADS PRIVATE ROAD STATE ROAD | <ul style="list-style-type: none"> ! EXISTING STRUCTURE - NO PROPOSED WORK ! EXISTING STRUCTURE TO BE REPLACED — EXISTING TRANSMISSION LINE — OTHER TRANSMISSION LINE — APPROXIMATE ROW — NHD FLOWLINES — FIELD DELINEATED WETLAND — POTENTIAL VERNAL POOL | <ul style="list-style-type: none"> — DOWN BOUNDARY — RAILROAD/RAIL TRAIL — EROSION CONTROL — CULVERT — 2FT ELEVATION CONTOURS |
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1 inch = 200 feet

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2022 379 & N186 Transmission Line Structure Replacement Project

Surface and Groundwater Overlay Plans

Hinsdale, NH MAP SHEET

Date: May, 2022

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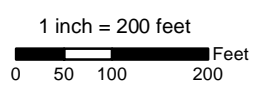
INDEX MAP



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|---|-------------------------------|---------------------------------------|------------------------|
| # Local Potential Contamination Sources | ACT DISTURBANCE AREA | EXISTING STRUCTURE - NO PROPOSED WORK | DOWN BOUNDARY |
| Groundwater Classification Areas GA1 (None Present) | EXISTING ACCESS | EXISTING STRUCTURE TO BE REPLACED | RAILROAD/RAIL TRAIL |
| Groundwater Classification Areas GAA (None Present) | PROPOSED ACCESS | EXISTING TRANSMISSION LINE | EROSION CONTROL |
| Water Supply Intake Protection Areas (None Present) | OFF-ROW ACCESS PENDING RIGHTS | OTHER TRANSMISSION LINE | CULVERT |
| Watersheds with Chloride Impairments 2016 (None Present) | WORKPAD | APPROXIMATE ROW | 2FT ELEVATION CONTOURS |
| Outstanding Resource Water (None Present) | TEMPORARY WETLAND IMPACT | NHD FLOWLINES | |
| FEMA Special Flood Hazard Area | TEMPORARY UPLAND MATTING | FIELD DELINEATED WETLAND | |
| Designated River Quarter Mile Buffer | PUBLIC ROADS | POTENTIAL VERNAL POOL | |
| Wellhead Protection Areas | PRIVATE ROAD | | |
| Surface Waters with Impairments 2016 with Quarter Mile Buffer | STATE ROAD | | |
| All Lakes with a Quarter Mile Buffer | | | |
| Groundwater Classification Areas GA2 | | | |
| Class A Surface Waters RSA 485A9 | | | |

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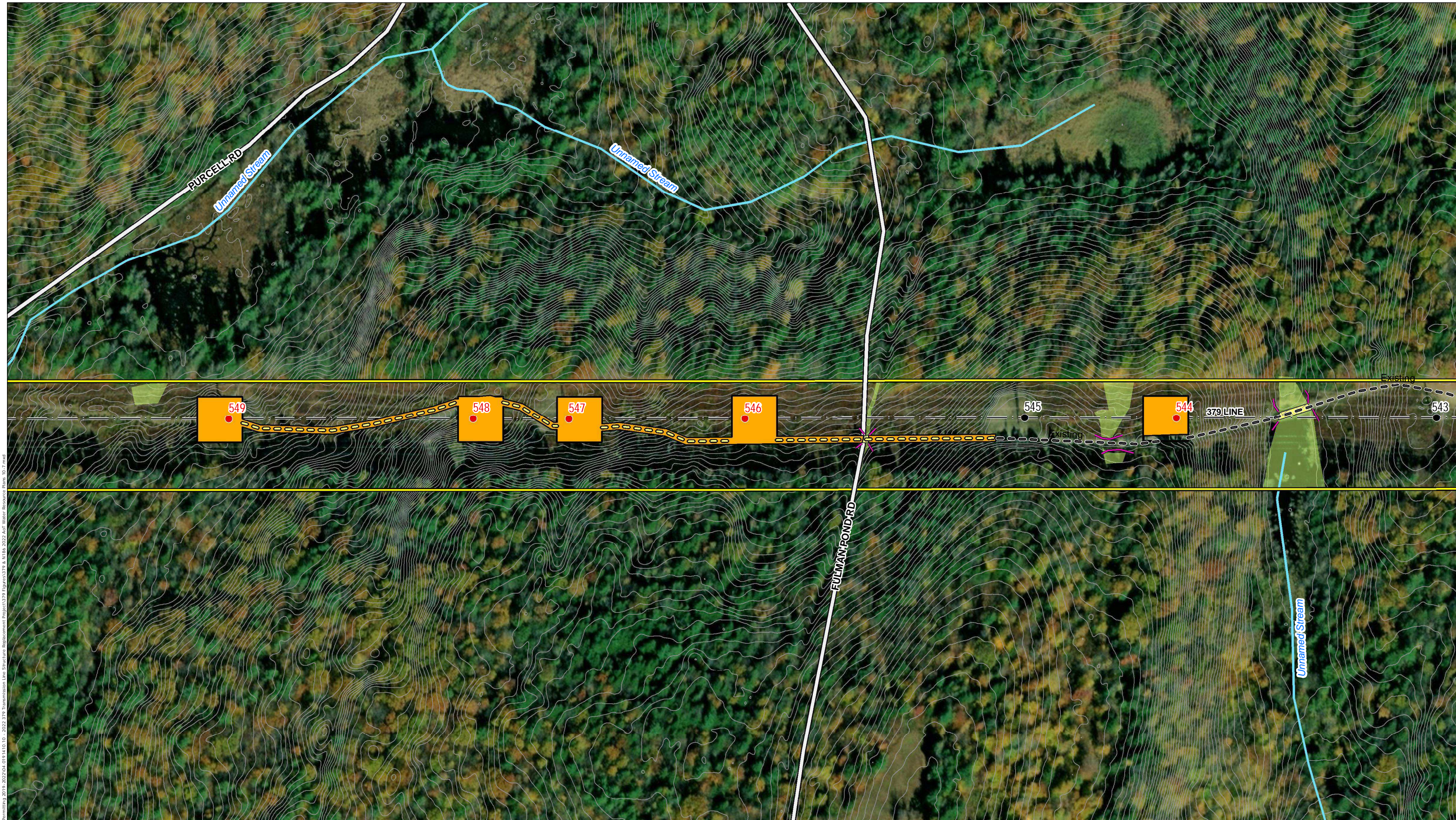


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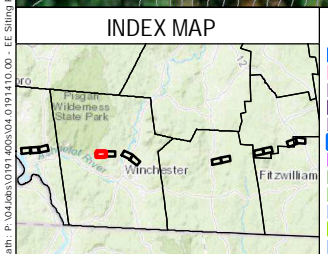
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2022 379 & N186 Transmission Line Structure Replacement Project Surface and Groundwater Overlay Plans

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04.0191410.10	



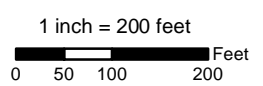
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| # Local Potential Contamination Sources | <ul style="list-style-type: none"> AOT DISTURBANCE AREA EXISTING ACCESS PROPOSED ACCESS OFF-ROW ACCESS PENDING RIGHTS WORKPAD TEMPORARY WETLAND IMPACT TEMPORARY UPLAND MATTING PUBLIC ROADS PRIVATE ROAD STATE ROAD | <ul style="list-style-type: none"> EXISTING STRUCTURE - NO PROPOSED WORK EXISTING STRUCTURE TO BE REPLACED EXISTING TRANSMISSION LINE OTHER TRANSMISSION LINE APPROXIMATE ROW NHD FLOWLINES FIELD DELINEATED WETLAND POTENTIAL VERNAL POOL | <ul style="list-style-type: none"> DOWN BOUNDARY RAILROAD/RAIL TRAIL EROSION CONTROL CULVERT 2FT ELEVATION CONTOURS |
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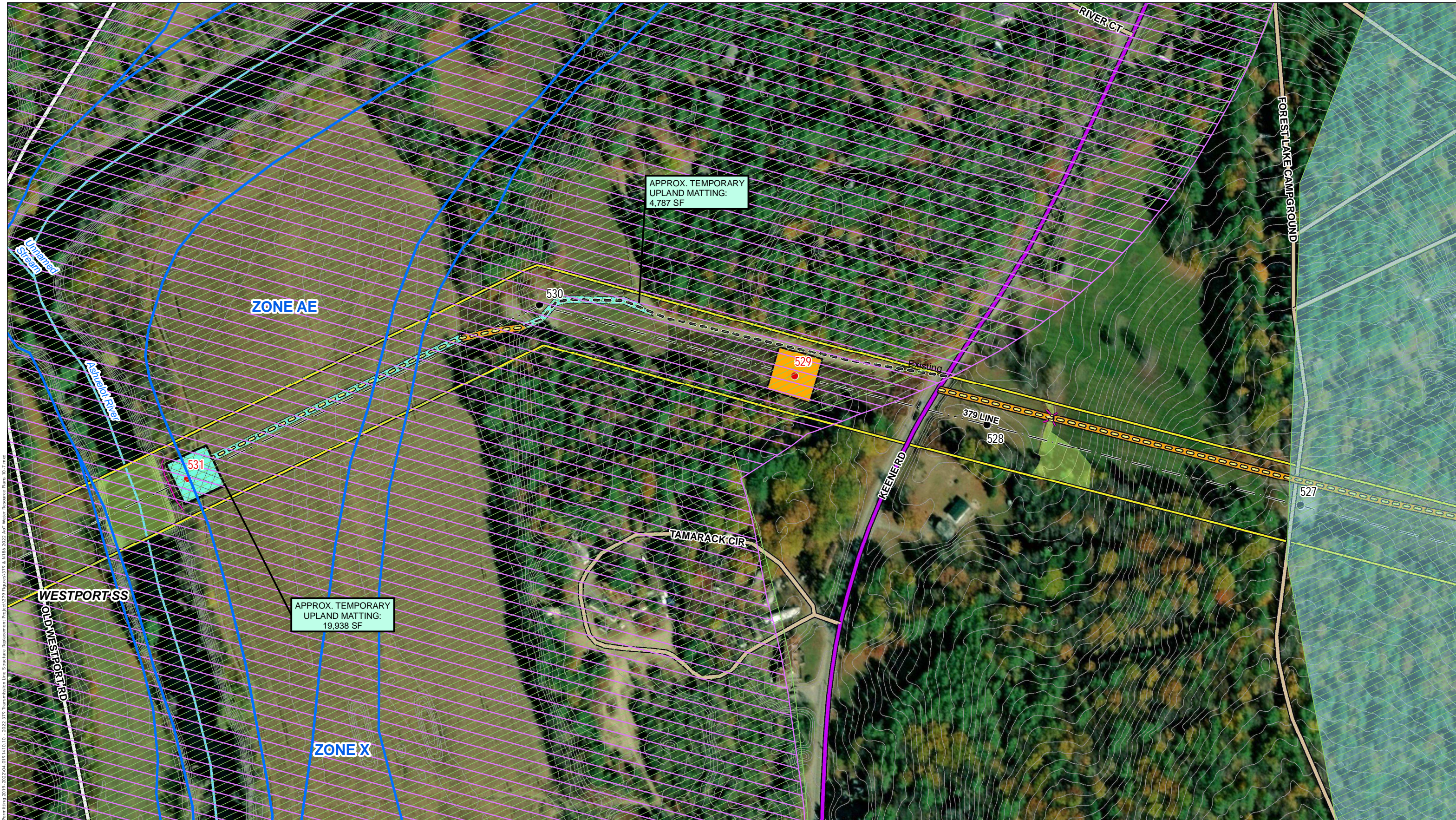
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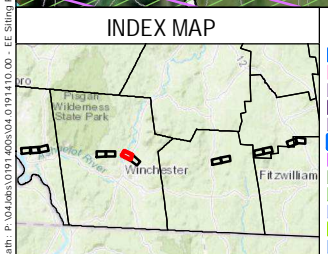


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2022 379 & N186 Transmission Line Structure Replacement Project
Surface and Groundwater Overlay Plans
 Winchester, NH MAP SHEET
 Date: May, 2022
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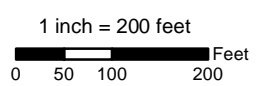


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| <ul style="list-style-type: none"> # Local Potential Contamination Sources Groundwater Classification Areas GA1 (None Present) Groundwater Classification Areas GAA (None Present) Water Supply Intake Protection Areas (None Present) Watersheds with Chloride Impairments 2016 (None Present) Outstanding Resource Water (None Present) FEMA Special Flood Hazard Area Designated River Quarter Mile Buffer Wellhead Protection Areas Surface Waters with Impairments 2016 with Quarter Mile Buffer All Lakes with a Quarter Mile Buffer Groundwater Classification Areas GA2 Class A Surface Waters RSA 485A9 | <ul style="list-style-type: none"> AOT DISTURBANCE AREA EXISTING ACCESS PROPOSED ACCESS OFF-ROW ACCESS PENDING RIGHTS WORKPAD TEMPORARY WETLAND IMPACT TEMPORARY UPLAND MATTING PUBLIC ROADS PRIVATE ROAD STATE ROAD | <ul style="list-style-type: none"> EXISTING STRUCTURE - NO PROPOSED WORK EXISTING STRUCTURE TO BE REPLACED EXISTING TRANSMISSION LINE OTHER TRANSMISSION LINE APPROXIMATE ROW NHD FLOWLINES FIELD DELINEATED WETLAND POTENTIAL VERNAL POOL | <ul style="list-style-type: none"> DOWN BOUNDARY RAILROAD/RAIL TRAIL EROSION CONTROL CULVERT 2FT ELEVATION CONTOURS |
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2022 379 & N186 Transmission Line Structure Replacement Project
Surface and Groundwater Overlay Plans
 Winchester, NH MAP SHEET
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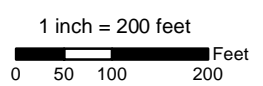
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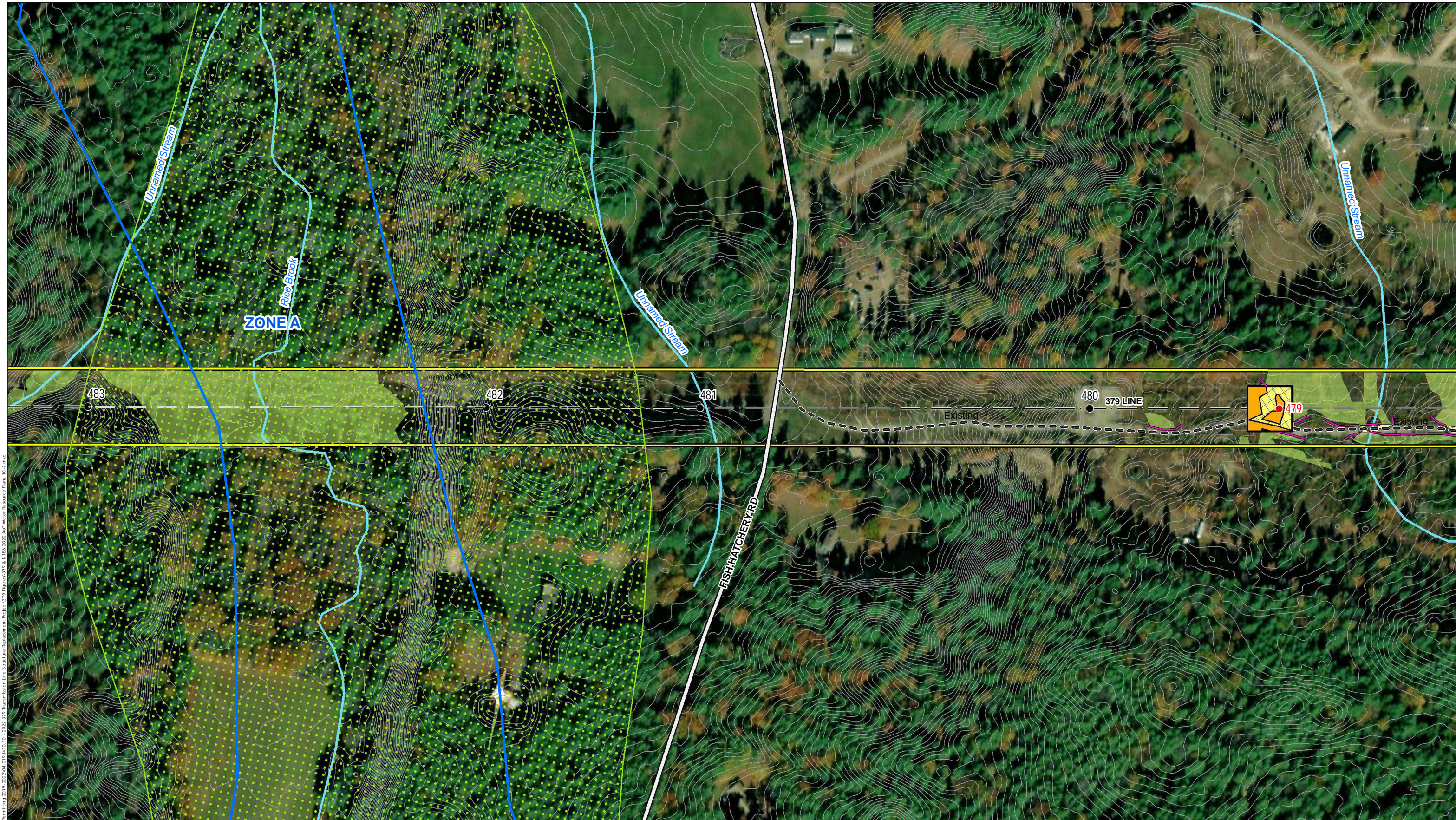
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| <ul style="list-style-type: none"> # Local Potential Contamination Sources Groundwater Classification Areas GA1 (None Present) Groundwater Classification Areas GAA (None Present) Water Supply Intake Protection Areas (None Present) Watersheds with Chloride Impairments 2016 (None Present) Outstanding Resource Water (None Present) FEMA Special Flood Hazard Area Designated River Quarter Mile Buffer Wellhead Protection Areas Surface Waters with Impairments 2016 with Quarter Mile Buffer All Lakes with a Quarter Mile Buffer Groundwater Classification Areas GA2 Class A Surface Waters RSA 485A9 | <ul style="list-style-type: none"> AOT DISTURBANCE AREA EXISTING ACCESS PROPOSED ACCESS OFF-ROW ACCESS PENDING RIGHTS WORKPAD TEMPORARY WETLAND IMPACT TEMPORARY UPLAND MATTING PUBLIC ROADS PRIVATE ROAD STATE ROAD | <ul style="list-style-type: none"> EXISTING STRUCTURE - NO PROPOSED WORK EXISTING STRUCTURE TO BE REPLACED EXISTING TRANSMISSION LINE OTHER TRANSMISSION LINE APPROXIMATE ROW NHD FLOWLINES FIELD DELINEATED WETLAND POTENTIAL VERNAL POOL | <ul style="list-style-type: none"> TOWN BOUNDARY RAILROAD/RAIL TRAIL EROSION CONTROL CULVERT 2FT ELEVATION CONTOURS |
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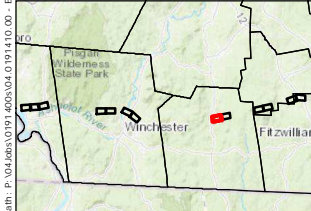
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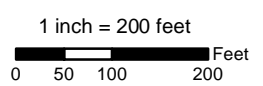
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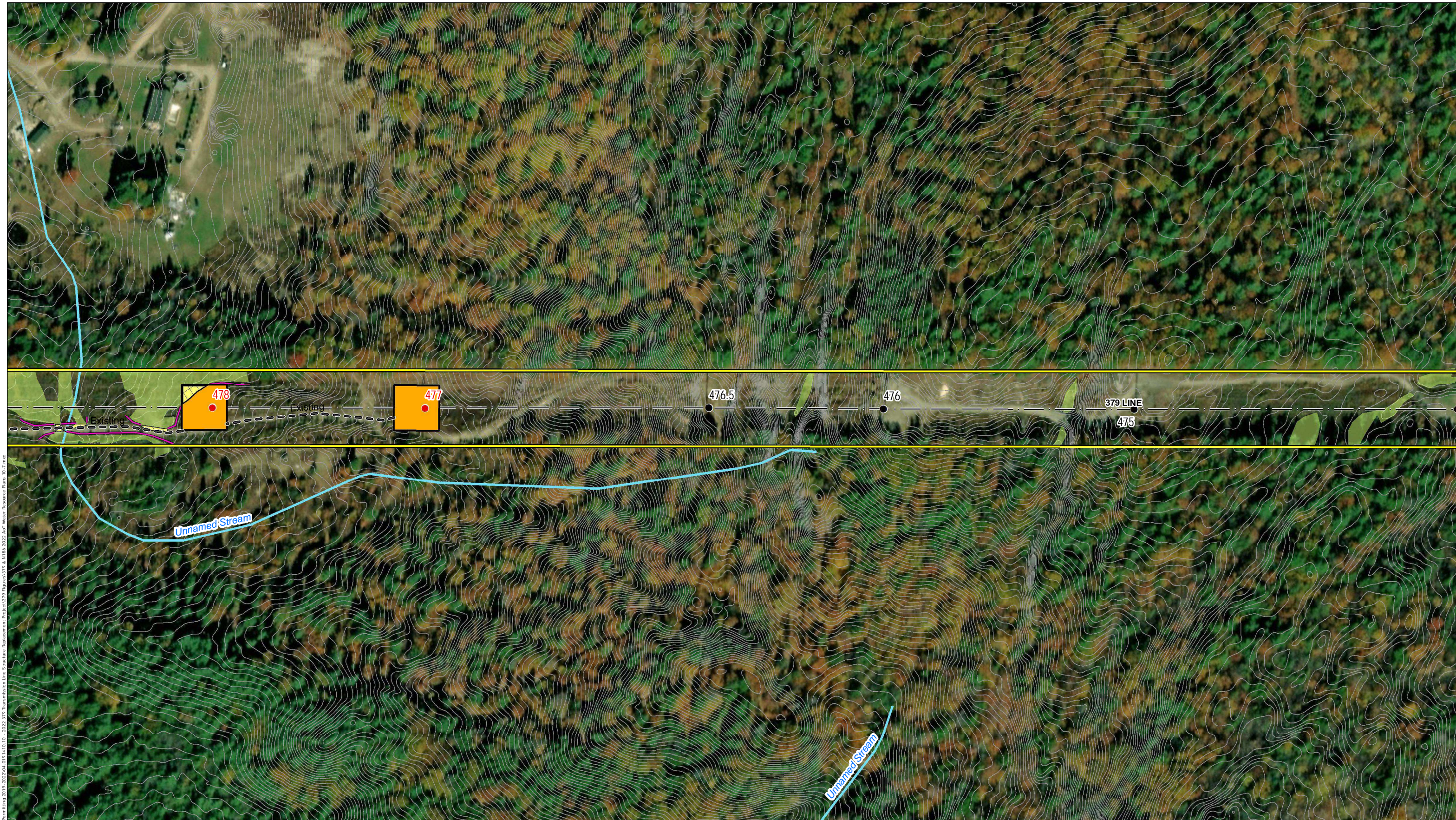


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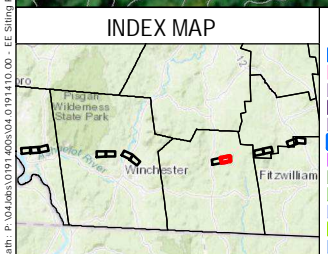
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2022 379 & N186 Transmission Line Structure Replacement Project Surface and Groundwater Overlay Plans

Richmond, NH	MAP SHEET
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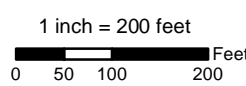
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# Local Potential Contamination Sources	AOT DISTURBANCE AREA	EXISTING STRUCTURE - NO PROPOSED WORK	TOWN BOUNDARY
Groundwater Classification Areas GA1 (None Present)	EXISTING ACCESS	EXISTING STRUCTURE TO BE REPLACED	RAILROAD/RAIL TRAIL
Groundwater Classification Areas GAA (None Present)	PROPOSED ACCESS	EXISTING TRANSMISSION LINE	EROSION CONTROL
Water Supply Intake Protection Areas (None Present)	OFF-ROW ACCESS PENDING RIGHTS	OTHER TRANSMISSION LINE	CULVERT
Watersheds with Chloride Impairments 2016 (None Present)	WORKPAD	APPROXIMATE ROW	2FT ELEVATION CONTOURS
Outstanding Resource Water (None Present)	TEMPORARY WETLAND IMPACT	NHD FLOWLINES	
FEMA Special Flood Hazard Area	TEMPORARY UPLAND MATTING	FIELD DELINEATED WETLAND	
Designated River Quarter Mile Buffer	PUBLIC ROADS	POTENTIAL VERNAL POOL	
Wellhead Protection Areas	PRIVATE ROAD		
Surface Waters with Impairments 2016 with Quarter Mile Buffer	STATE ROAD		
All Lakes with a Quarter Mile Buffer			
Groundwater Classification Areas GA2			
Class A Surface Waters RSA 485A9			

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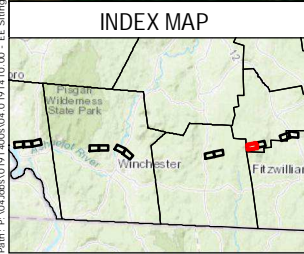
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**2022 379 & N186 Transmission Line
Structure Replacement Project
Surface and Groundwater Overlay Plans**

Richmond, NH	MAP SHEET
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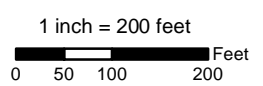
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|--|---|---|---|
| <p># Local Potential Contamination Sources</p> <ul style="list-style-type: none"> ■ Groundwater Classification Areas GA1 (None Present) ■ Groundwater Classification Areas GAA (None Present) ■ Water Supply Intake Protection Areas (None Present) ■ Watersheds with Chloride Impairments 2016 (None Present) ■ Outstanding Resource Water (None Present) ■ FEMA Special Flood Hazard Area ■ Designated River Quarter Mile Buffer ■ Wellhead Protection Areas ■ Surface Waters with Impairments 2016 with Quarter Mile Buffer ■ All Lakes with a Quarter Mile Buffer ■ Groundwater Classification Areas GA2 ■ Class A Surface Waters RSA 485A9 | <ul style="list-style-type: none"> ■ AOT DISTURBANCE AREA ■ EXISTING ACCESS ■ PROPOSED ACCESS ■ OFF-ROW ACCESS PENDING RIGHTS ■ WORKPAD ■ TEMPORARY WETLAND IMPACT ■ TEMPORARY UPLAND MATTING ■ PUBLIC ROADS ■ PRIVATE ROAD ■ STATE ROAD | <ul style="list-style-type: none"> ■ EXISTING STRUCTURE - NO PROPOSED WORK ■ EXISTING STRUCTURE TO BE REPLACED ■ EXISTING TRANSMISSION LINE ■ OTHER TRANSMISSION LINE ■ APPROXIMATE ROW ■ NHD FLOWLINES ■ FIELD DELINEATED WETLAND ■ POTENTIAL VERNAL POOL | <ul style="list-style-type: none"> ■ DOWN BOUNDARY ■ RAILROAD/RAIL TRAIL ■ EROSION CONTROL ■ CULVERT ■ 2FT ELEVATION CONTOURS |
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EVERSOURCE ENERGY

2022 379 & N186 Transmission Line Structure Replacement Project Surface and Groundwater Overlay Plans

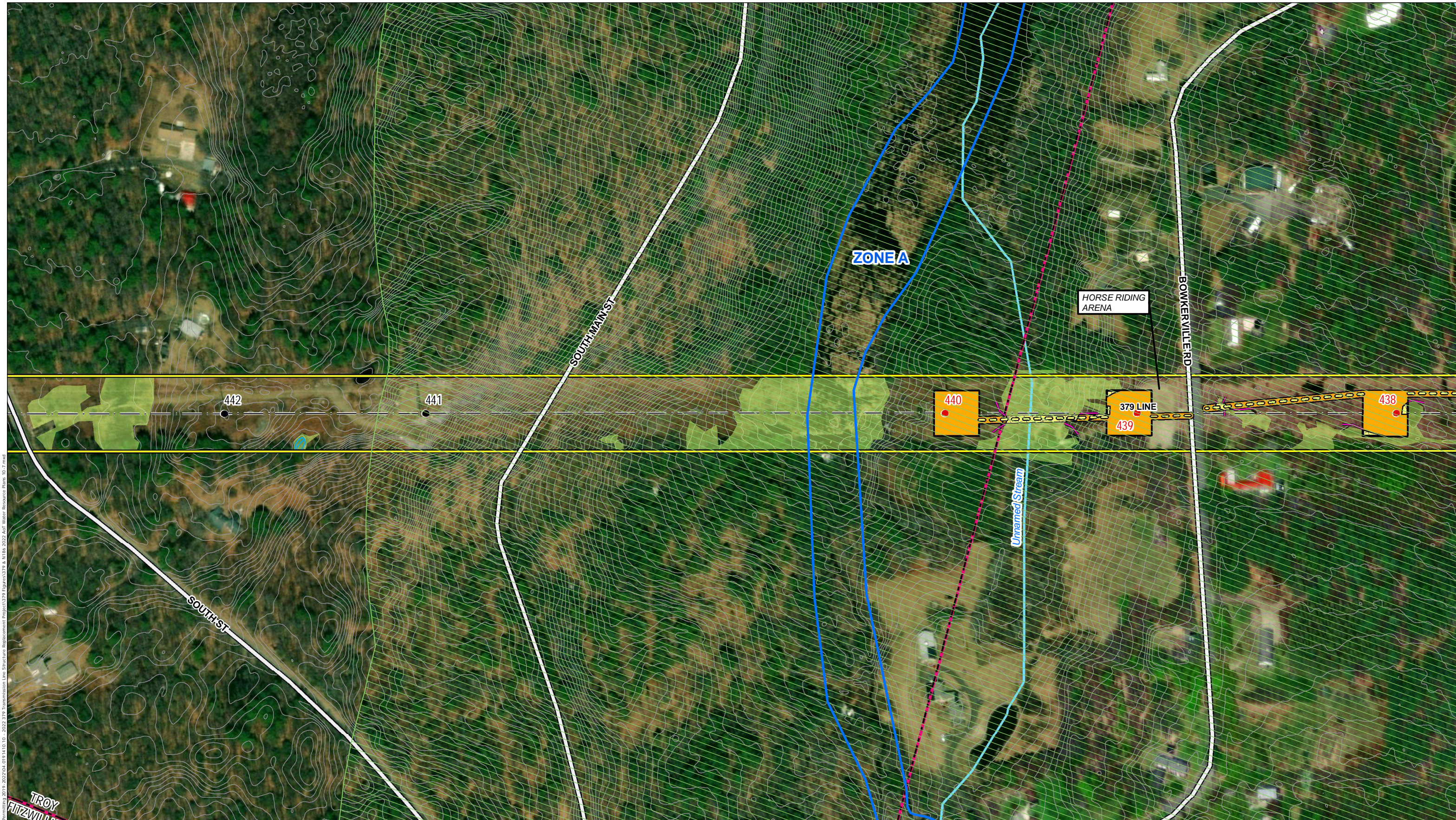
Troy, NH	MAP SHEET
Date: May, 2022	10 OF 13
04.0191410.10	



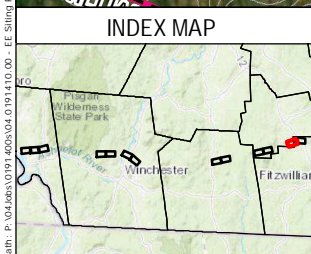
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<p>INDEX MAP</p>	<p># Local Potential Contamination Sources</p> <ul style="list-style-type: none"> Groundwater Classification Areas GA1 (None Present) Groundwater Classification Areas GAA (None Present) Water Supply Intake Protection Areas (None Present) Watersheds with Chloride Impairments 2016 (None Present) Outstanding Resource Water (None Present) FEMA Special Flood Hazard Area Designated River Quarter Mile Buffer Wellhead Protection Areas Surface Waters with Impairments 2016 with Quarter Mile Buffer All Lakes with a Quarter Mile Buffer Groundwater Classification Areas GA2 Class A Surface Waters RSA 485A9 	<ul style="list-style-type: none"> AOT DISTURBANCE AREA EXISTING ACCESS PROPOSED ACCESS OFF-ROW ACCESS PENDING RIGHTS WORKPAD TEMPORARY WETLAND IMPACT TEMPORARY UPLAND MATTING PUBLIC ROADS PRIVATE ROAD STATE ROAD 	<ul style="list-style-type: none"> EXISTING STRUCTURE - NO PROPOSED WORK EXISTING STRUCTURE TO BE REPLACED EXISTING TRANSMISSION LINE OTHER TRANSMISSION LINE APPROXIMATE ROW NHD FLOWLINES FIELD DELINEATED WETLAND POTENTIAL VERNAL POOL 	<ul style="list-style-type: none"> TOWN BOUNDARY RAILROAD/RAIL TRAIL EROSION CONTROL CULVERT 2FT ELEVATION CONTOURS 	<p style="font-size: 2em; font-weight: bold;">3</p> <p>1 inch = 200 feet</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">NO.</td> <td style="width: 10%;">DATE</td> <td style="width: 80%;">REVISIONS</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	DATE	REVISIONS				<p>EVERSOURCE ENERGY</p> <p>2022 379 & N186 Transmission Line Structure Replacement Project</p> <p>Surface and Groundwater Overlay Plans</p> <p>Troy, NH</p> <p>Date: May, 2022</p> <p>04.0191410.10</p>	<p>MAP SHEET</p> <p style="font-size: 1.5em; font-weight: bold;">11 OF 13</p>
NO.	DATE	REVISIONS												

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.



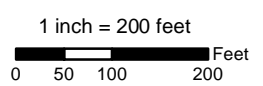
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- | | | | |
|---|---------------------------------|---|--------------------------|
| # Local Potential Contamination Sources | ■ AOT DISTURBANCE AREA | ! EXISTING STRUCTURE - NO PROPOSED WORK | ⬮ DOWN BOUNDARY |
| □ Groundwater Classification Areas GA1 (None Present) | ● EXISTING ACCESS | ! EXISTING STRUCTURE TO BE REPLACED | ⬮ RAILROAD/RAIL TRAIL |
| □ Groundwater Classification Areas GAA (None Present) | ○ PROPOSED ACCESS | — EXISTING TRANSMISSION LINE | ⬮ EROSION CONTROL |
| □ Water Supply Intake Protection Areas (None Present) | ○ OFF-ROW ACCESS PENDING RIGHTS | — OTHER TRANSMISSION LINE | ⬮ CULVERT |
| □ Watersheds with Chloride Impairments 2016 (None Present) | ■ WORKPAD | — APPROXIMATE ROW | — 2FT ELEVATION CONTOURS |
| □ Outstanding Resource Water (None Present) | ■ TEMPORARY WETLAND IMPACT | — NHD FLOWLINES | |
| □ FEMA Special Flood Hazard Area | ■ TEMPORARY UPLAND MATTING | ■ FIELD DELINEATED WETLAND | |
| □ Designated River Quarter Mile Buffer | — PUBLIC ROADS | ■ POTENTIAL VERNAL POOL | |
| □ Wellhead Protection Areas | — PRIVATE ROAD | | |
| □ Surface Waters with Impairments 2016 with Quarter Mile Buffer | — STATE ROAD | | |
| □ All Lakes with a Quarter Mile Buffer | | | |
| □ Groundwater Classification Areas GA2 | | | |
| □ Class A Surface Waters RSA 485A9 | | | |

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3

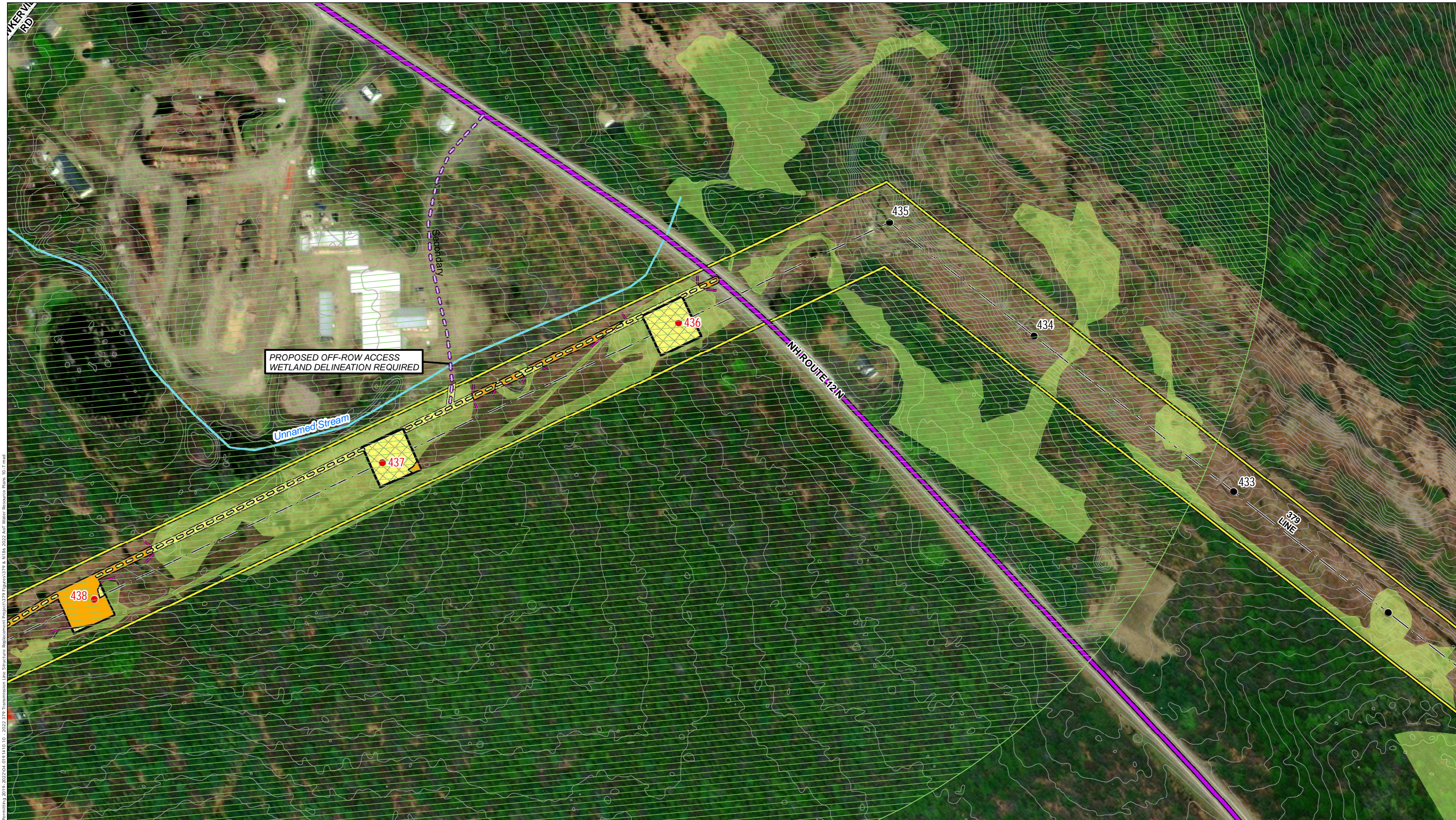


NO.	DATE	REVISIONS

EVERSOURCE ENERGY

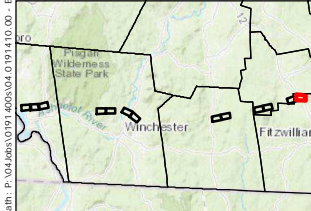
2022 379 & N186 Transmission Line Structure Replacement Project Surface and Groundwater Overlay Plans

Troy/Fitzwilliam, NH	MAP SHEET
Date: May, 2022	12 OF 13
04.0191410.10	



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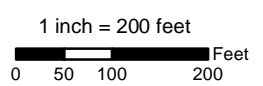
INDEX MAP



- | | | | |
|---|-------------------------------|---------------------------------------|------------------------|
| # Local Potential Contamination Sources | ACT DISTURBANCE AREA | EXISTING STRUCTURE - NO PROPOSED WORK | TOWN BOUNDARY |
| Groundwater Classification Areas GA1 (None Present) | EXISTING ACCESS | EXISTING STRUCTURE TO BE REPLACED | RAILROAD/RAIL TRAIL |
| Groundwater Classification Areas GAA (None Present) | PROPOSED ACCESS | EXISTING TRANSMISSION LINE | EROSION CONTROL |
| Water Supply Intake Protection Areas (None Present) | OFF-ROW ACCESS PENDING RIGHTS | OTHER TRANSMISSION LINE | CULVERT |
| Watersheds with Chloride Impairments 2016 (None Present) | WORKPAD | APPROXIMATE ROW | 2FT ELEVATION CONTOURS |
| Outstanding Resource Water (None Present) | TEMPORARY WETLAND IMPACT | NHD FLOWLINES | |
| FEMA Special Flood Hazard Area | TEMPORARY UPLAND MATTING | FIELD DELINEATED WETLAND | |
| Designated River Quarter Mile Buffer | PUBLIC ROADS | POTENTIAL VERNAL POOL | |
| Wellhead Protection Areas | PRIVATE ROAD | | |
| Surface Waters with Impairments 2016 with Quarter Mile Buffer | STATE ROAD | | |
| All Lakes with a Quarter Mile Buffer | | | |
| Groundwater Classification Areas GA2 | | | |
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3



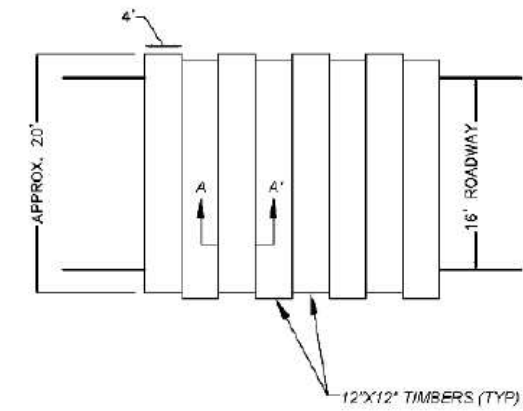
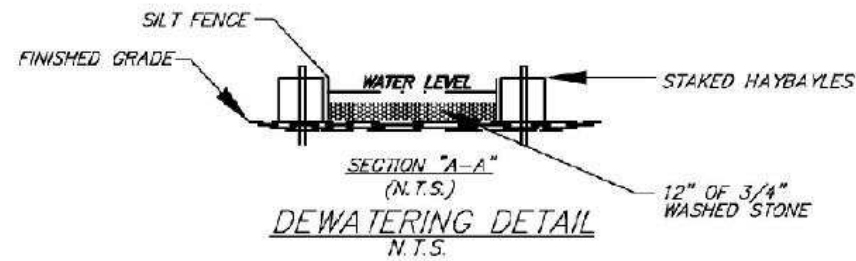
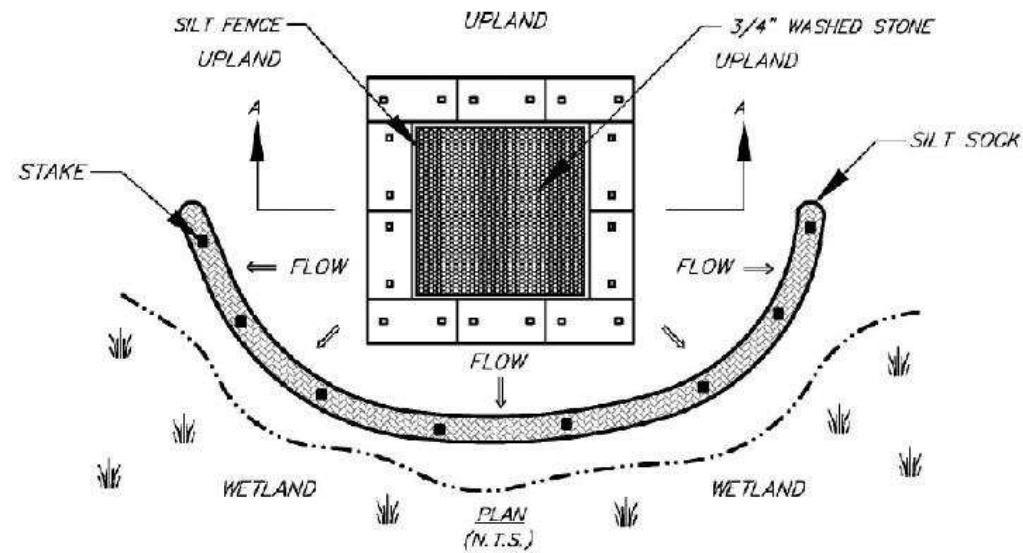
NO.	DATE	REVISIONS

EVERSOURCE ENERGY

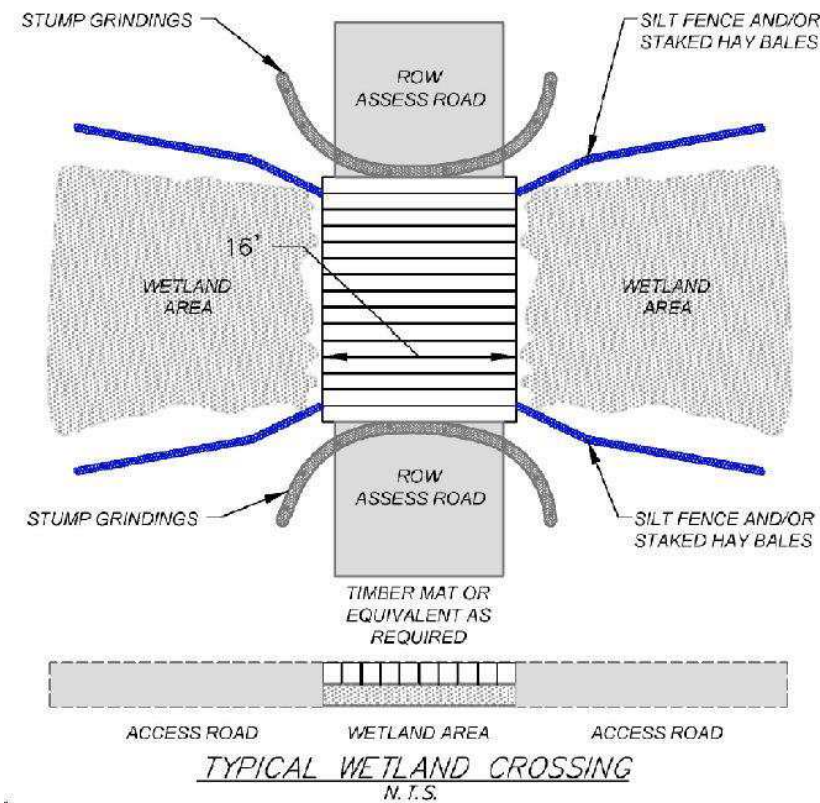
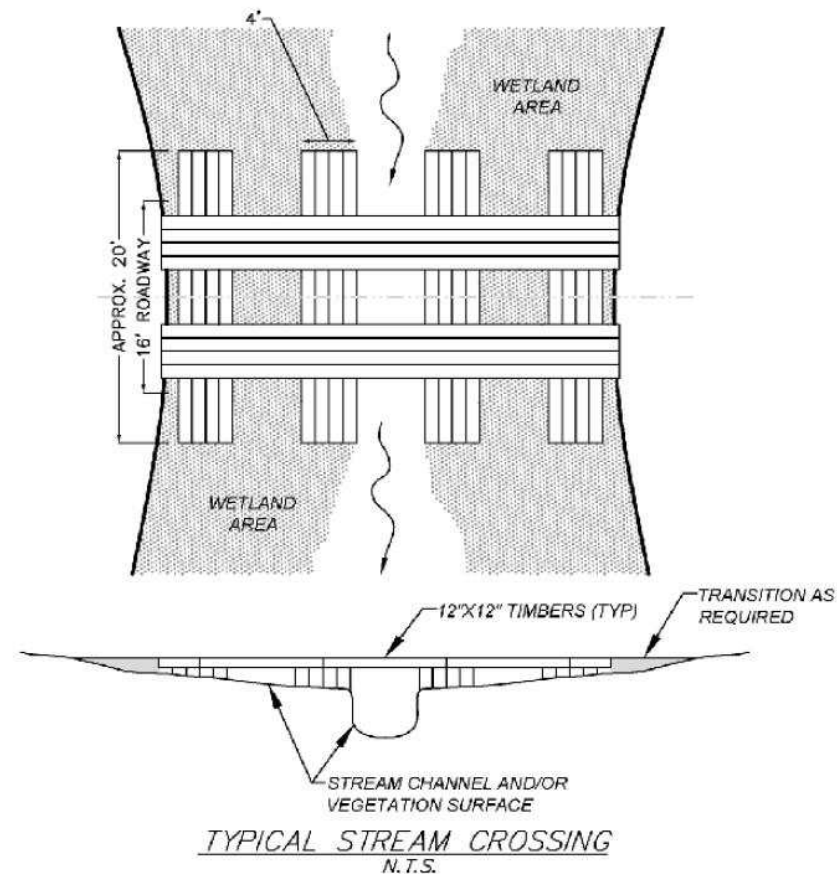
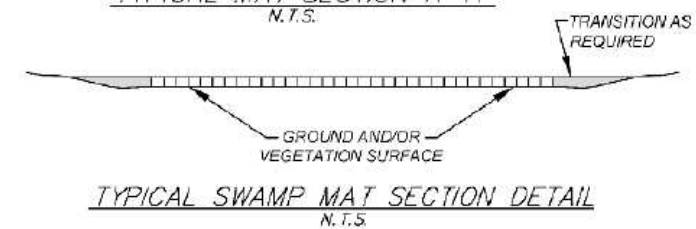
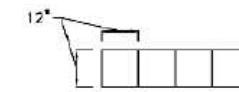
2022 379 & N186 Transmission Line Structure Replacement Project Surface and Groundwater Overlay Plans

Fitzwilliam, NH	MAP SHEET
Date: May, 2022	13 OF 13
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TYPICAL SWAMP MAT PLAN VIEW
N.T.S.



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**379 & N186 TRANSMISSION LINE
STRUCTURE REPLACEMENT PROJECT**
HINSDALE, WINCHESTER, RICHMOND, TROY,
AND FITZWILLIAM, NEW HAMPSHIRE

BMP DETAILS

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
EVERSOURCE
ENERGY

PROJ MGR: LEW
DESIGNED BY: MJD
DATE: 04/28/2022

REVIEWED BY: TLT
DRAWN BY: MJD
PROJECT NO: 04.0191410.10

CHECKED BY: DMZ
SCALE:
REVISION NO.

SHEET
S3

Best Management Practices (BMP's) for Straw wattles

Definition and purpose:

Straw wattles are burlap rolls filled with straw that trap sediment and interrupt water flow by reducing slope lengths.

Applications:

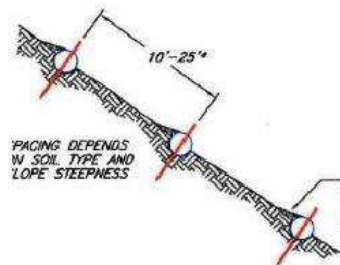
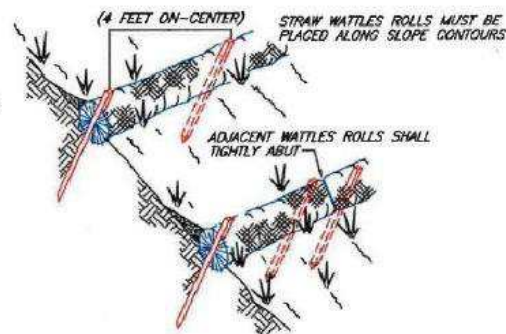
- * Along erodible or unstabilized slopes
- * Spread overland waterflow
- * Trap sediment
- * Around storm drain inlets to slow water and settle out sediment
- * Overlap ends approximately 6 inches

Installation:

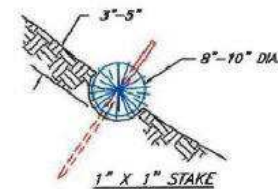
Straw wattles are installed parallel to slope contours and perpendicular to sheet flow.

Spacing* - Dependent on slope length, soil steepness and soil type (general range 10 - 25').

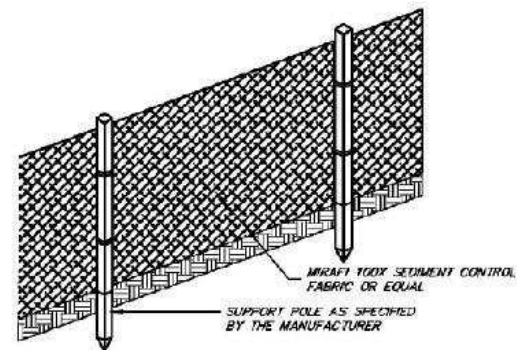
Trenching - 2"-5" inch trench
Stacking - at each end and four foot on center (i.e. 25 foot wattle uses 6 stacks)



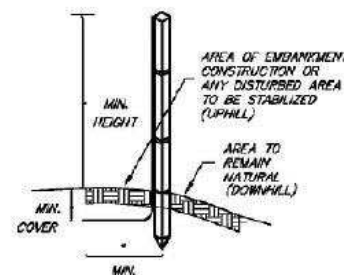
SEDIMENT, ORGANIC MATTER, AND NATIVE SEEDS ARE CAPTURED BEHIND THE WATTLE ROWS.



NOT TO SCALE



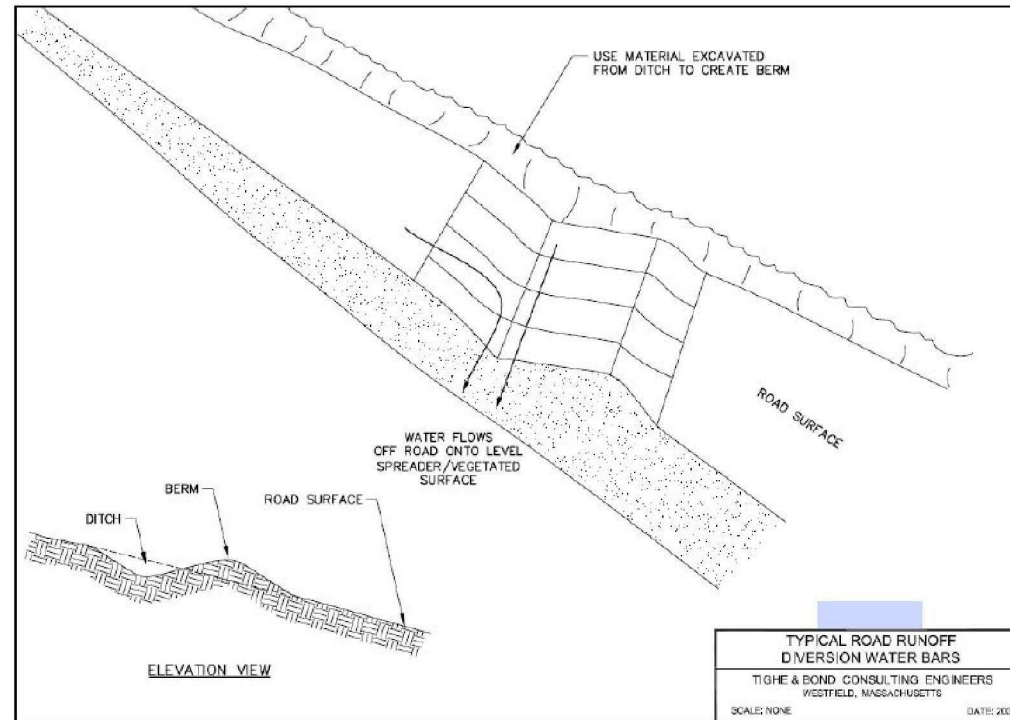
FRONT VIEW



SIDE VIEW

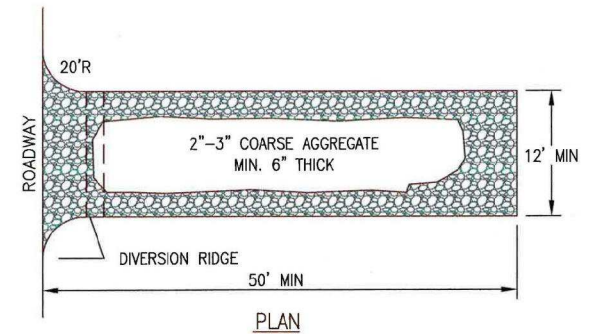
NOTES (SILT FENCE)

1. THE HEIGHT OF THE BARRIER SHALL NOT EXCEED 36 INCHES.
2. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPliced TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED. SEE MANUFACTURER'S RECOMMENDATIONS.
3. POSTS SHALL BE PLACED AT A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL BE AS MANUFACTURER RECOMMENDS.
4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE OF THE BARRIER IN ACCORDANCE WITH RECOMMENDATIONS
5. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE, AND WILL EXTEND A MINIMUM OF 8 INCHES INTO THE TRENCH. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
6. THE TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.
7. FABRIC BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
8. FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST ONCE DAILY DURING PROLONGED RAINFALL AND ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
9. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
10. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
11. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.



ELEVATION VIEW

TYPICAL ROAD RUNOFF DIVERSION WATER BARS
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE DATE: 2007



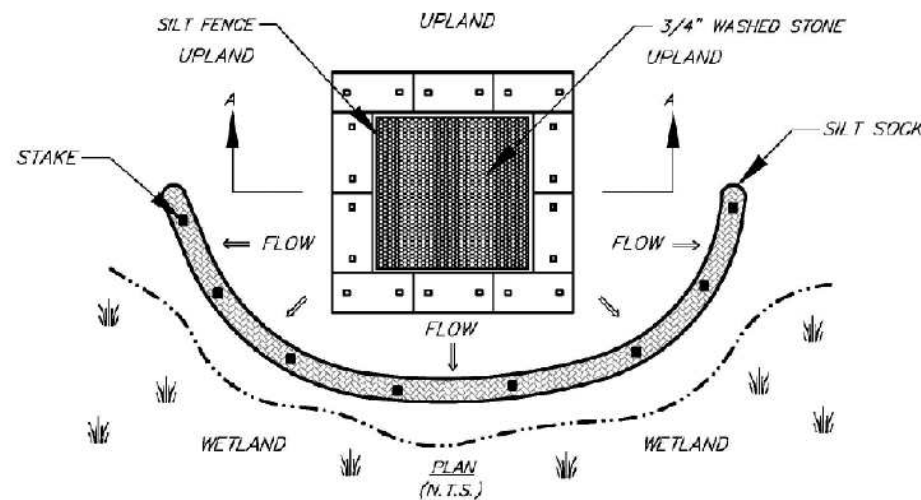
PLAN

NOTES:

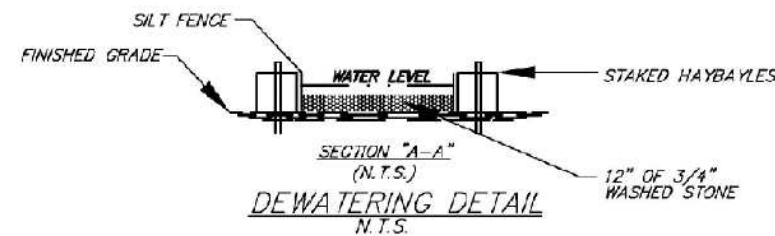
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.

CONSTRUCTION ENTRANCE

NOT TO SCALE



PLAN (N.T.S.)



SECTION "A-A" (N.T.S.)
DEWATERING DETAIL N.T.S.

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379 & N186 TRANSMISSION LINE
STRUCTURE REPLACEMENT PROJECT
HINSDALE, WINCHESTER, RICHMOND, TROY,
AND FITZWILLIAM, NEW HAMPSHIRE

BMP DETAILS

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
EVERSOURCE
ENERGY

PROJ MGR: CEM
DESIGNED BY: MJD
DATE: 04/28/2022

REVIEWED BY: TLT
DRAWN BY: MJD
PROJECT NO: 04.0191410.10

CHECKED BY: DMZ
SCALE:
REVISION NO.

SHEET
S2

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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.
3. WETLAND IMPACTS ASSOCIATED WITH WETLAND CROSSINGS ARE REQUIRED FOR ACCESS BETWEEN STRUCTURES WITHIN THE RIGHT OF WAY.
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 WITH 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 AND 20 FOOT TOTAL IMPACT AREA.
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 AND ROCKS SHALL NOT BE REMOVED, AND THERE SHALL BE NO EXCAVATIONS, FILLS OR GRADING DONE ADJACENT TO WETLANDS, UNLESS MINOR EXCAVATIONS IS NEEDED FOR ACCESS.
9. TIMBER MATS WILL BE USED ALONG ACCESS ROUTES 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 SWAMP 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. IF TIMBER MAT BMP IS NOT SUFFICIENT DUE TO HIGH WATER, ADDITIONAL BMP'S MAY INCLUDE THE PLACEMENT OF GEOTEXTILE FABRIC, 3"-4" STONE, AND GRAVEL TO PROVIDE A SUITABLE ROAD BED. A TEMPORARY CULVERT 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. 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.
13. 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.
14. EXCESS SOILS PRODUCED FROM DRILLING WILL BE DISPOSED IN APPROVED UPLAND AREAS AT A MINIMUM DISTANCE OF 100-FT FROM WETLAND AREAS.
15. INSTALL NEW POLES IN THE LOCATIONS DESIGNATED ON THE PERMITTING PLANS.
16. CABLE 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.
17. ALL TIMBER MATS, MATERIAL, AND DEBRIS WILL BE REMOVED FROM THE WORK AREA UPON THE COMPLETION OF CONSTRUCTION.
18. 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 AND SEED, AS NECESSARY.
19. ALL TEMPORARY WETLAND IMPACTS WILL BE RE-GRADED TO ORIGINAL CONTOURS FOLLOWING CONSTRUCTION. NEW ENGLAND EROSION CONTROL/RESTORATION MIX, AVAILABLE THROUGH NEW ENGLAND WETLAND PLANTS, INC., 820 WEST STREET, AMHERST, MA 01002, 413-548-8000, OR EQUIVALENT SEED MIX SHALL BE APPLIED IN WETLAND AREAS THAT ARE NOT INUNDATED, AS NECESSARY.
20. SEDIMENT AND EROSION CONTROL MEASURES WILL BE EVALUATED AND REMOVED IF NECESSARY UPON THE COMPLETION OF CONSTRUCTION.
21. COMMERCIAL LOAM WILL NOT BE USED AS PART OF RESTORATION. ONLY IN-SITU TOPSOIL WILL BE USED TO RESTORE DISTURBED AREAS.

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 (NHDOT 304.3).

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 GZA IN 2016 AND CONFIRMED IN 2022. 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.
3. GZA EVALUATED WETLANDS AS POTENTIAL VERNAL POOLS IN 2016 AND 2022 IN ACORDANCE WITH "IDENTIFICATION AND DOCUMENTATION OF VERNAL POOLS IN NEW HAMPSHIRE," 2016, NEW HAMPSHIRE FISH AND GAME DEPARTMENT, NONGAME AND ENDANGERED WILDLIFE PROGRAM.
4. GZA WILL PERFORM A WETLANDS FUNCTION AND VALUES ASSESSMENT IN ACCORDANCE WITH THE ACOE'S "HIGHWAY METHODOLOGY WORKBOOK SUPPLEMENT," SEPTEMBER 1999, IN 2020, AS NECESSARY.
5. SITE PLAN IS FOR PERMITTING PURPOSES ONLY AND DOES NOT REPRESENT A PROPERTY BOUNDARY SURVEY.
6. THE PROJECT WILL BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
7. IN ACCORANCE 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 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 AGAINST EROSION, AS NECESSARY.
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 ANNUAL RYEGRASS PRIOR TO OCTOBER 15TH.
6. EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.

NEW HAMPSHIRE FISH AND GAME TYPICAL BMPS RELATED TO THREATENED AND ENDAGERED SPECIES

1. PRIOR TO DAILY CONSTRUCTION ACTIVITIES, TIMBER MATTING WILL BE REVIEWED FOR SNAKES AND TURTLES. GZA WILL PROVIDE AN ENVIRONMENTAL ADDENDUM TO THE DAILY TAILBOARDS BY THE CONTRACTORS TO INLCUDE GUIDANCE ON PROTOCOLS FOR SNAKES AND PROVIDE IDENTIFICATION FOR SPOTTED TURTLE, WOOD TURTLE, BLANDING'S TURTLE, AND NORTHERN BLACK RACER SNAKE.
2. OBSERVED SNAKES AND TURTLES WILL BE MOVED OFF OF CONSTRUCTION ACCESS ROADS TO LIMIT AND PREVENT MORTALITY TO SNAKES AND TURTLES DURING CONSTRUCTION.
3. EROSION CONTROL MATTING, IF UTILIZED, WILL CONSIST OF JUTE MATTING. MATTING WITH PLASTIC MESH WILL BE AVOIDED TO LIMIT UNINTENTIONAL MORTALITY TO SNAKES.
4. AT THE CONCLUSION OF THE PROJECT, A SUMMARY REPORT OF ANY RARE SPECIES OBSERVATIONS WILL BE PROVIDED TO THE NHFG NONGAME PROGRAM.
5. IMPACTS TO VERNAL POOLS AND POTENTIAL VERNAL POOLS WILL BE AVOIDED.
6. IF SPOTTED, WOOD OR BLANDING'S TURTLES ARE FOUND LAYING EGGS IN A WORK AREA, PLEASE CONTACT MELISSA DOPERALSKI (603-479-1129 CELL) OR JOSH MEGYESY (978-578-0802 CELL) FOR FURTHER INSTRUCTIONS.
7. ALL OBSERVATIONS OF EASTERN HOGNOSE SNAKE SEEN AT ANY TIME MUST BE IMMEDIATELY REPORTED TO THE NHFG DEPARTMENT (MELISSA DOPERALSKI OR JOSH MEGYESY) FOR FURTHER INSTRUCTIONS. PLEASE ATTEMPT TO PHOTOGRAPH THIS SPECIES TO SEND FOR VERIFICATION.
8. ALL OBSERVATIONS OF NORTHERN BLACK RACER SNAKES ENCOUNTERED FROM THE END OF SEPTEMBER THROUGH THE MONTH OF APRIL MUST BE IMMEDIATELY REPORTED TO THE NHFG DEPARTMENT (MELISSA DOPERALSKI 603-479-1129 (CELL) OR BRENDAN CLIFFORD 603-944-0885) AS THIS INDICATES A POTENTIAL HIBERNACULUM IN THE AREA. PLEASE ATTEMPT TO PHOTOGRAPH THIS SPECIES IF POSSIBLE. BLACK RACERS HAVE BEEN KNOWN TO DEN COMMUNALLY AT THE BASE OF POWER POLES. IF ONE IS SEEN AT THE BASE OF A POLE DURING THIS TIME PERIOD, WORK SHOULD CEASE IMMEDIATELY AT THAT POLE LOCATION AND THE INCIDENT CALLED IN TO US.

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.

379 & N186 TRANSMISSION LINE
STRUCTURE REPLACEMENT PROJECT
HINSDALE, WINCHESTER, RICHMOND, TROY,
AND FITZWILLIAM, NEW HAMPSHIRE

NOTES


PREPARED BY:  GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: EVSOURCE ENERGY	
PROJ MGR: LEW	REVIEWED BY: TLT	CHECKED BY: DMZ	SHEET S1
DESIGNED BY: MJD	DRAWN BY: MJD	SCALE:	
DATE: 04/28/2022	PROJECT NO: 04.0191410.10	REVISION NO.	



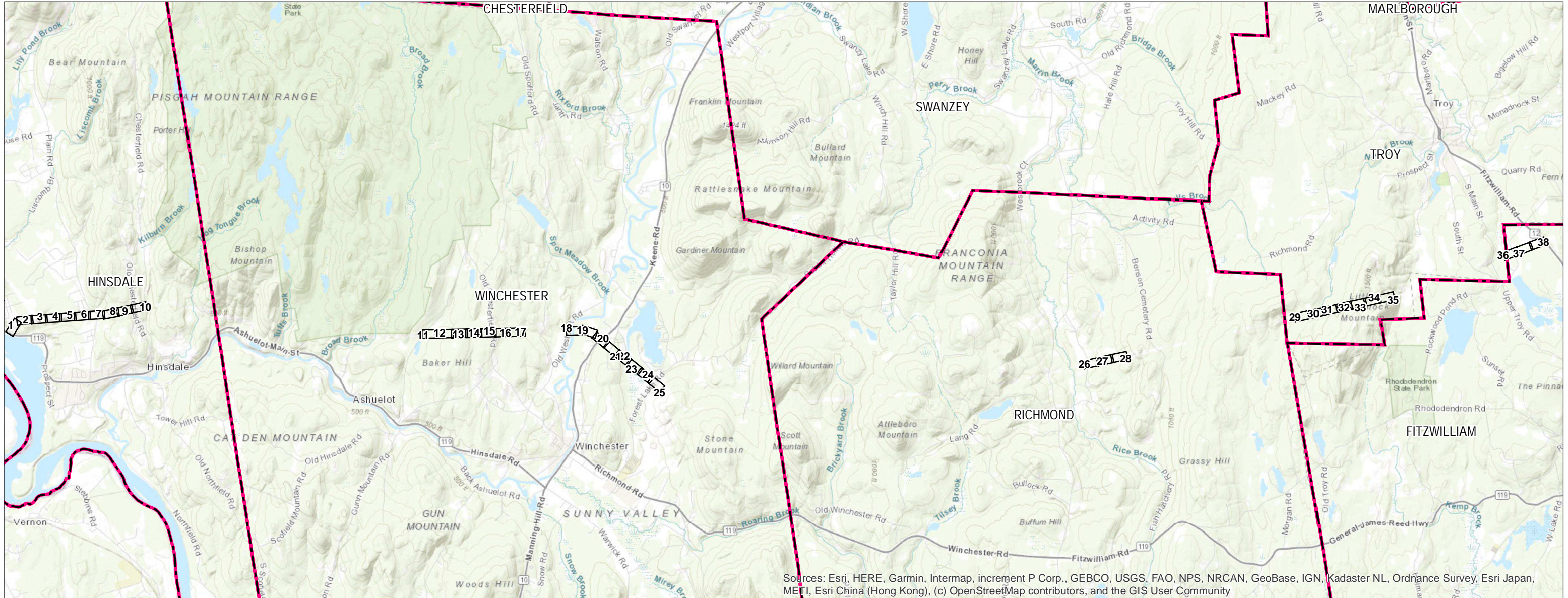
Figure 4 – Alteration of Terrain Permitting Plans

379 Transmission Line - 2022 Structure Replacement Project

HINSDALE, WINCHESTER, RICHMOND, TROY, AND FITZWILLIAM, NEW HAMPSHIRE

Environmental Permitting Planset

Date: May 05, 2022



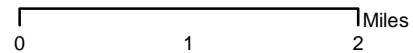
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PREPARED FOR:



13 Legends Drive
Hooksett, NH 03106

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INDEX OF FIGURES

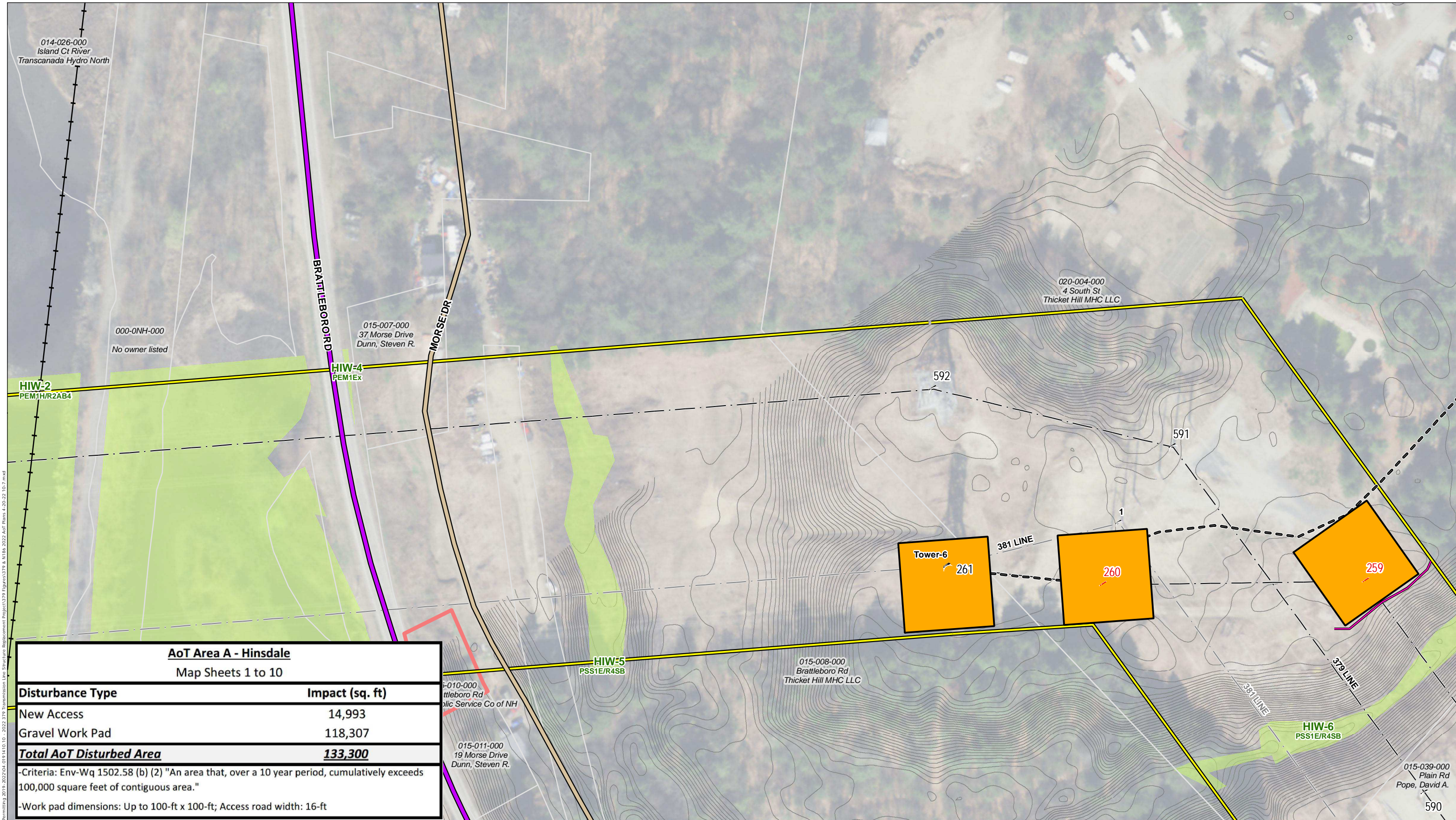
Title Sheet / Index Map
Map Sheets 1-38
Note Sheets 1-3

NO.	DATE	REVISIONS

PREPARED BY:



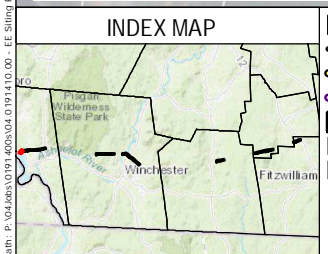
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com



AoT Area A - Hinsdale
Map Sheets 1 to 10

Disturbance Type	Impact (sq. ft)
New Access	14,993
Gravel Work Pad	118,307
Total AoT Disturbed Area	133,300

-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



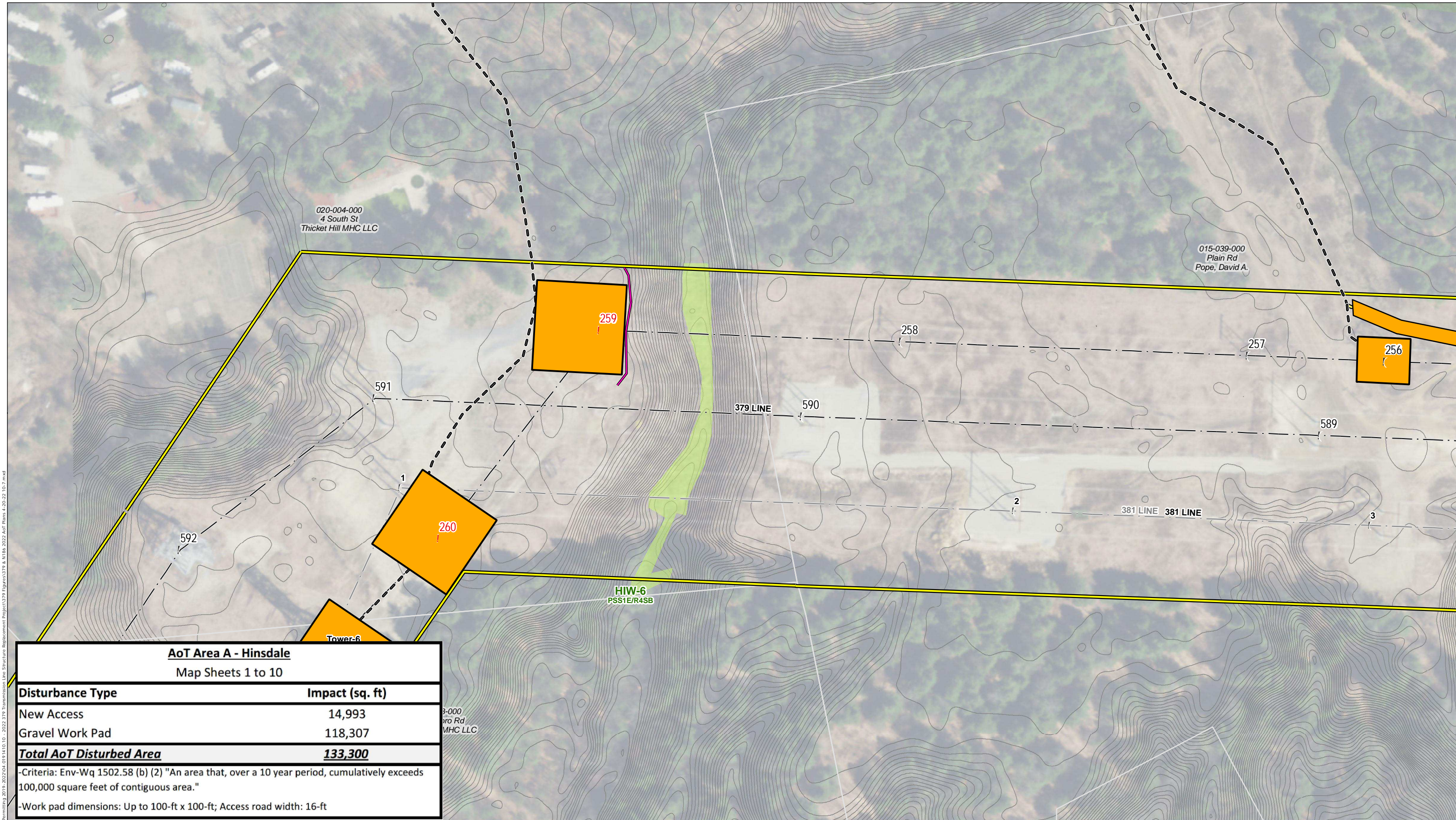
- AOT DISTURBANCE AREA
- EXISTING ACCESS
- PROPOSED ACCESS
- OFF-ROW ACCESS PENDING RIGHTS
- WORKPAD
- TEMPORARY WETLAND IMPACT
- TEMPORARY UPLAND MATTING
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- PRIVATE ROAD
- STATE ROAD
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- OTHER TRANSMISSION LINE
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- NHD FLOWLINES
- FIELD DELINEATED WETLAND
- PARCEL BOUNDARY
- EVERSOURCE OWNED PARCEL
- POTENTIAL VERNAL POOL
- TOWN BOUNDARY
- RAILROAD/RAIL TRAIL
- PARCEL BOUNDARY
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- STATE OWNED PARCEL
- EROSION CONTROL
- CULVERT
- 2 FT ELEVATION CONTOUR

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.

1 inch = 100 feet

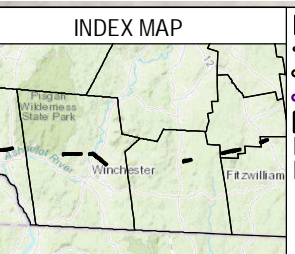
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Hinsdale, NH	MAP SHEET
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AoT Area A - Hinsdale	
Map Sheets 1 to 10	
Disturbance Type	Impact (sq. ft)
New Access	14,993
Gravel Work Pad	118,307
Total AoT Disturbed Area	133,300
-Criteria: Env-Wq 1502.58 (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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- EVERSOURCE OWNED PARCEL
- STATE OWNED PARCEL
- EROSION CONTROL
- CULVERT
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MHC LLC

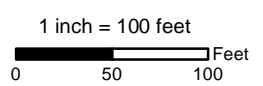
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PSS1E/R4SB

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Thicket Hill MHC LLC

015-039-000
Plain Rd
Pope, David A.

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NO.	DATE	REVISIONS

EVSOURCE
ENERGY

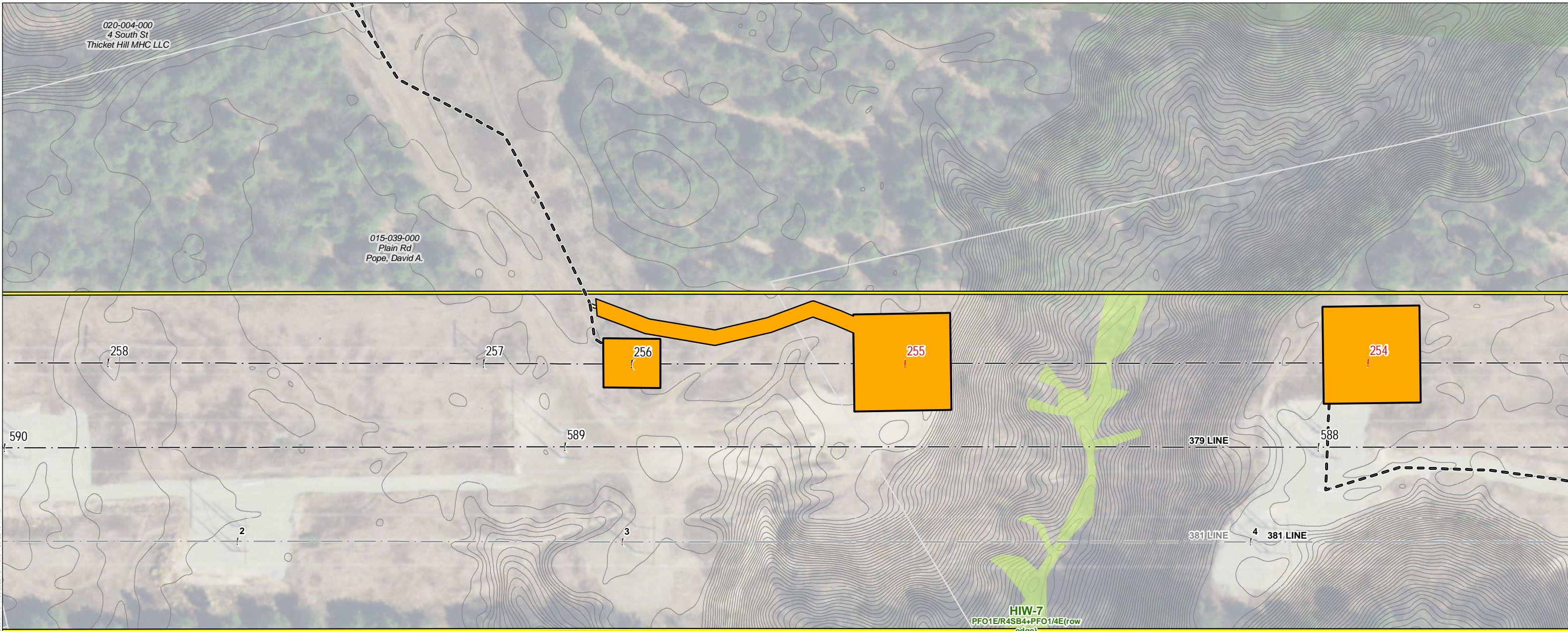
2022 379 & N186 Transmission Line Structure Replacement Project Alteration of Terrain Permitting Plans

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4 South St
Thicket Hill MHC LLC

015-039-000
Plain Rd
Pope, David A.

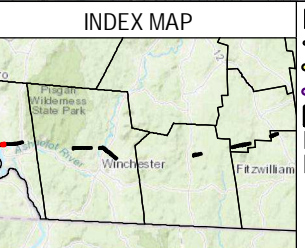
015-033-000
15 Freedom Acres Dr
Warren, Bernard L Trust



AoT Area A - Hinsdale
Map Sheets 1 to 10

Disturbance Type	Impact (sq. ft)
New Access	14,993
Gravel Work Pad	118,307
Total AoT Disturbed Area	133,300
-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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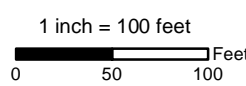
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- AOT DISTURBANCE AREA
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- CULVERT
- 2 FT ELEVATION CONTOUR

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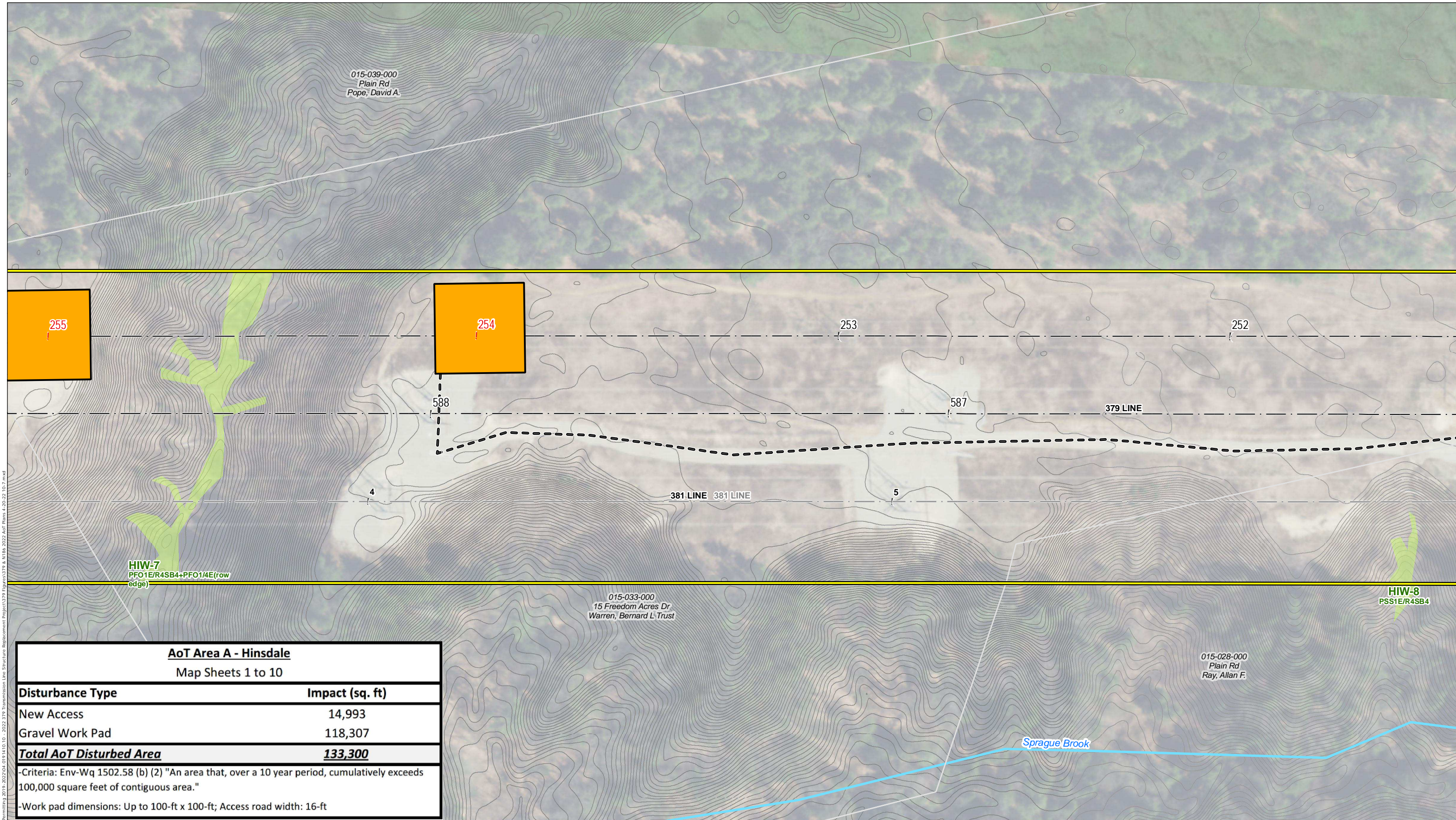


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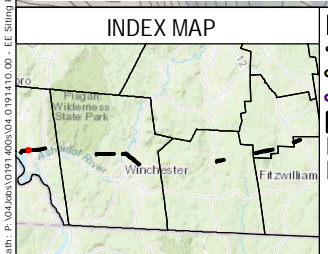
EVERSOURCE ENERGY

2022 379 & N186 Transmission Line Structure Replacement Project
Alteration of Terrain Permitting Plans

Hinsdale, NH	MAP SHEET
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AoT Area A - Hinsdale	
Map Sheets 1 to 10	
Disturbance Type	Impact (sq. ft)
New Access	14,993
Gravel Work Pad	118,307
Total AoT Disturbed Area	133,300
-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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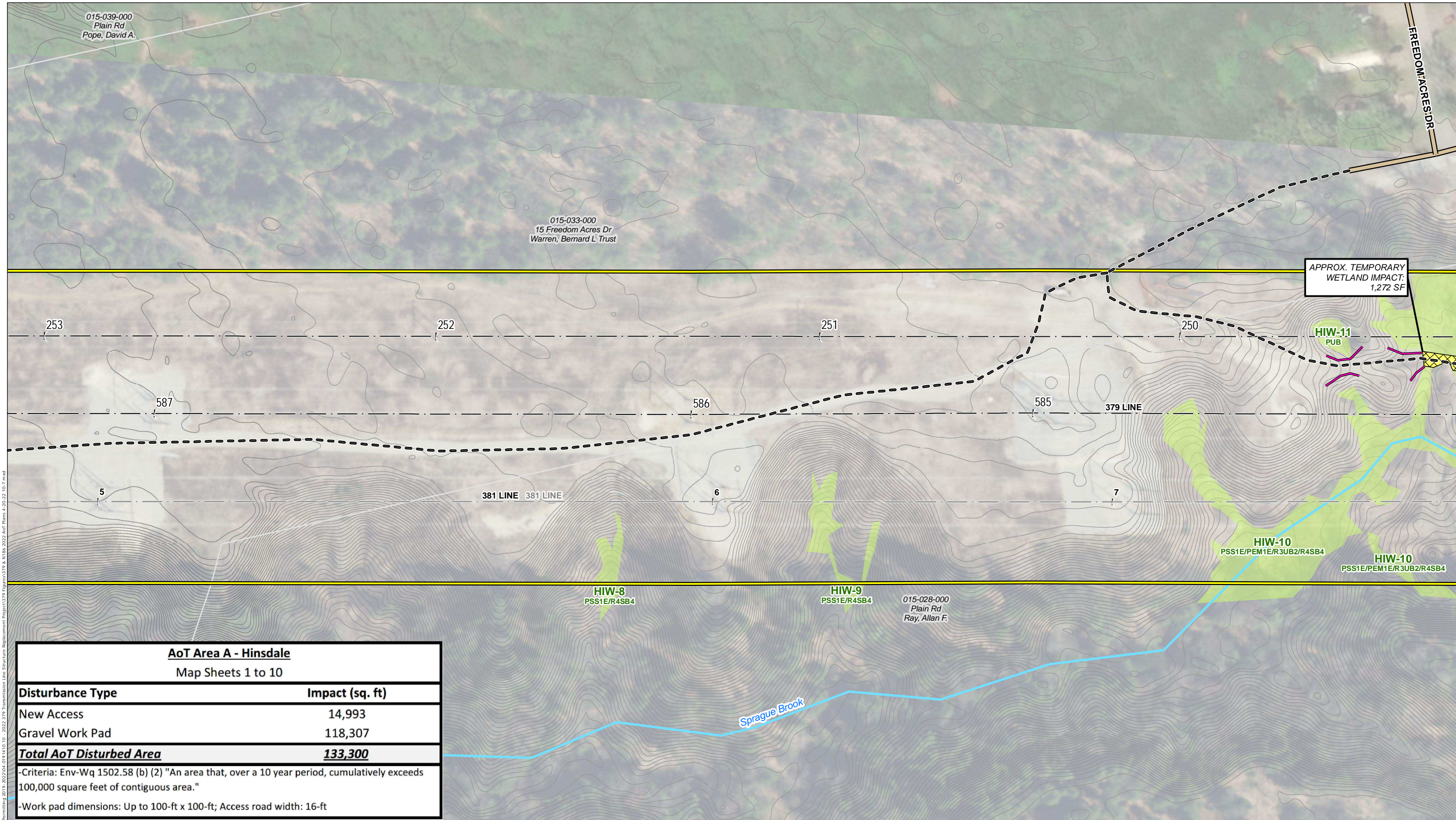
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1 inch = 100 feet

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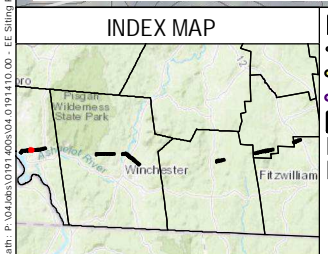
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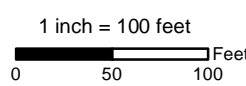
AoT Area A - Hinsdale
Map Sheets 1 to 10

Disturbance Type	Impact (sq. ft)
New Access	14,993
Gravel Work Pad	118,307
Total AoT Disturbed Area	133,300
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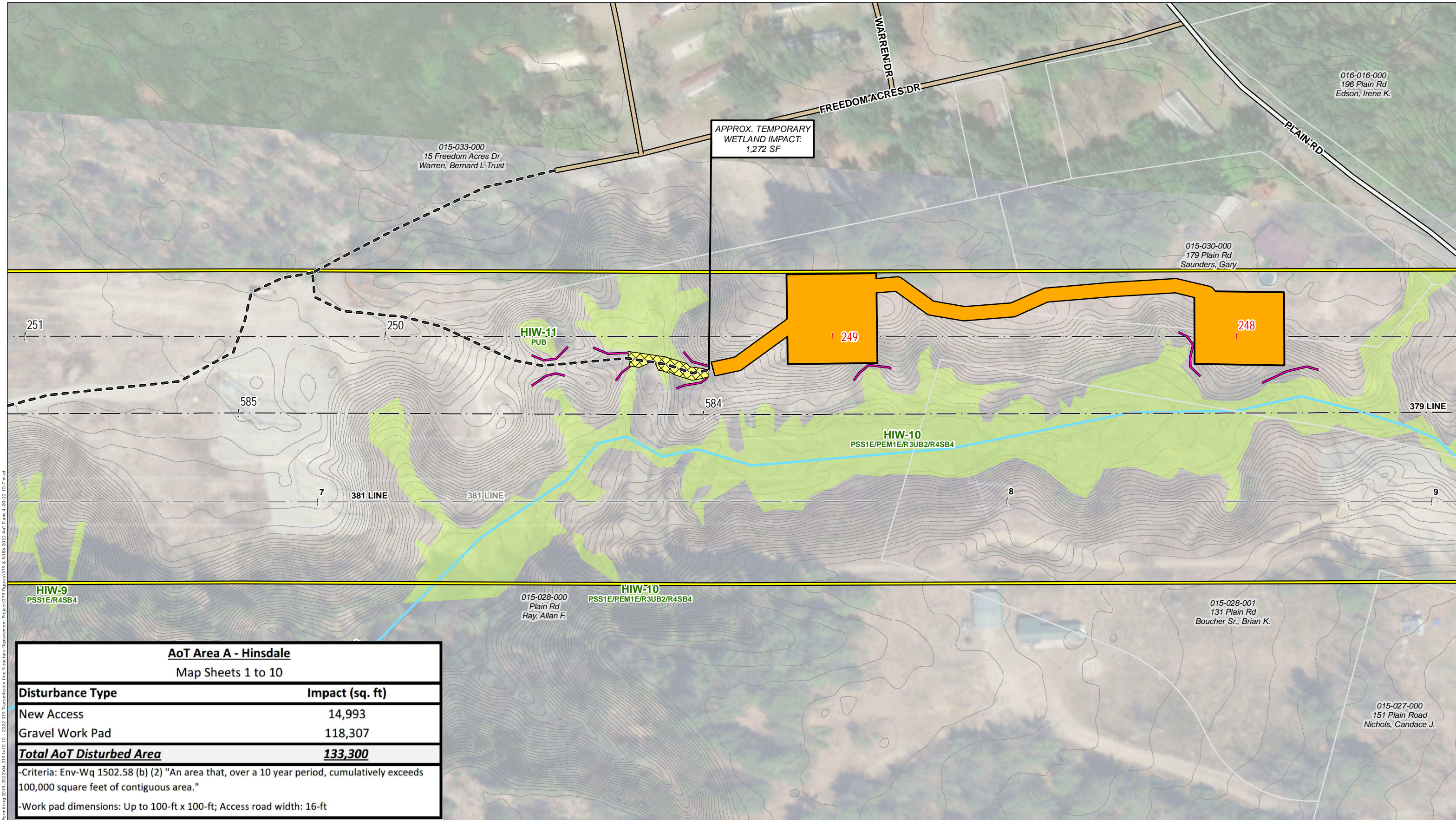
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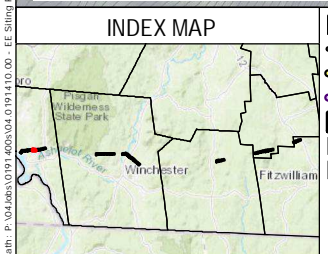
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AoT Area A - Hinsdale	
Map Sheets 1 to 10	
Disturbance Type	Impact (sq. ft)
New Access	14,993
Gravel Work Pad	118,307
Total AoT Disturbed Area	133,300
-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area."	
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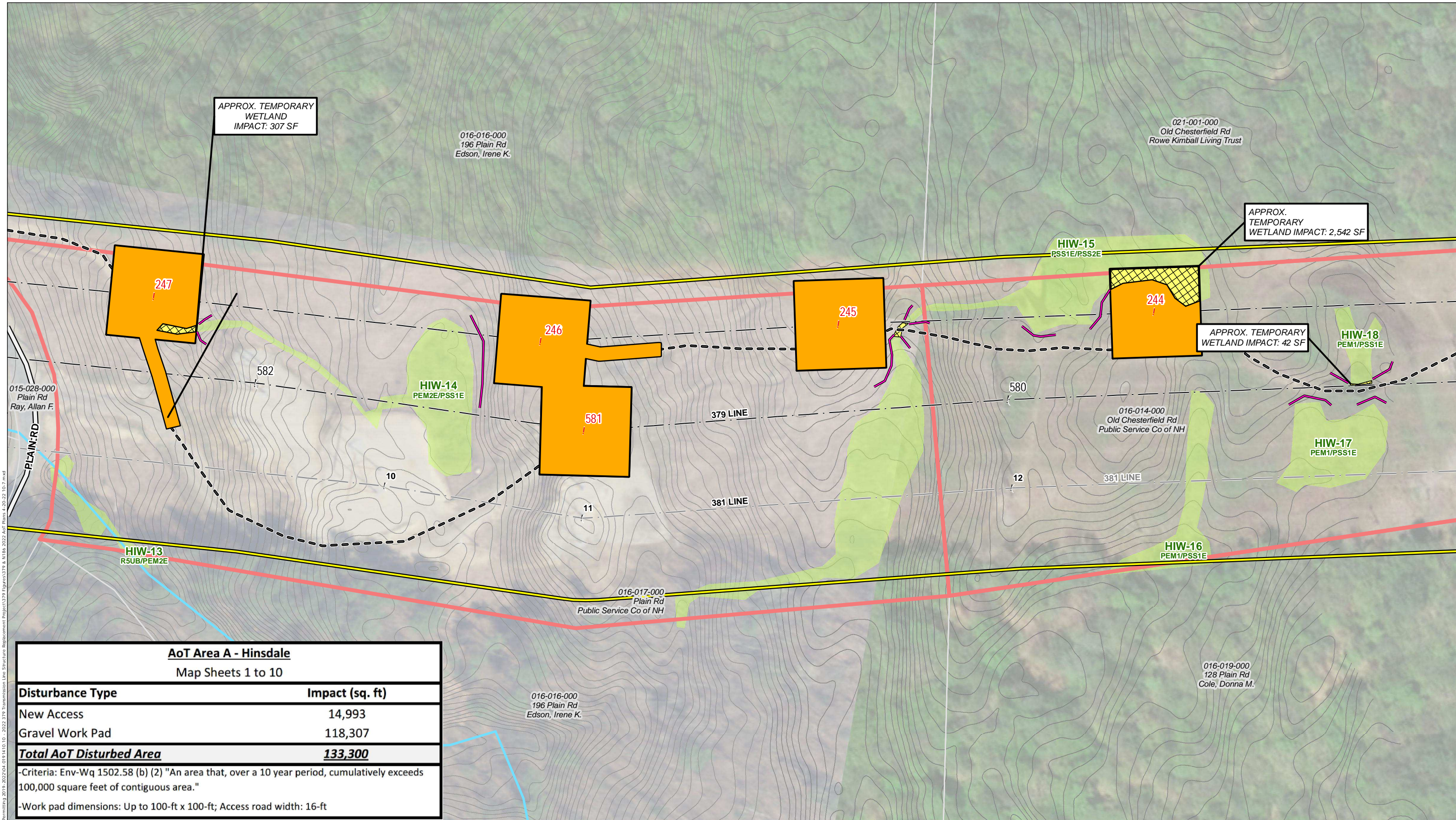
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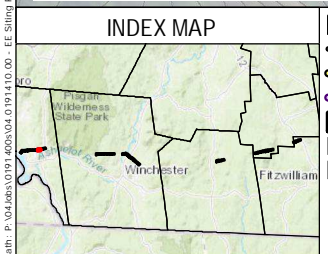
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2022 379 & N186 Transmission Line Structure Replacement Project Alteration of Terrain Permitting Plans			
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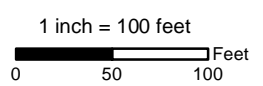
AoT Area A - Hinsdale	
Map Sheets 1 to 10	
Disturbance Type	Impact (sq. ft)
New Access	14,993
Gravel Work Pad	118,307
Total AoT Disturbed Area	133,300
-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area."	
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- TOWN BOUNDARY
- RAILROAD/RAIL TRAIL
- PARCEL BOUNDARY
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- STATE OWNED PARCEL
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- CULVERT
- 2 FT ELEVATION CONTOUR

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3



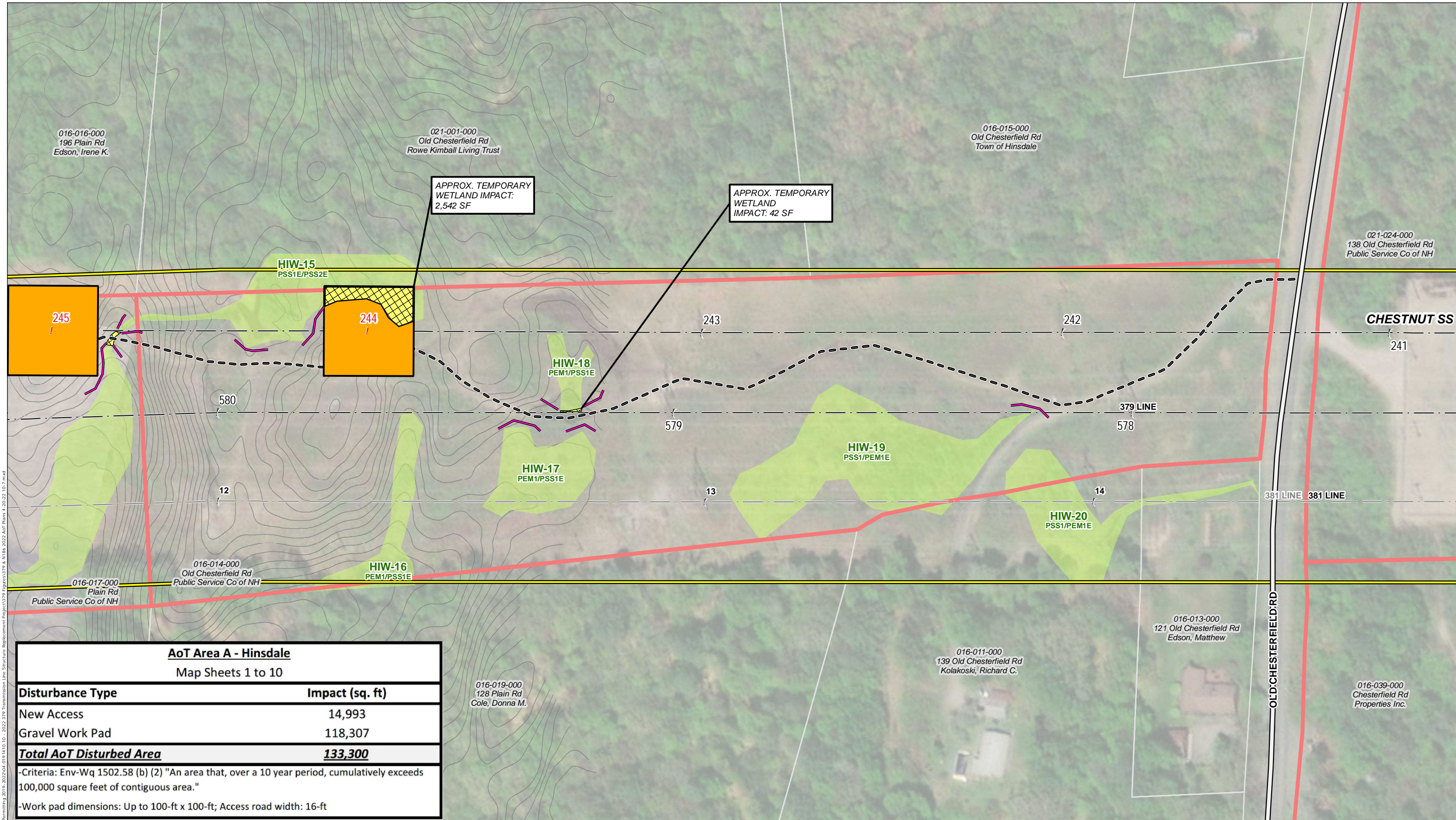
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EVSOURCE ENERGY

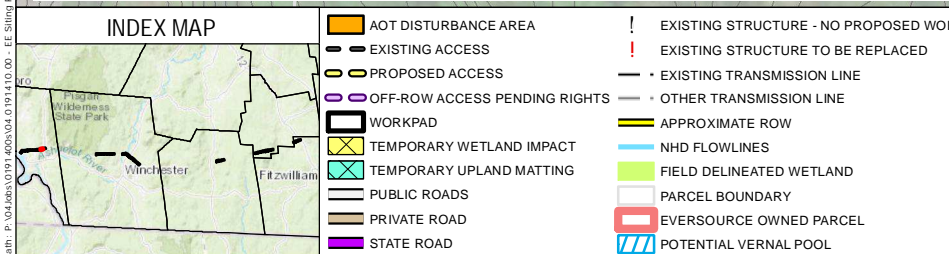
2022 379 & N186 Transmission Line Structure Replacement Project Alteration of Terrain Permitting Plans

Hinsdale, NH	MAP SHEET
Date: May, 2022	8 OF 38
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AoT Area A - Hinsdale	
Map Sheets 1 to 10	
Disturbance Type	Impact (sq. ft)
New Access	14,993
Gravel Work Pad	118,307
Total AoT Disturbed Area	133,300
-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	



- AOT DISTURBANCE AREA
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- OFF-ROW ACCESS PENDING RIGHTS
- WORKPAD
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- TEMPORARY UPLAND MATTING
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- PRIVATE ROAD
- STATE ROAD
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- EXISTING STRUCTURE TO BE REPLACED
- EXISTING TRANSMISSION LINE
- OTHER TRANSMISSION LINE
- APPROXIMATE ROW
- NHD FLOWLINES
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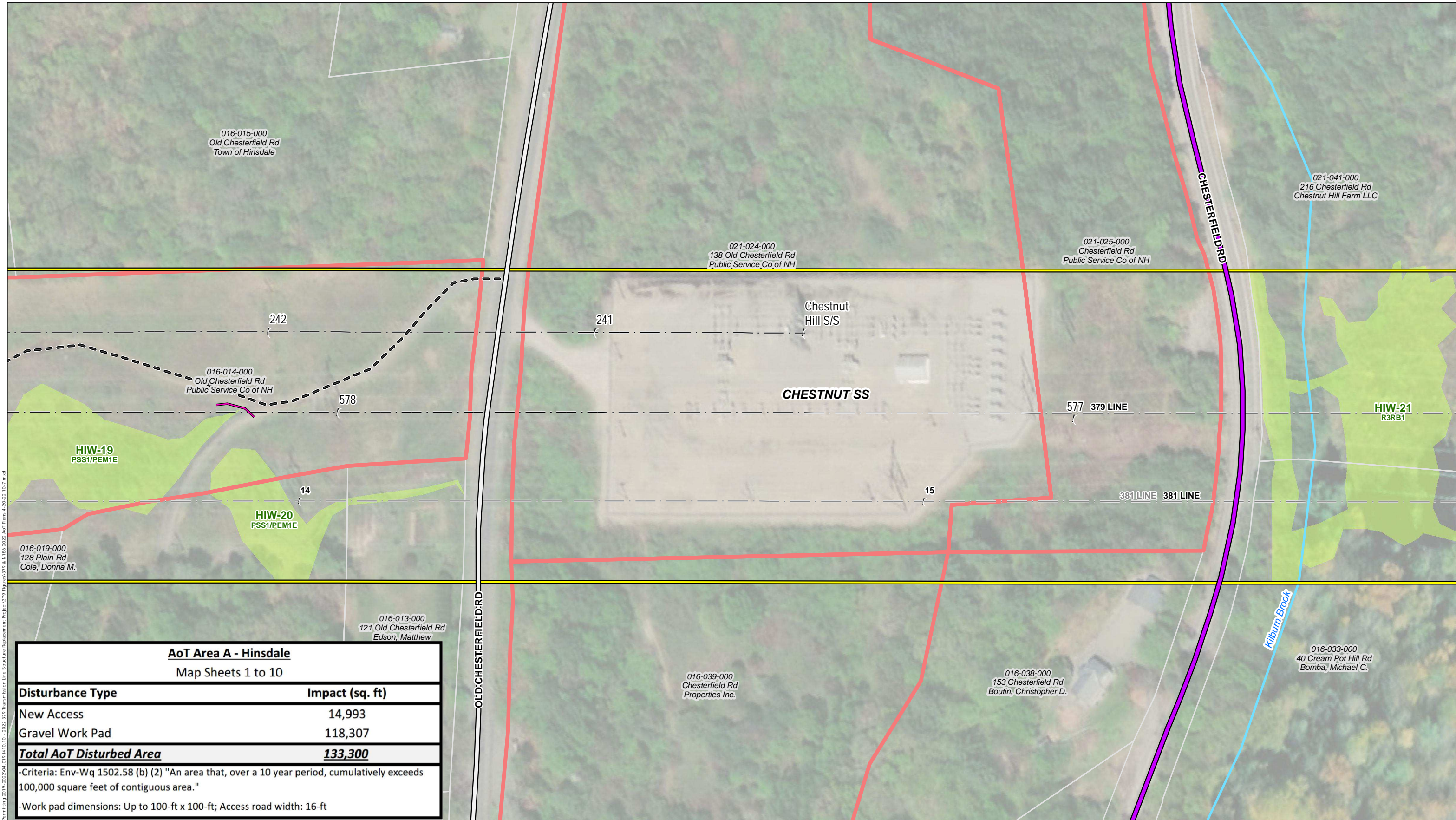
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1 inch = 100 feet	
0 50 100 Feet	
NO.	DATE
REVISIONS	

EVERSOURCE ENERGY

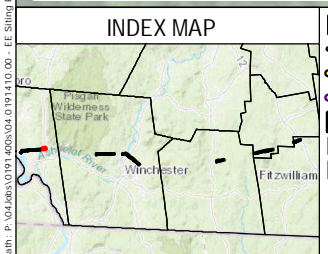
2022 379 & N186 Transmission Line Structure Replacement Project
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AoT Area A - Hinsdale	
Map Sheets 1 to 10	
Disturbance Type	Impact (sq. ft)
New Access	14,993
Gravel Work Pad	118,307
Total AoT Disturbed Area	133,300
-Criteria: Env-Wq 1502.58 (b) (2) "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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1 inch = 100 feet

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EVERSOURCE ENERGY	
2022 379 & N186 Transmission Line Structure Replacement Project Alteration of Terrain Permitting Plans	
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08-030-0000
Fullam Pond Rd.
DYG Resources

08-029-0000
Fullam Pond Rd.
DYG Resources

07-075-0000
Fullam Pond Rd.
DYG Resources

07-074-0000
Fullam Pond Rd.
DYG Resources

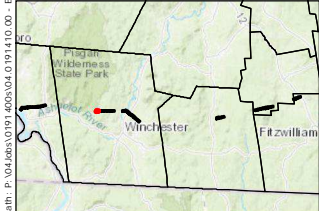
AoT Area B - Winchester
Map Sheets 11 to 25

Disturbance Type	Impact (sq. ft)
New Access	97,279
Gravel Work Pad	97,111
Total AoT Disturbed Area	194,390

-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area or cumulatively exceeds 50,000 square feet of contiguous area if any portion of the disturbance is within the protected shoreland as defined in RSA 483-B"

-Work pad dimensions: Up to 100-ft x 100-ft; Access road width: 16-ft

INDEX MAP



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NO.	DATE	REVISIONS

EVERSOURCE
ENERGY

**2022 379 & N186 Transmission Line
Structure Replacement Project
Alteration of Terrain Permitting Plans**

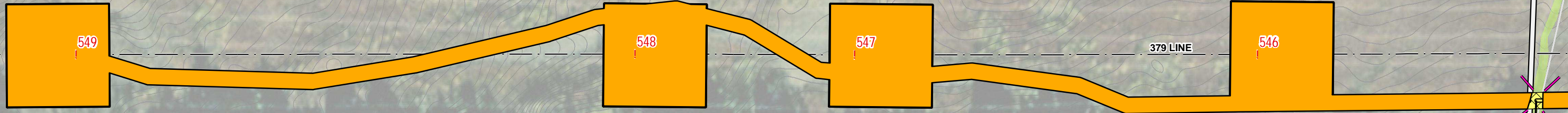
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Date: May, 2022	11 OF 38
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Unnamed Stream

WW-26
PEM2E

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DYG Resources

FULMAN POND RD



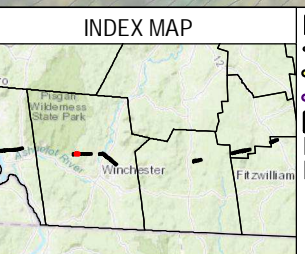
WW-27
RSUB

APPROX. TEMPORARY
WETLAND
IMPACT: 203 SF

08-028-0000
Fullam Pond Rd.
DYG Resources

AoT Area B - Winchester Map Sheets 11 to 25	
Disturbance Type	Impact (sq. ft)
New Access	97,279
Gravel Work Pad	97,111
Total AoT Disturbed Area	194,390
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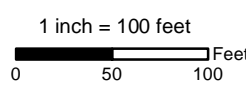
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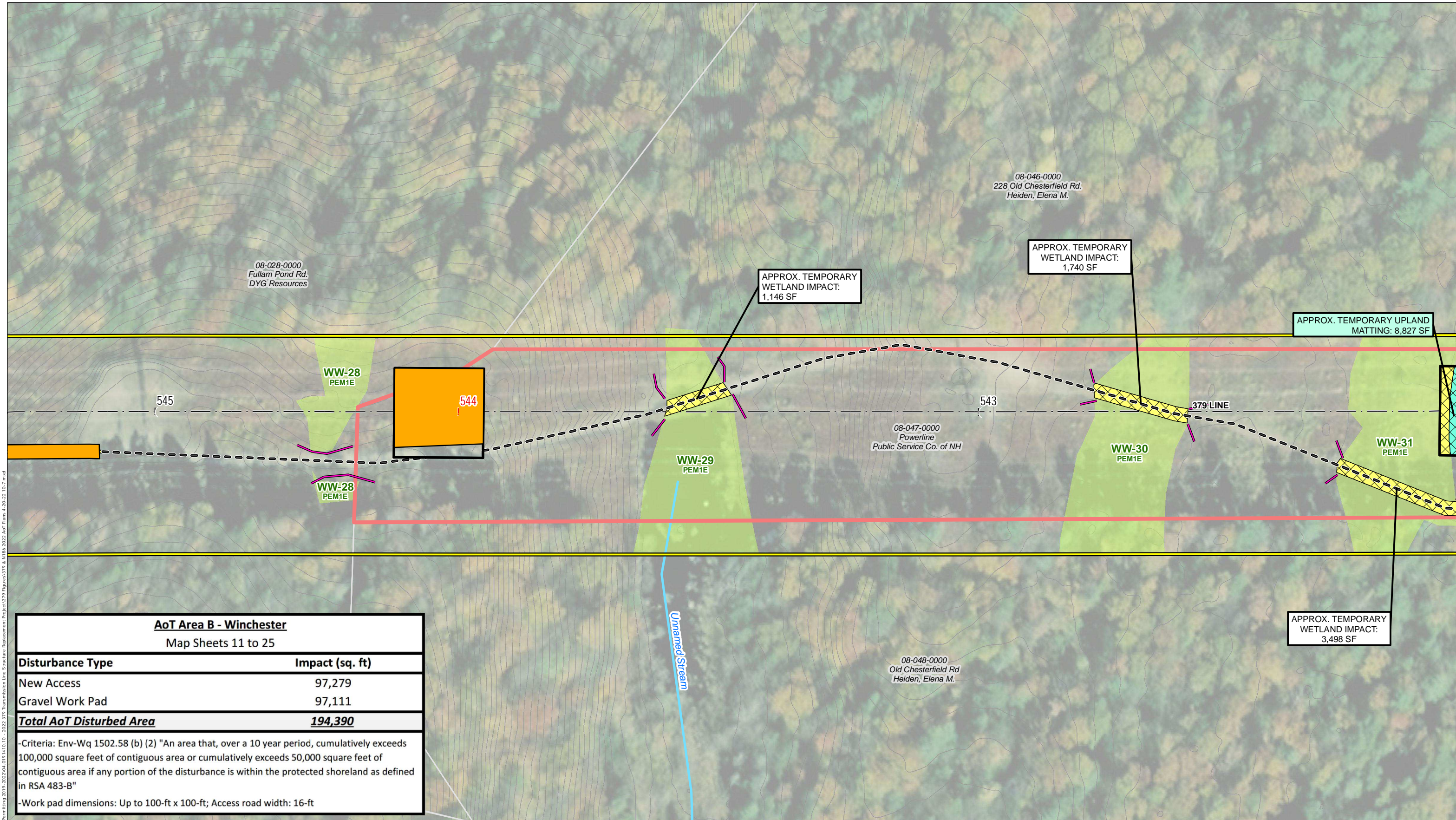


NO.	DATE	REVISIONS

EVERSOURCE ENERGY

2022 379 & N186 Transmission Line Structure Replacement Project Alteration of Terrain Permitting Plans

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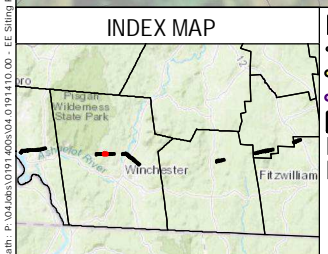


AoT Area B - Winchester
Map Sheets 11 to 25

Disturbance Type	Impact (sq. ft)
New Access	97,279
Gravel Work Pad	97,111
Total AoT Disturbed Area	194,390

-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area or cumulatively exceeds 50,000 square feet of contiguous area if any portion of the disturbance is within the protected shoreland as defined in RSA 483-B"

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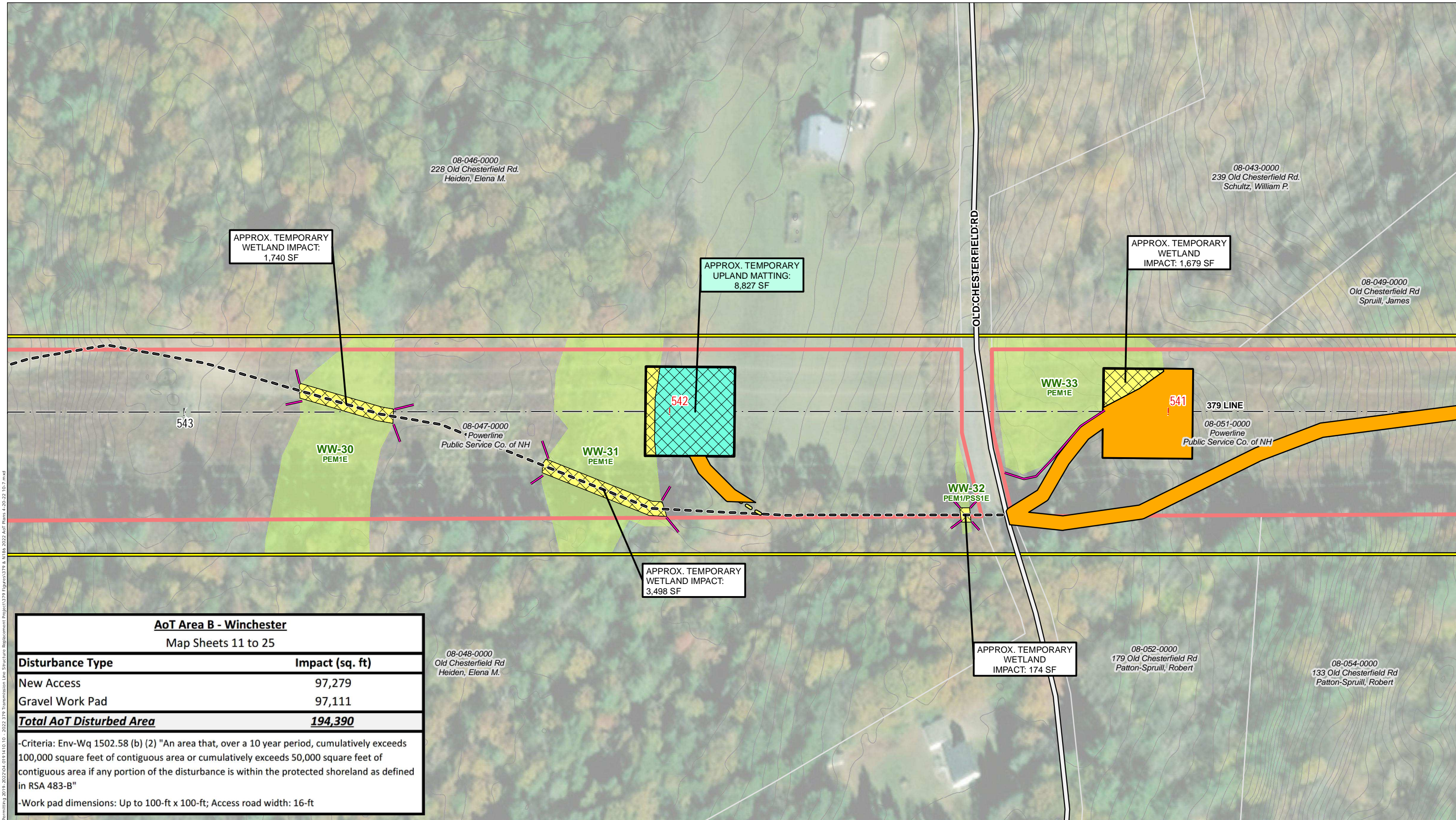
NO.	DATE	REVISIONS

EVSOURCE ENERGY

2022 379 & N186 Transmission Line Structure Replacement Project
Alteration of Terrain Permitting Plans

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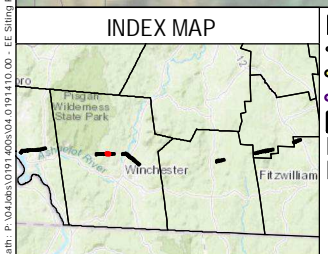


AoT Area B - Winchester
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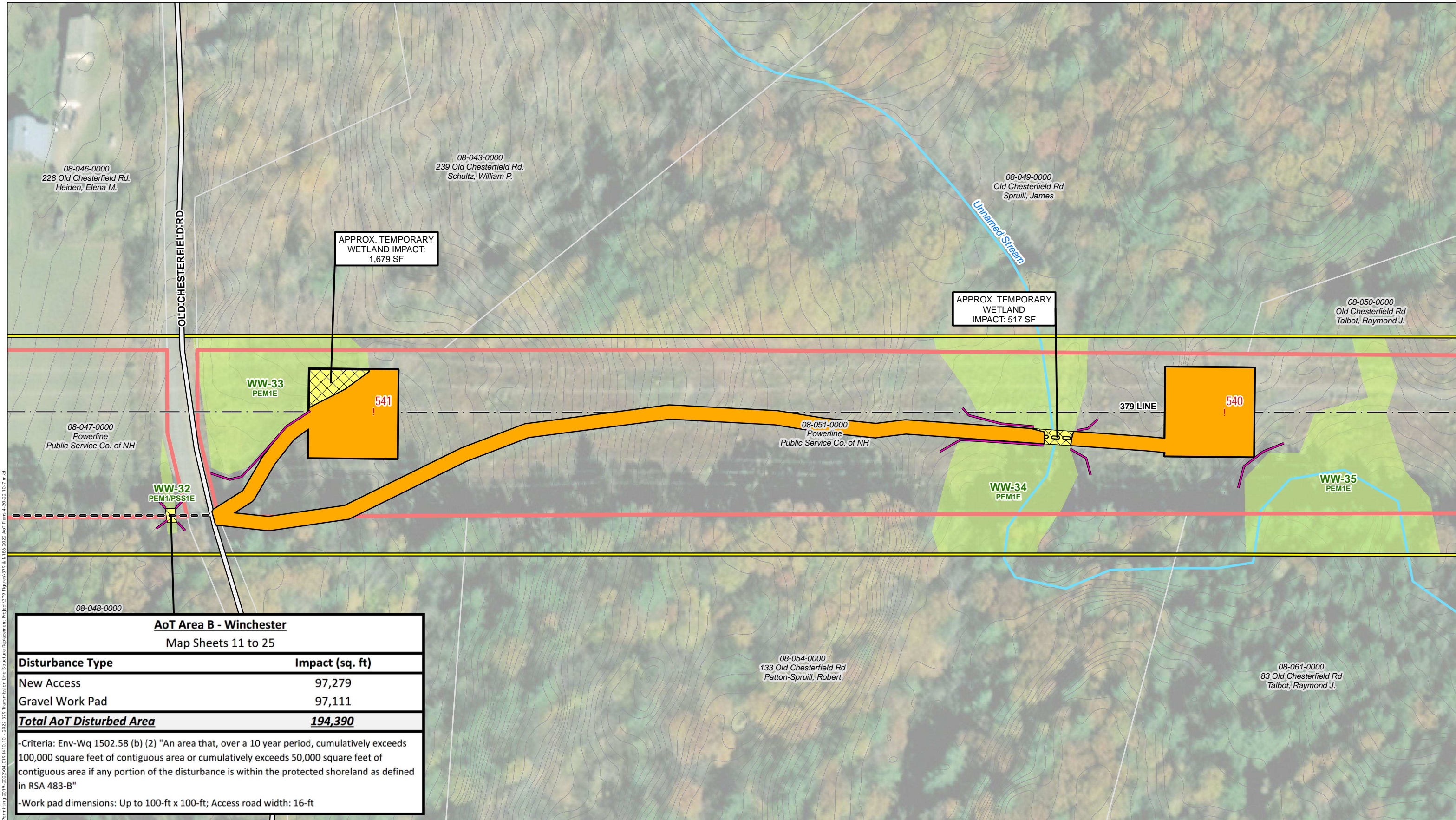
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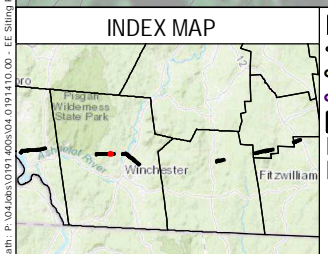
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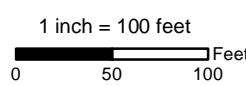
AoT Area B - Winchester	
Map Sheets 11 to 25	
Disturbance Type	Impact (sq. ft)
New Access	97,279
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2022 379 & N186 Transmission Line Structure Replacement Project Alteration of Terrain Permitting Plans

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08-043-0000
239 Old Chesterfield Rd.
Schultz, William P.

08-049-0000
Old Chesterfield Rd
Spruill, James

08-050-0000
Old Chesterfield Rd
Talbot, Raymond J.

08-079-0000
96 Old Spofford Rd.
Wiley, Mary L.

08-051-0000
Powerline
Public Service Co. of NH

538

537

379 LINE

WW-34
PEM1E

WW-35
PEM1E

WW-36
PEM1/PSS1E/R4SB

APPROX. TEMPORARY
WETLAND
IMPACT: 517 SF

Unnamed Stream

08-061-0000
83 Old Chesterfield Rd
Talbot, Raymond J.

08-078-0001
Old Spofford Rd.
Reese, Lauren S.

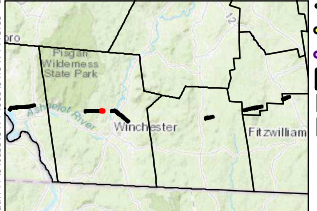
AoT Area B - Winchester
Map Sheets 11 to 25

Disturbance Type	Impact (sq. ft)
New Access	97,279
Gravel Work Pad	97,111
Total AoT Disturbed Area	194,390

-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area or cumulatively exceeds 50,000 square feet of contiguous area if any portion of the disturbance is within the protected shoreland as defined in RSA 483-B"

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EVERSOURCE
ENERGY

**2022 379 & N186 Transmission Line
Structure Replacement Project
Alteration of Terrain Permitting Plans**

Winchester, NH

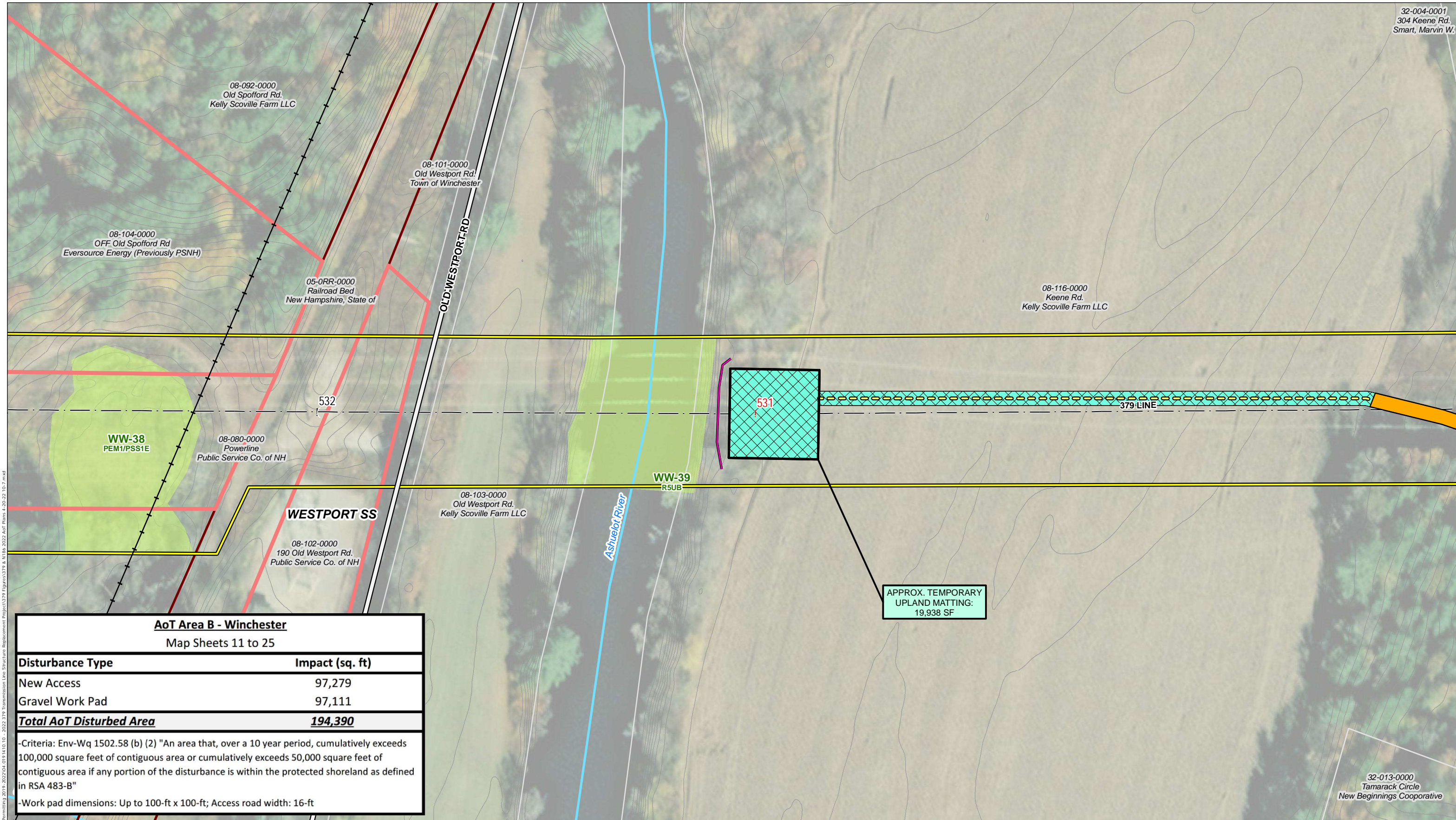
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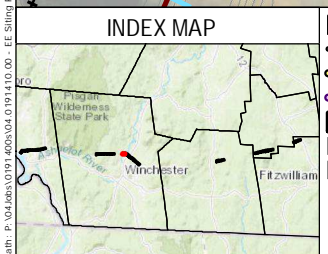


AoT Area B - Winchester
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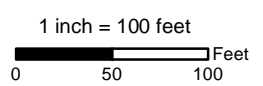
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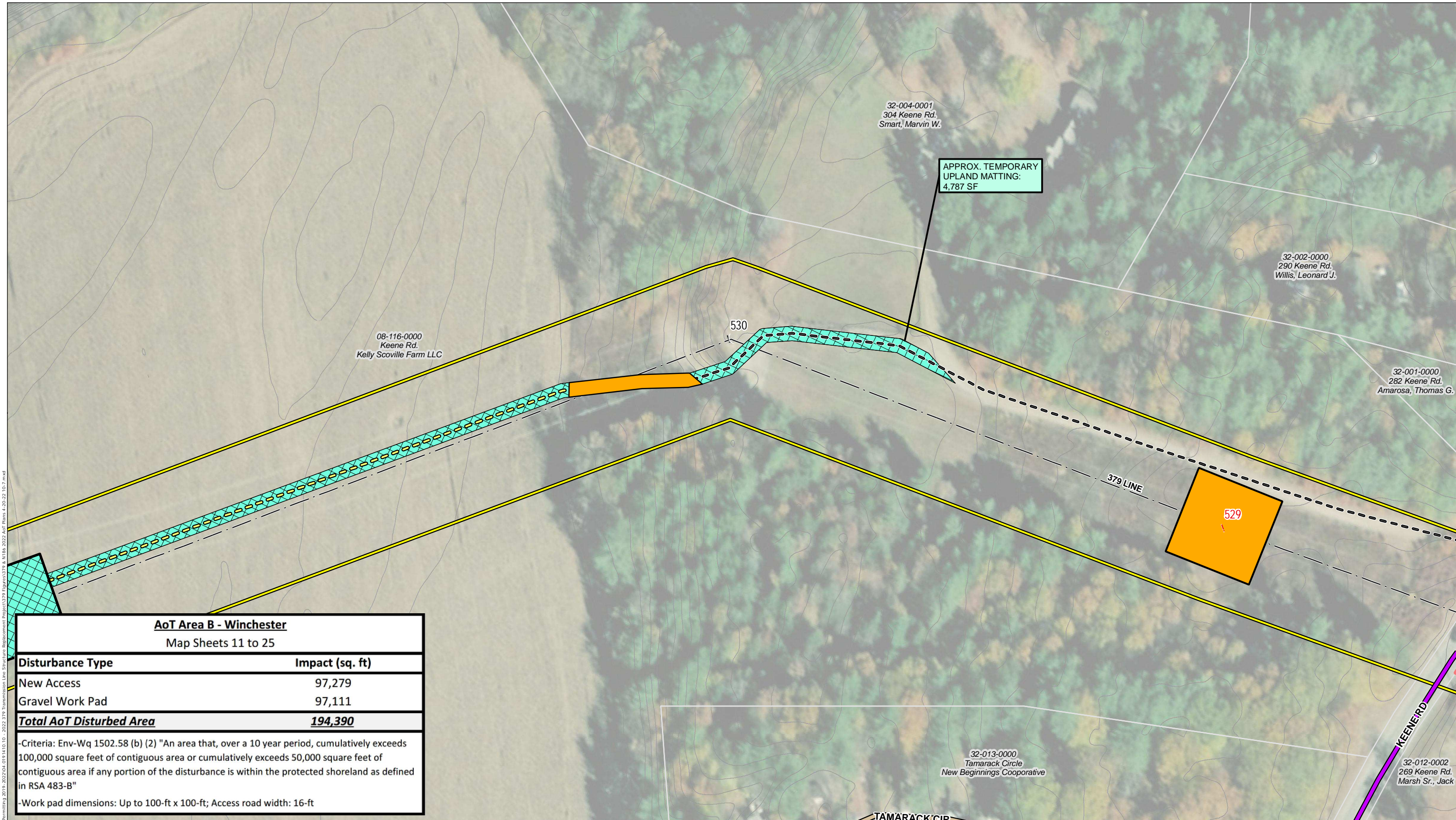
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EVERSOURCE ENERGY

2022 379 & N186 Transmission Line Structure Replacement Project
Alteration of Terrain Permitting Plans

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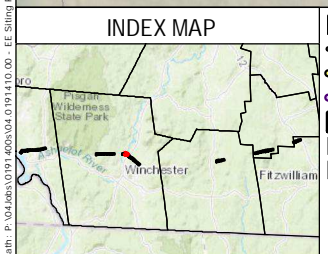


AoT Area B - Winchester
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Total AoT Disturbed Area	194,390

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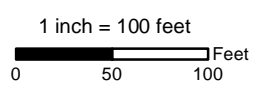
-Work pad dimensions: Up to 100-ft x 100-ft; Access road width: 16-ft



- AO T DISTURBANCE AREA
- EXISTING ACCESS
- PROPOSED ACCESS
- OFF-ROW ACCESS PENDING RIGHTS
- WORKPAD
- TEMPORARY WETLAND IMPACT
- TEMPORARY UPLAND MATTING
- PUBLIC ROADS
- PRIVATE ROAD
- STATE ROAD
- EXISTING STRUCTURE - NO PROPOSED WORK
- EXISTING STRUCTURE TO BE REPLACED
- EXISTING TRANSMISSION LINE
- OTHER TRANSMISSION LINE
- APPROXIMATE ROW
- NHD FLOWLINES
- FIELD DELINEATED WETLAND
- PARCEL BOUNDARY
- EVERSOURCE OWNED PARCEL
- POTENTIAL VERNAL POOL
- TOWN BOUNDARY
- RAILROAD/RAIL TRAIL
- PARCEL BOUNDARY
- EVERSOURCE OWNED PARCEL
- STATE OWNED PARCEL
- EROSION CONTROL
- CULVERT
- 2 FT ELEVATION CONTOUR

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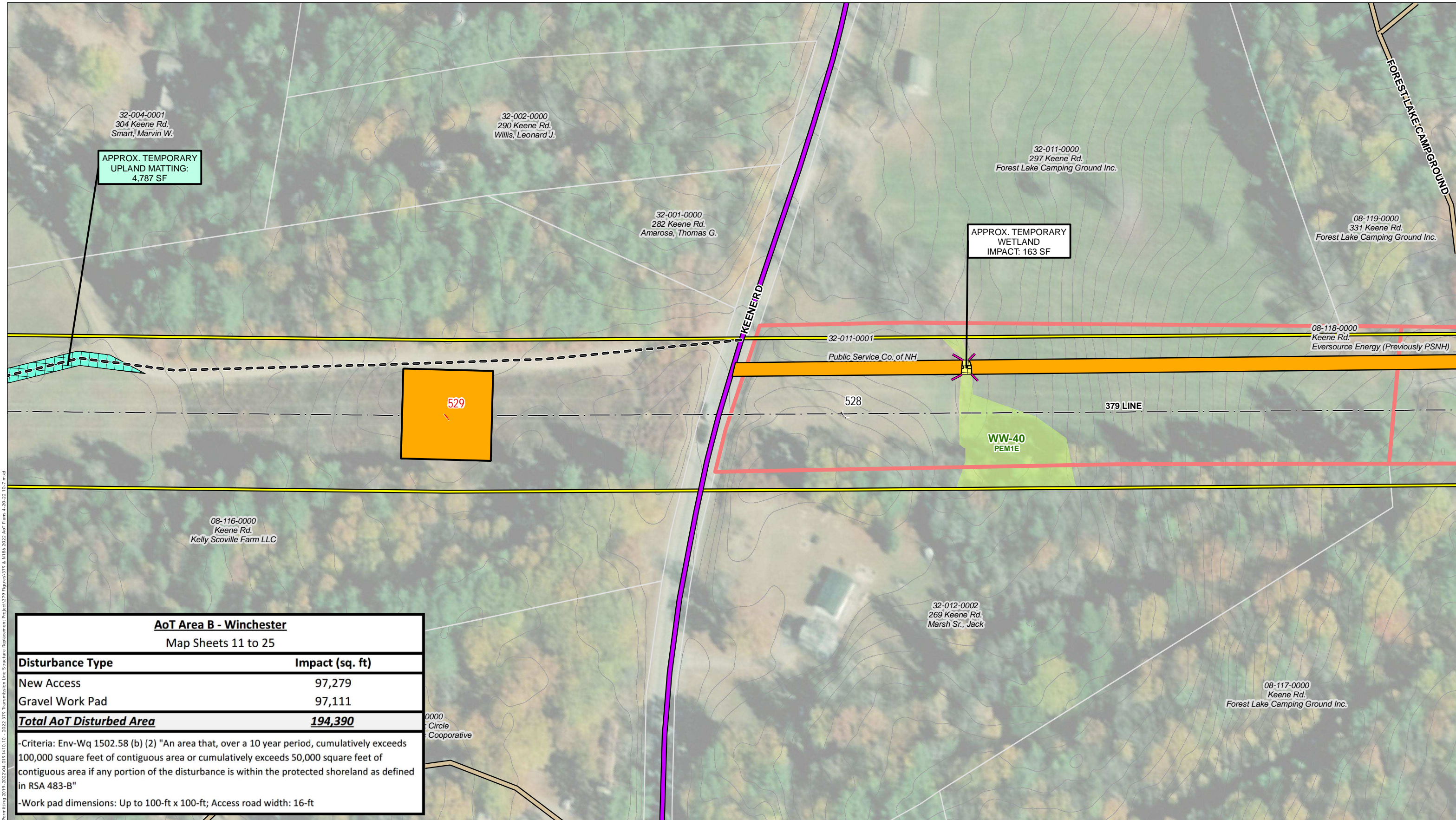
NO.	DATE	REVISIONS

EVERSOURCE ENERGY

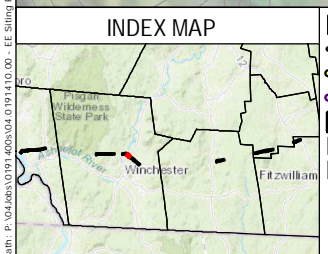
2022 379 & N186 Transmission Line Structure Replacement Project
Alteration of Terrain Permitting Plans

Winchester, NH	MAP SHEET
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04.0191410.10	

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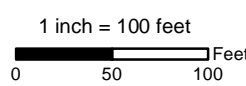


AoT Area B - Winchester	
Map Sheets 11 to 25	
Disturbance Type	Impact (sq. ft)
New Access	97,279
Gravel Work Pad	97,111
Total AoT Disturbed Area	194,390
-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area or cumulatively exceeds 50,000 square feet of contiguous area if any portion of the disturbance is within the protected shoreland as defined in RSA 483-B"	
-Work pad dimensions: Up to 100-ft x 100-ft; Access road width: 16-ft	



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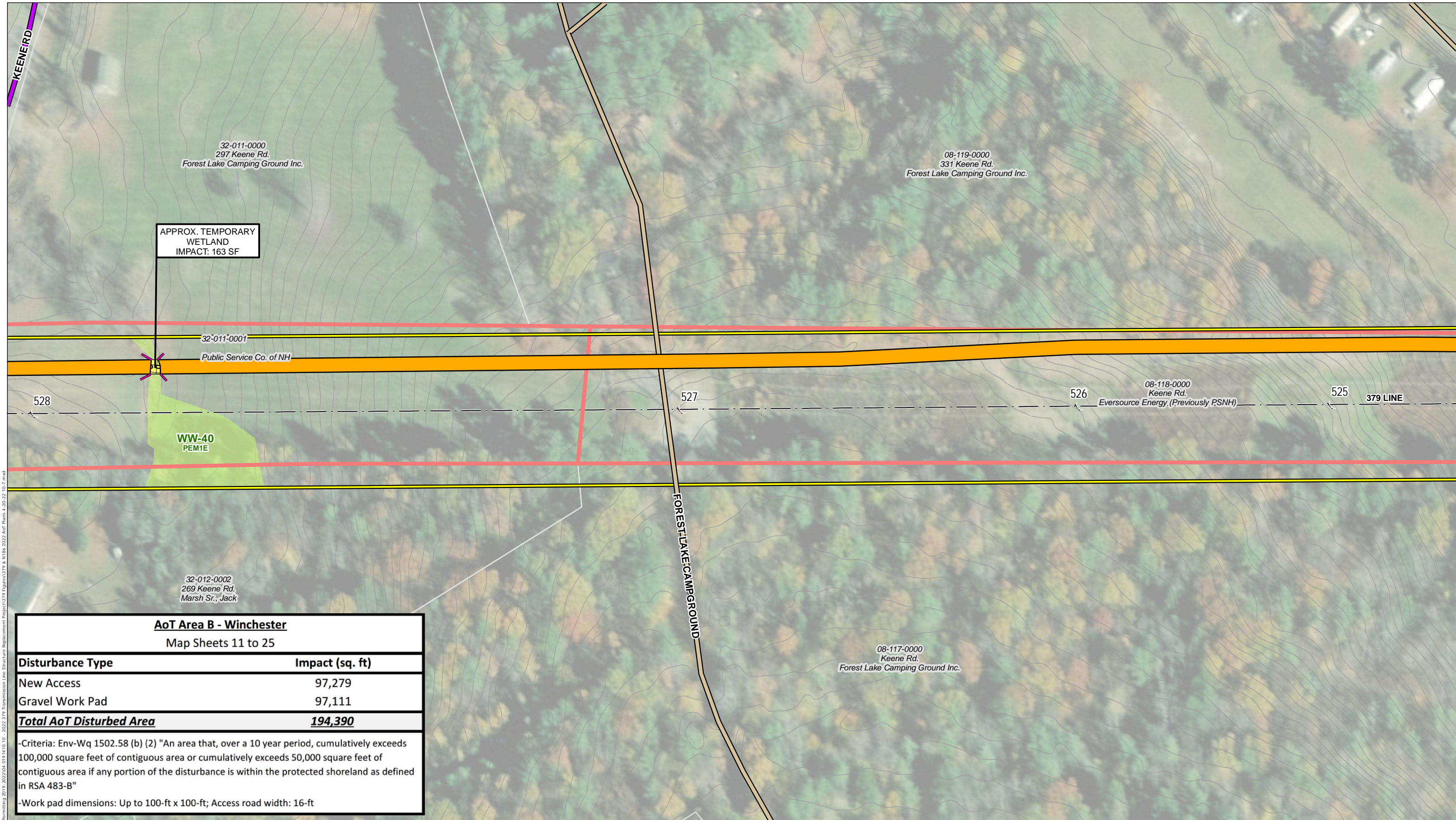
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EVERSOURCE ENERGY

2022 379 & N186 Transmission Line Structure Replacement Project
Alteration of Terrain Permitting Plans

Winchester, NH	MAP SHEET
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APPROX. TEMPORARY WETLAND IMPACT: 163 SF

WW-40 PEM1E

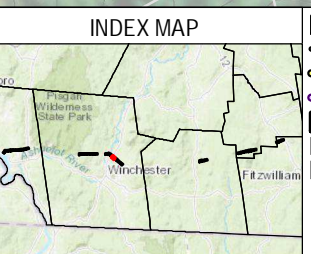
AoT Area B - Winchester
Map Sheets 11 to 25

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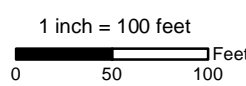
-Work pad dimensions: Up to 100-ft x 100-ft; Access road width: 16-ft

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- AOT DISTURBANCE AREA
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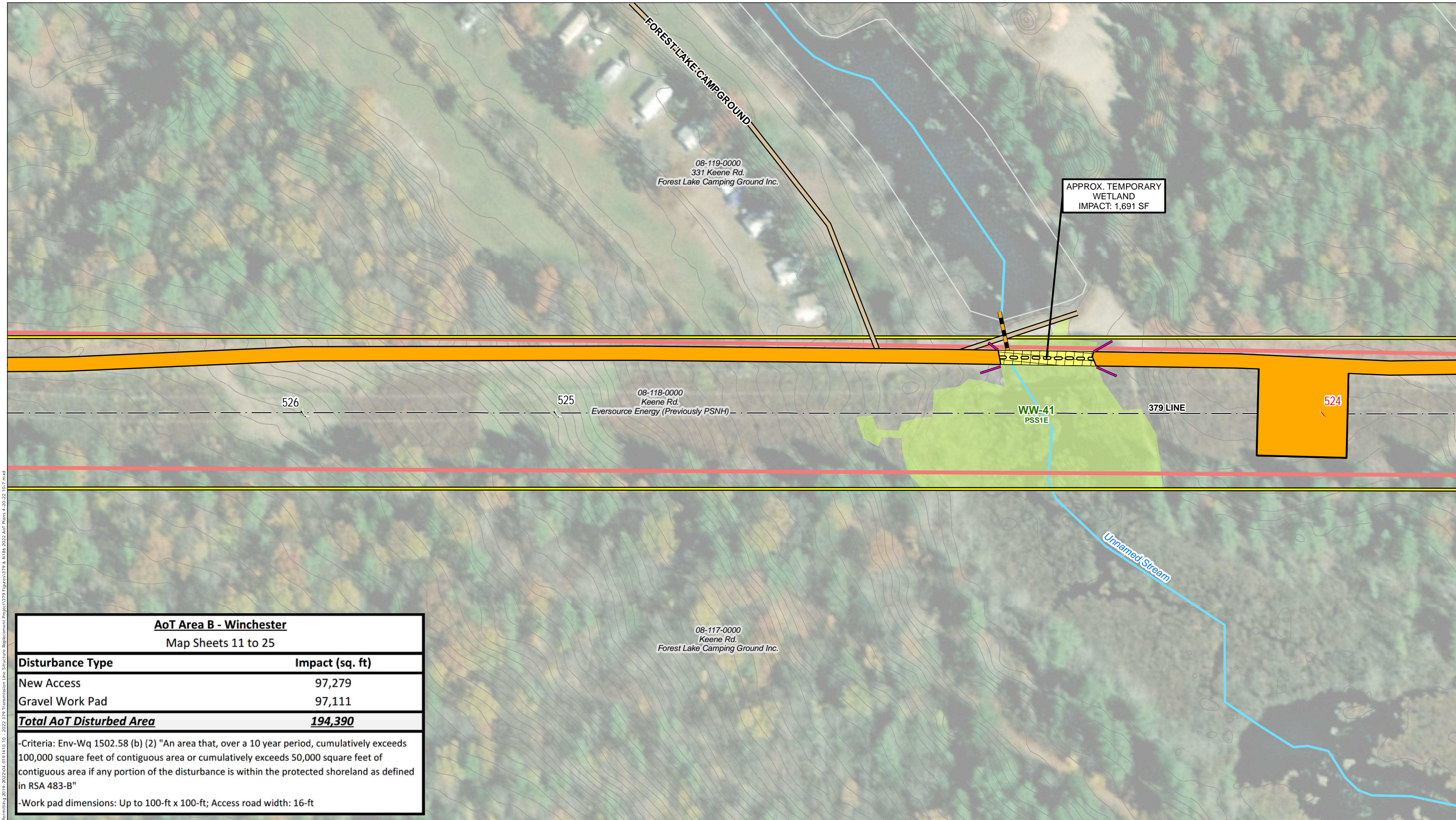


NO.	DATE	REVISIONS

EVSOURCE ENERGY

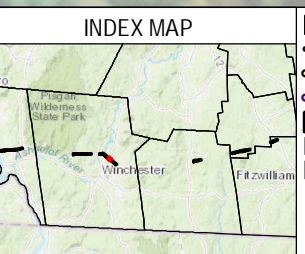
2022 379 & N186 Transmission Line Structure Replacement Project
Alteration of Terrain Permitting Plans

Winchester, NH	MAP SHEET
Date: May, 2022	21 OF 38
04.0191410.10	



AOT Area B - Winchester	
Map Sheets 11 to 25	
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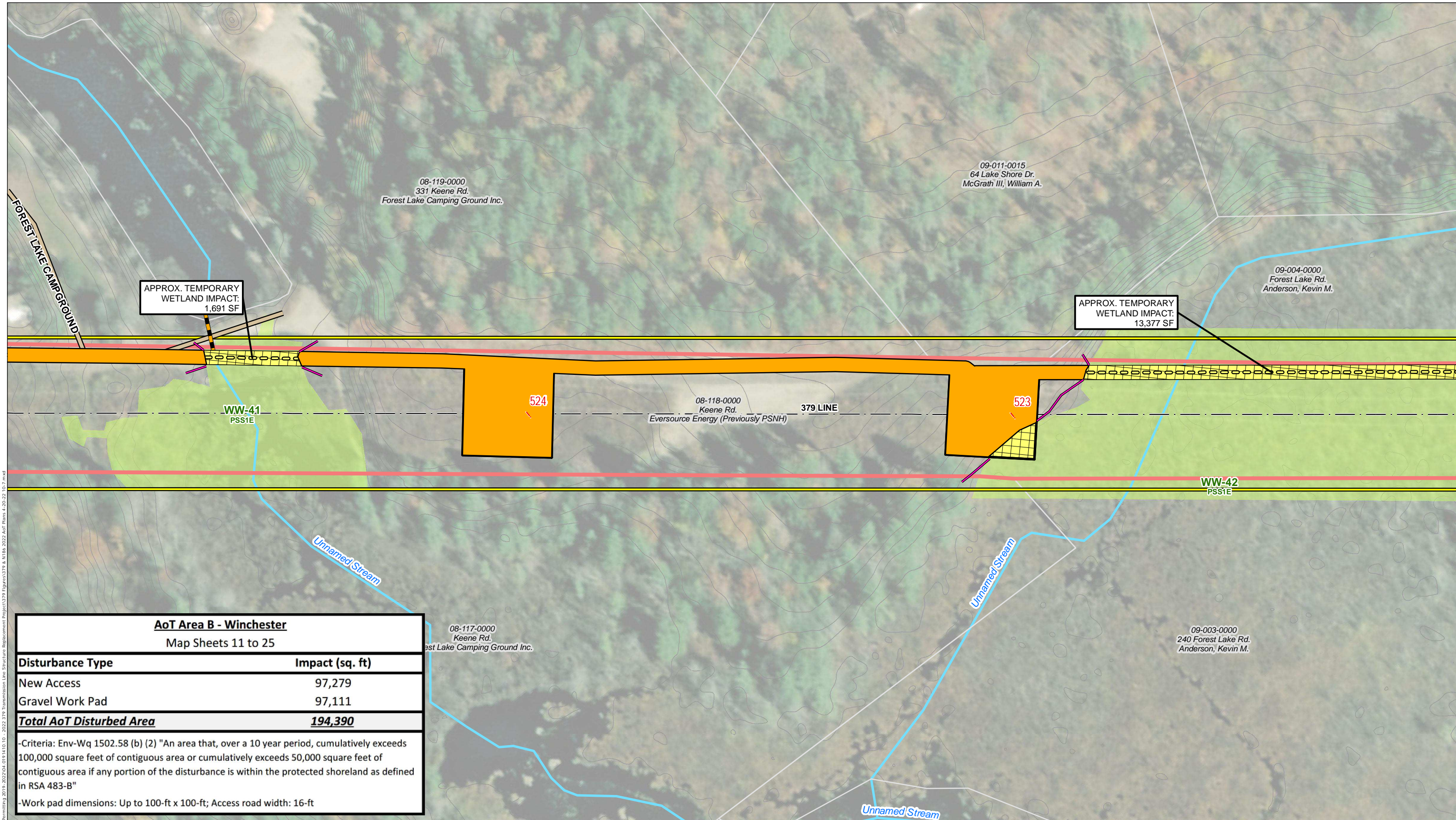
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1 inch = 100 feet
 0 50 100 Feet

NO.	DATE	REVISIONS

EVSOURCE ENERGY
2022 379 & N186 Transmission Line Structure Replacement Project
Alteration of Terrain Permitting Plans
 Winchester, NH MAP SHEET
 Date: May, 2022
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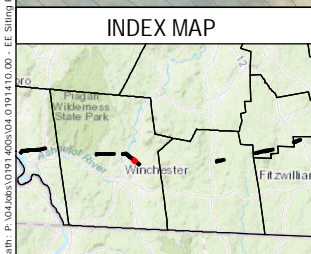


AoT Area B - Winchester
Map Sheets 11 to 25

Disturbance Type	Impact (sq. ft)
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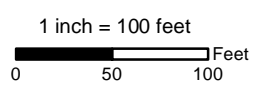
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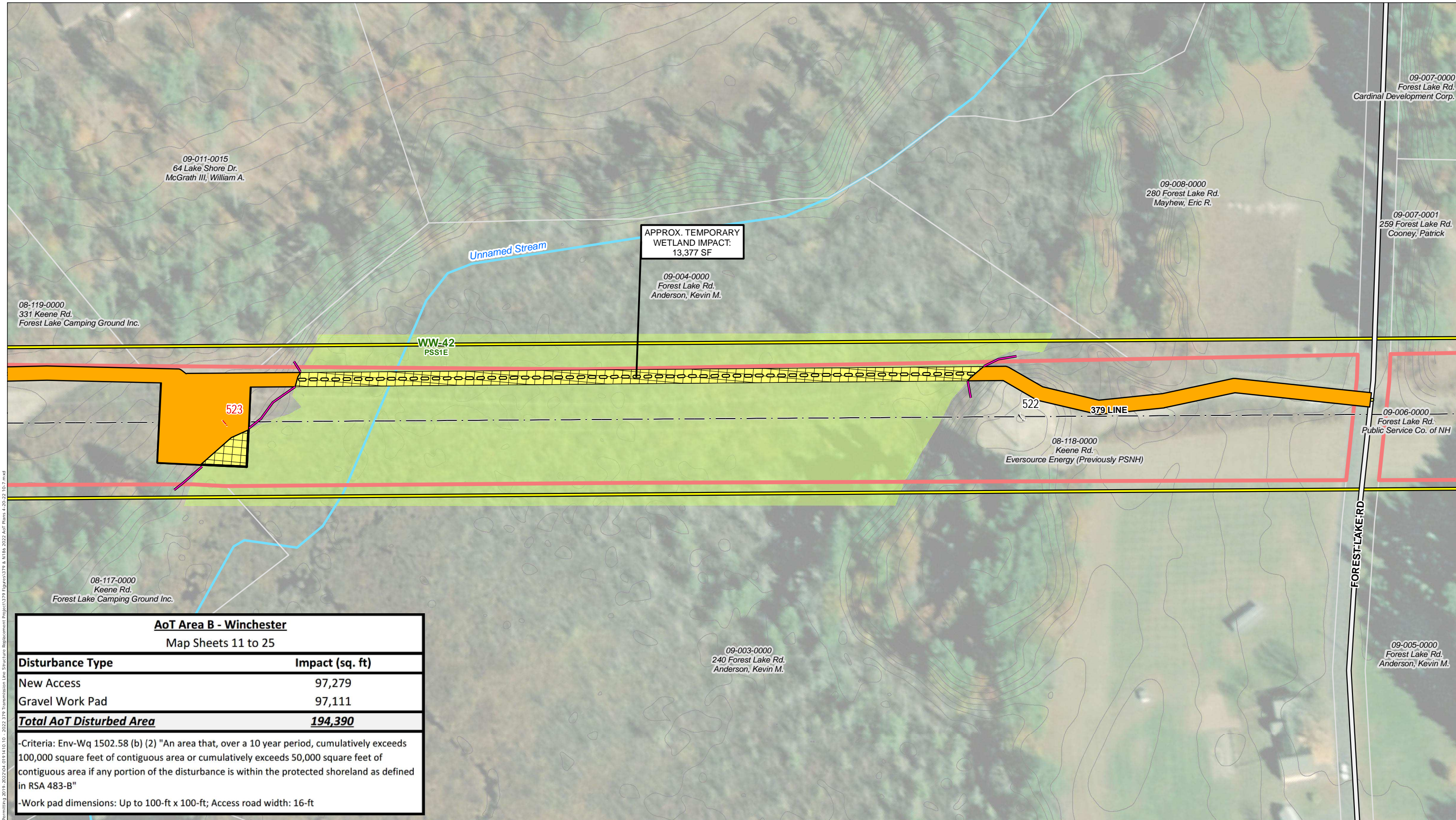
NO.	DATE	REVISIONS

EVERSOURCE ENERGY

2022 379 & N186 Transmission Line Structure Replacement Project
Alteration of Terrain Permitting Plans

Winchester, NH	MAP SHEET
Date: May, 2022	23 OF 38
04.0191410.10	

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APPROX. TEMPORARY
WETLAND IMPACT:
13,377 SF

09-004-0000
Forest Lake Rd.
Anderson, Kevin M.

09-011-0015
64 Lake Shore Dr.
McGrath III, William A.

08-119-0000
331 Keene Rd.
Forest Lake Camping Ground Inc.

09-008-0000
280 Forest Lake Rd.
Mayhew, Eric R.

09-007-0000
Forest Lake Rd.
Cardinal Development Corp.

09-007-0001
259 Forest Lake Rd.
Cooney, Patrick

WW-42
PSS1E

523

522

379 LINE

08-118-0000
Keene Rd.
Eversource Energy (Previously PSNH)

09-006-0000
Forest Lake Rd.
Public Service Co. of NH

08-117-0000
Keene Rd.
Forest Lake Camping Ground Inc.

09-003-0000
240 Forest Lake Rd.
Anderson, Kevin M.

09-005-0000
Forest Lake Rd.
Anderson, Kevin M.

FOREST LAKE RD

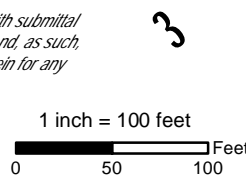
AoT Area B - Winchester	
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INDEX MAP

AOT DISTURBANCE AREA	EXISTING STRUCTURE - NO PROPOSED WORK	TOWN BOUNDARY
EXISTING ACCESS	EXISTING STRUCTURE TO BE REPLACED	RAILROAD/RAIL TRAIL
PROPOSED ACCESS	EXISTING TRANSMISSION LINE	PARCEL BOUNDARY
OFF-ROW ACCESS PENDING RIGHTS	OTHER TRANSMISSION LINE	EVERSOURCE OWNED PARCEL
WORKPAD	APPROXIMATE ROW	STATE OWNED PARCEL
TEMPORARY WETLAND IMPACT	NHD FLOWLINES	EROSION CONTROL
TEMPORARY UPLAND MATTING	FIELD DELINEATED WETLAND	CULVERT
PUBLIC ROADS	PARCEL BOUNDARY	2 FT ELEVATION CONTOUR
PRIVATE ROAD	EVERSOURCE OWNED PARCEL	
STATE ROAD	POTENTIAL VERNAL POOL	

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NO.	DATE	REVISIONS

EVERSOURCE ENERGY

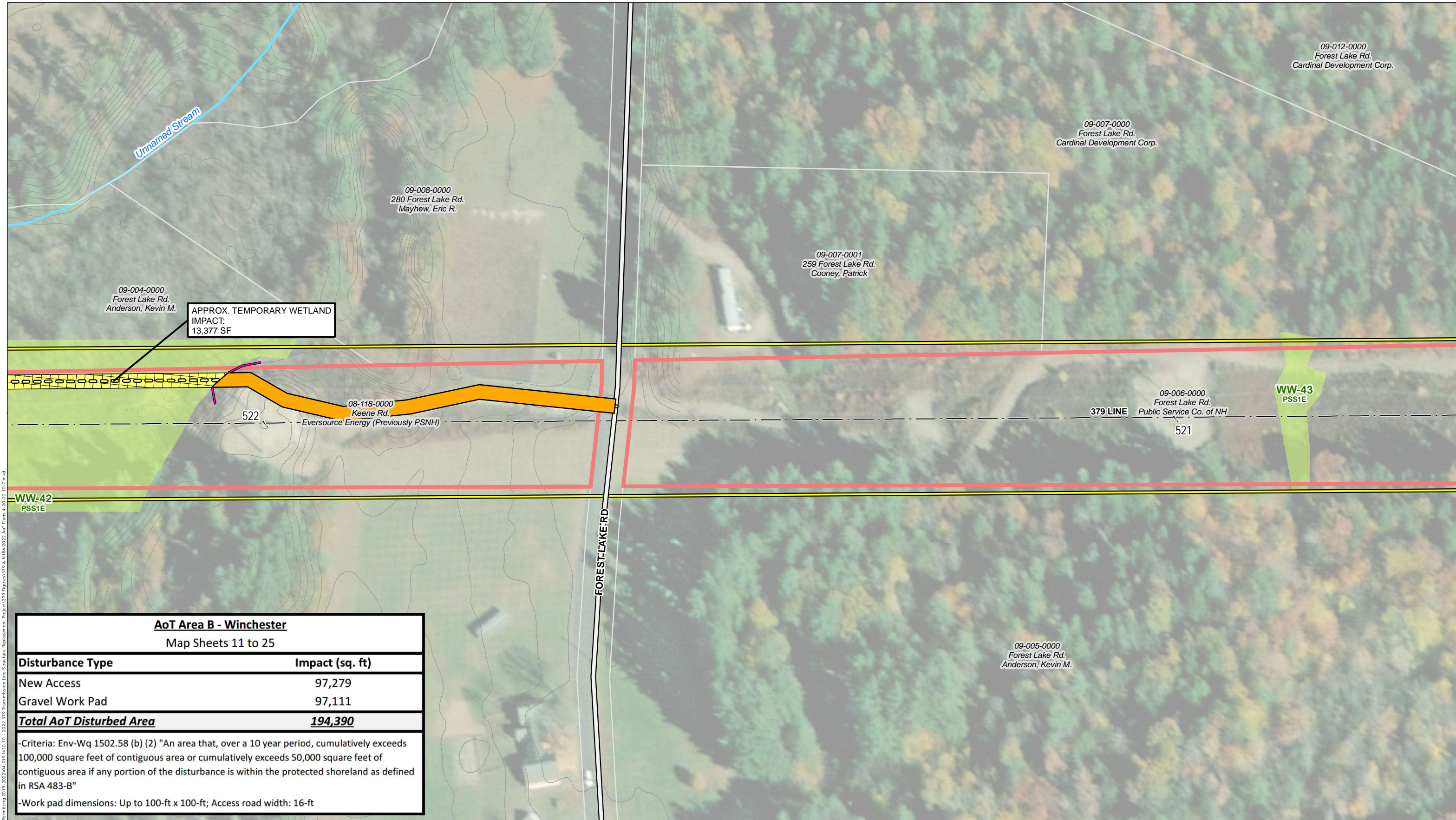
2022 379 & N186 Transmission Line Structure Replacement Project
Alteration of Terrain Permitting Plans

Winchester, NH MAP SHEET

Date: May, 2022

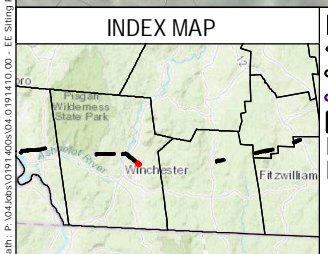
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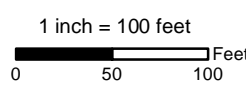
APPROX. TEMPORARY WETLAND
IMPACT:
13,377 SF

AOT Area B - Winchester	
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Disturbance Type	Impact (sq. ft)
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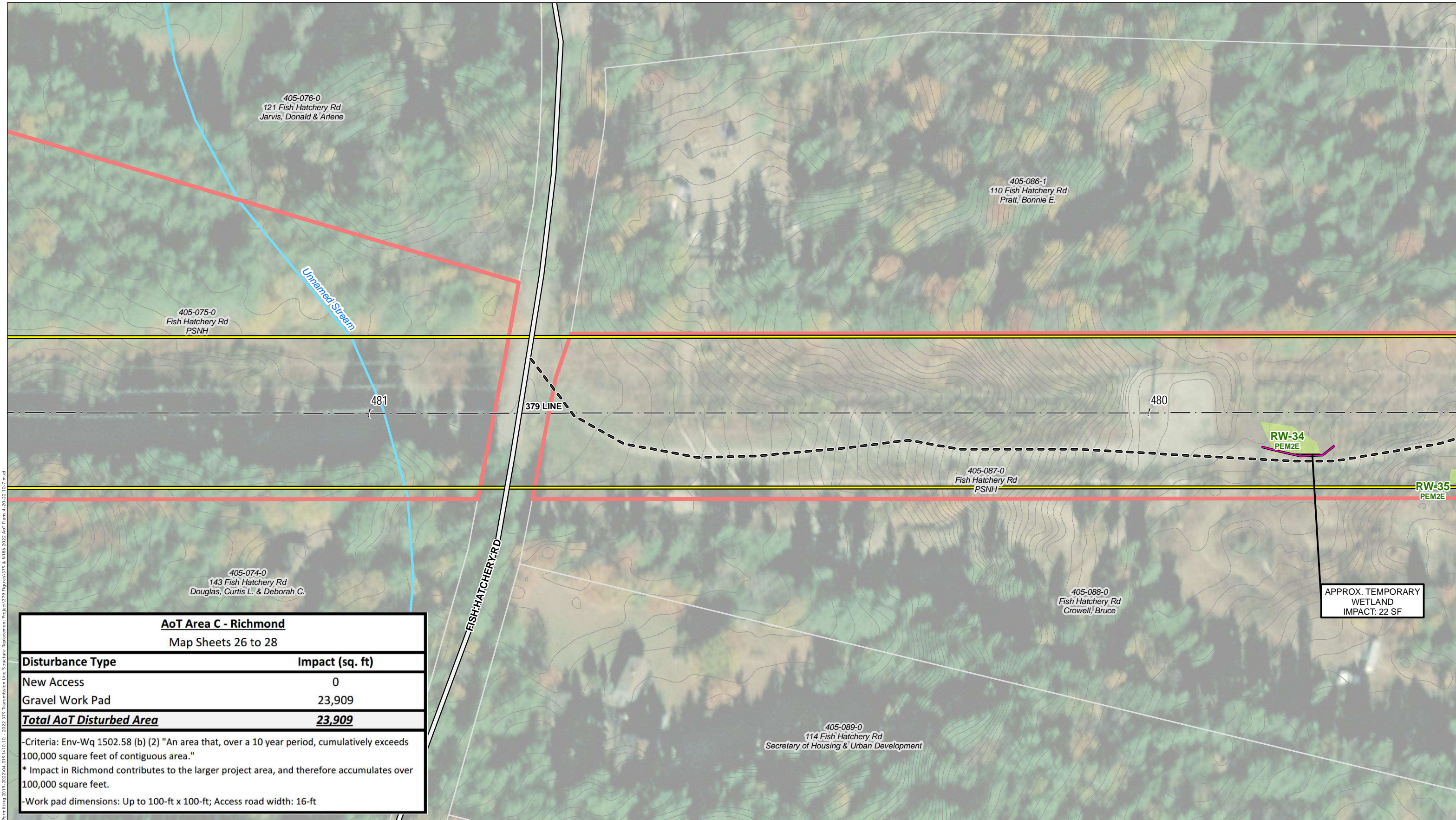
NO.	DATE	REVISIONS

EVERSOURCE ENERGY

2022 379 & N186 Transmission Line Structure Replacement Project Alteration of Terrain Permitting Plans

Winchester, NH	MAP SHEET
Date: May, 2022	25 OF 38
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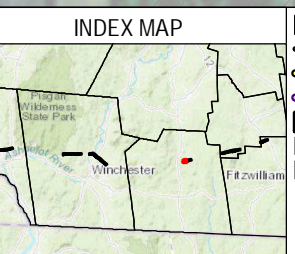
AoT Area C - Richmond
Map Sheets 26 to 28

Disturbance Type	Impact (sq. ft)
New Access	0
Gravel Work Pad	23,909
Total AoT Disturbed Area	23,909

-Criteria: Env-Wq 1502.58 (b) (2) "An area that, over a 10 year period, cumulatively exceeds 100,000 square feet of contiguous area."
 * Impact in Richmond contributes to the larger project area, and therefore accumulates over 100,000 square feet.
 -Work pad dimensions: Up to 100-ft x 100-ft; Access road width: 16-ft

APPROX. TEMPORARY WETLAND IMPACT: 22 SF

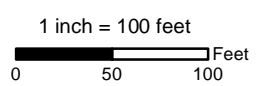
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- AOT DISTURBANCE AREA
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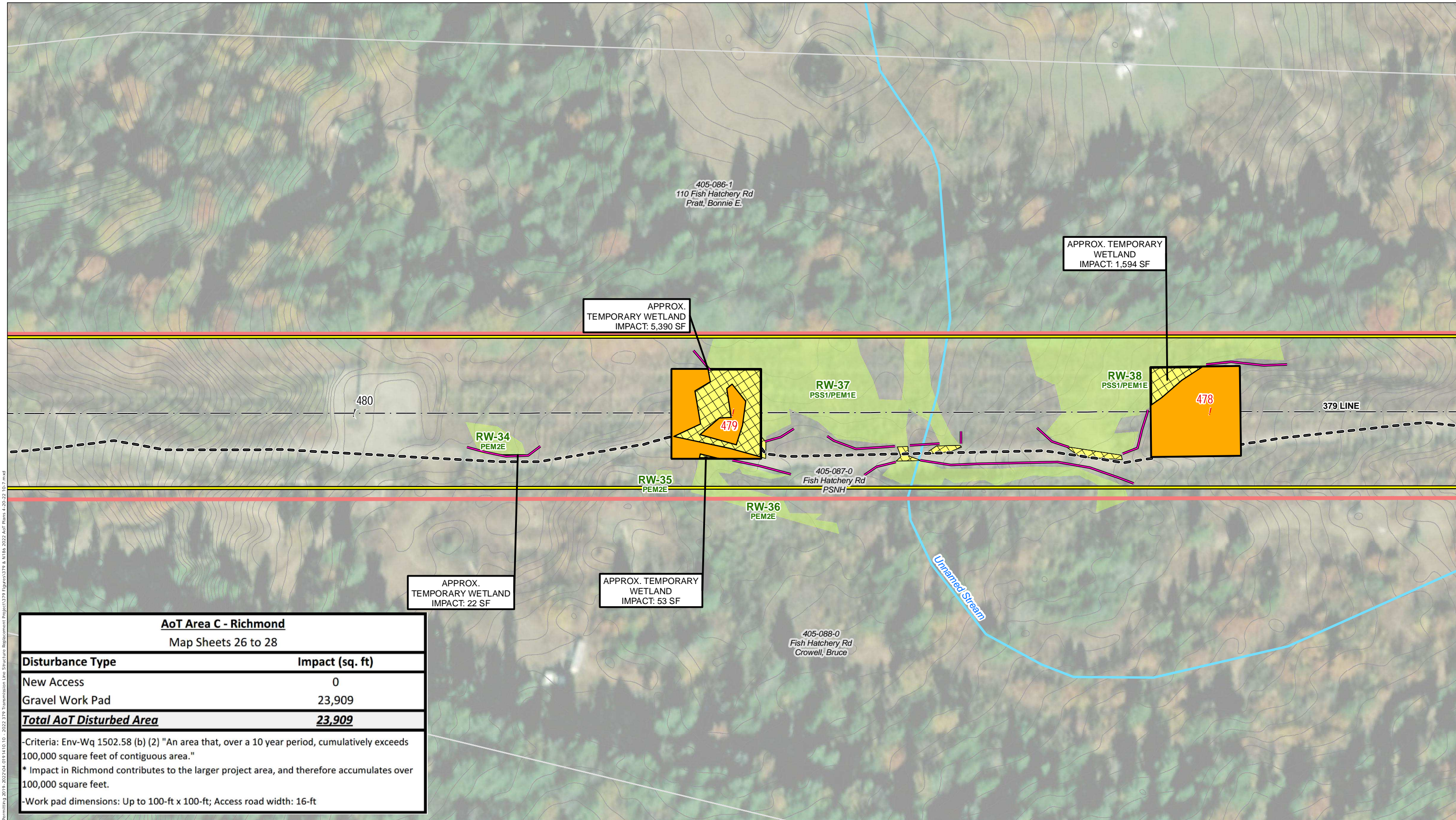


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EVSOURCE ENERGY

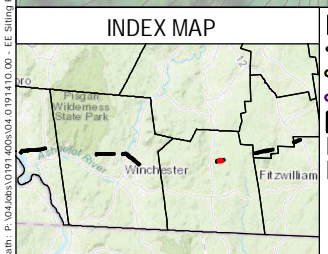
2022 379 & N186 Transmission Line Structure Replacement Project Alteration of Terrain Permitting Plans

Richmond, NH	MAP SHEET
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AoT Area C - Richmond	
Map Sheets 26 to 28	
Disturbance Type	Impact (sq. ft)
New Access	0
Gravel Work Pad	23,909
Total AoT Disturbed Area	23,909

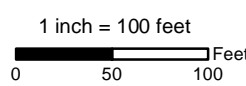
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 * Impact in Richmond contributes to the larger project area, and therefore accumulates over 100,000 square feet.
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AOT DISTURBANCE AREA	EXISTING STRUCTURE - NO PROPOSED WORK	TOWN BOUNDARY
EXISTING ACCESS	EXISTING STRUCTURE TO BE REPLACED	RAILROAD/RAIL TRAIL
PROPOSED ACCESS	EXISTING TRANSMISSION LINE	PARCEL BOUNDARY
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WORKPAD	APPROXIMATE ROW	STATE OWNED PARCEL
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PUBLIC ROADS	PARCEL BOUNDARY	2 FT ELEVATION CONTOUR
PRIVATE ROAD	EVERSOURCE OWNED PARCEL	
STATE ROAD	POTENTIAL VERNAL POOL	

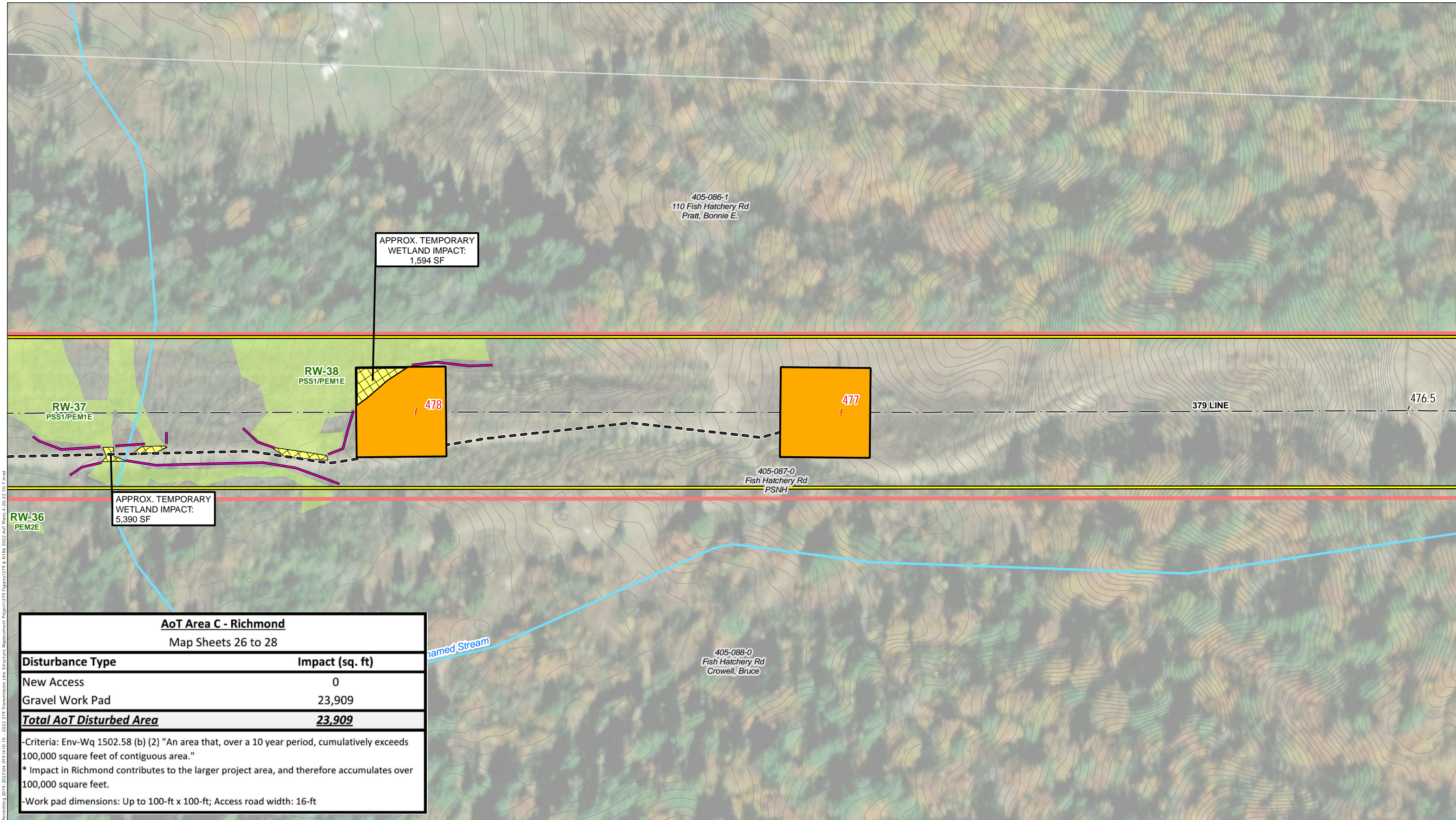
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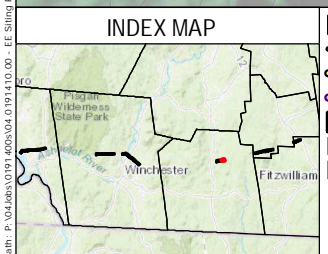


		EVERSOURCE ENERGY	
		2022 379 & N186 Transmission Line Structure Replacement Project	
		Alteration of Terrain Permitting Plans	
		Richmond, NH	MAP SHEET
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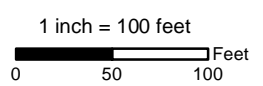
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- AOT DISTURBANCE AREA
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- PROPOSED ACCESS
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- TEMPORARY WETLAND IMPACT
- TEMPORARY UPLAND MATTING
- PUBLIC ROADS
- PRIVATE ROAD
- STATE ROAD
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- FIELD DELINEATED WETLAND
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- TOWN BOUNDARY
- RAILROAD/RAIL TRAIL
- PARCEL BOUNDARY
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- CULVERT
- 2 FT ELEVATION CONTOUR

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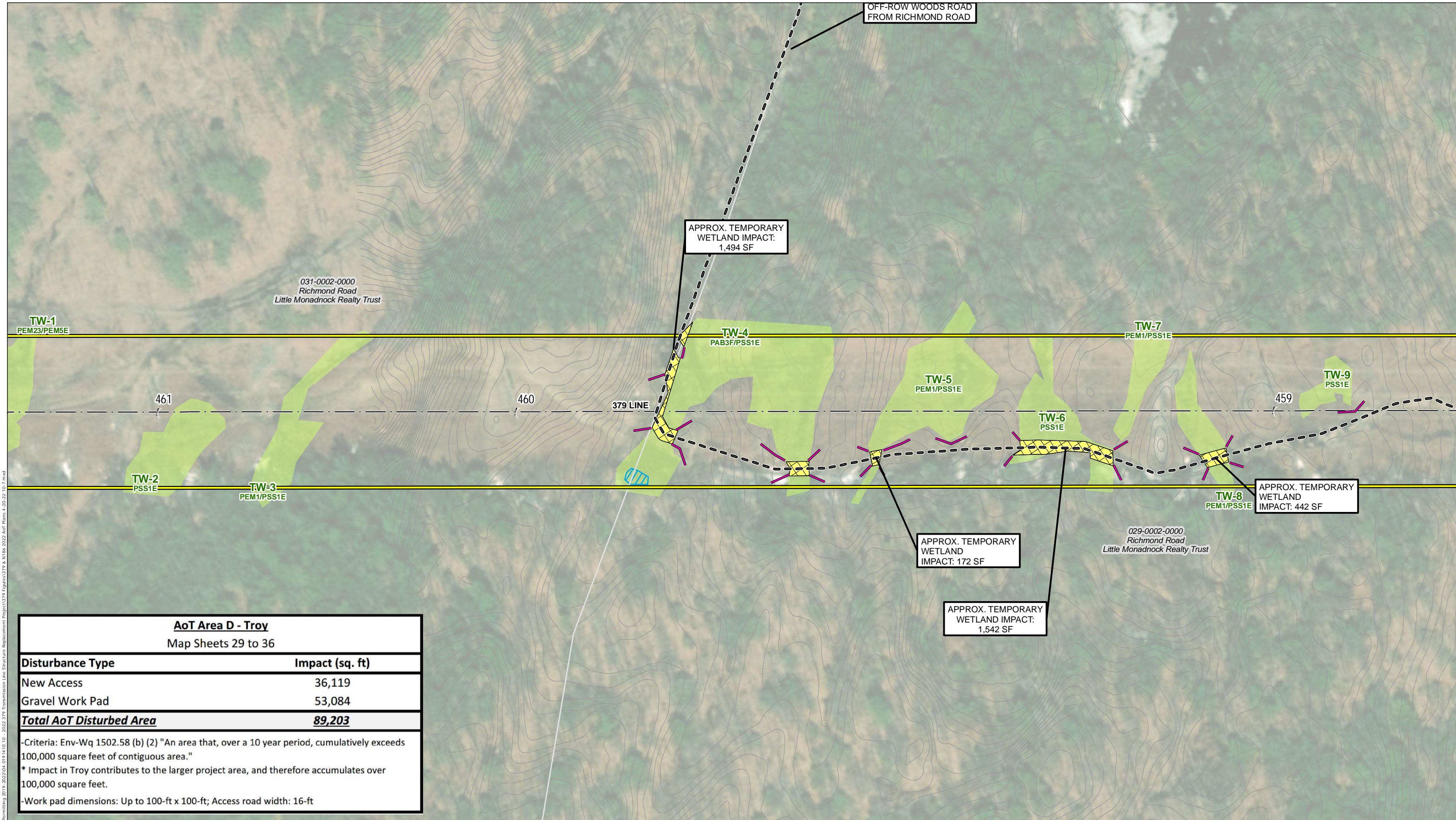
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EVERSOURCE ENERGY

2022 379 & N186 Transmission Line Structure Replacement Project Alteration of Terrain Permitting Plans

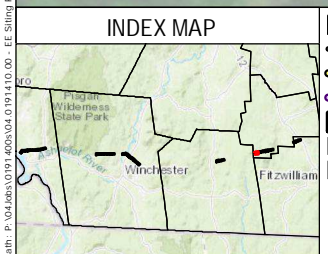
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AoT Area D - Troy	
Map Sheets 29 to 36	
Disturbance Type	Impact (sq. ft)
New Access	36,119
Gravel Work Pad	53,084
Total AoT Disturbed Area	89,203

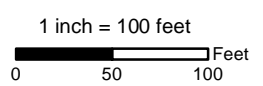
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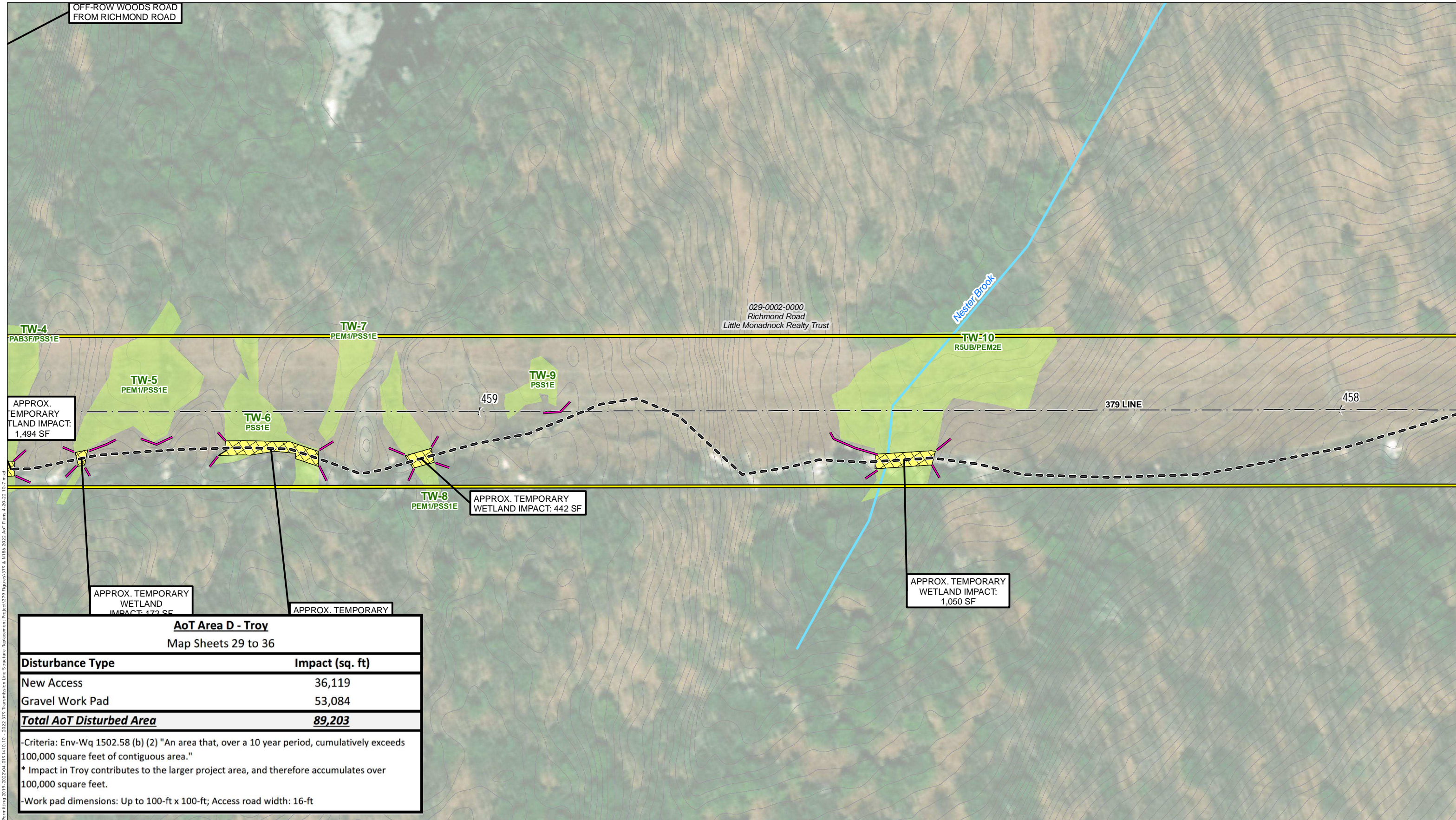
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EVSOURCE ENERGY

2022 379 & N186 Transmission Line Structure Replacement Project
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Troy, NH	MAP SHEET
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APPROX. TEMPORARY UPLAND IMPACT: 1,494 SF

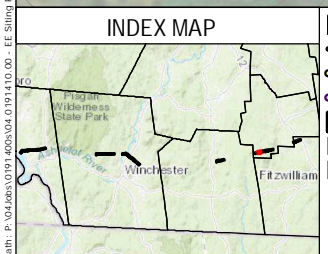
APPROX. TEMPORARY WETLAND IMPACT: 442 SF

APPROX. TEMPORARY WETLAND IMPACT: 1,050 SF

AoT Area D - Troy
Map Sheets 29 to 36

Disturbance Type	Impact (sq. ft)
New Access	36,119
Gravel Work Pad	53,084
Total AoT Disturbed Area	89,203

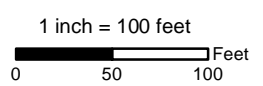
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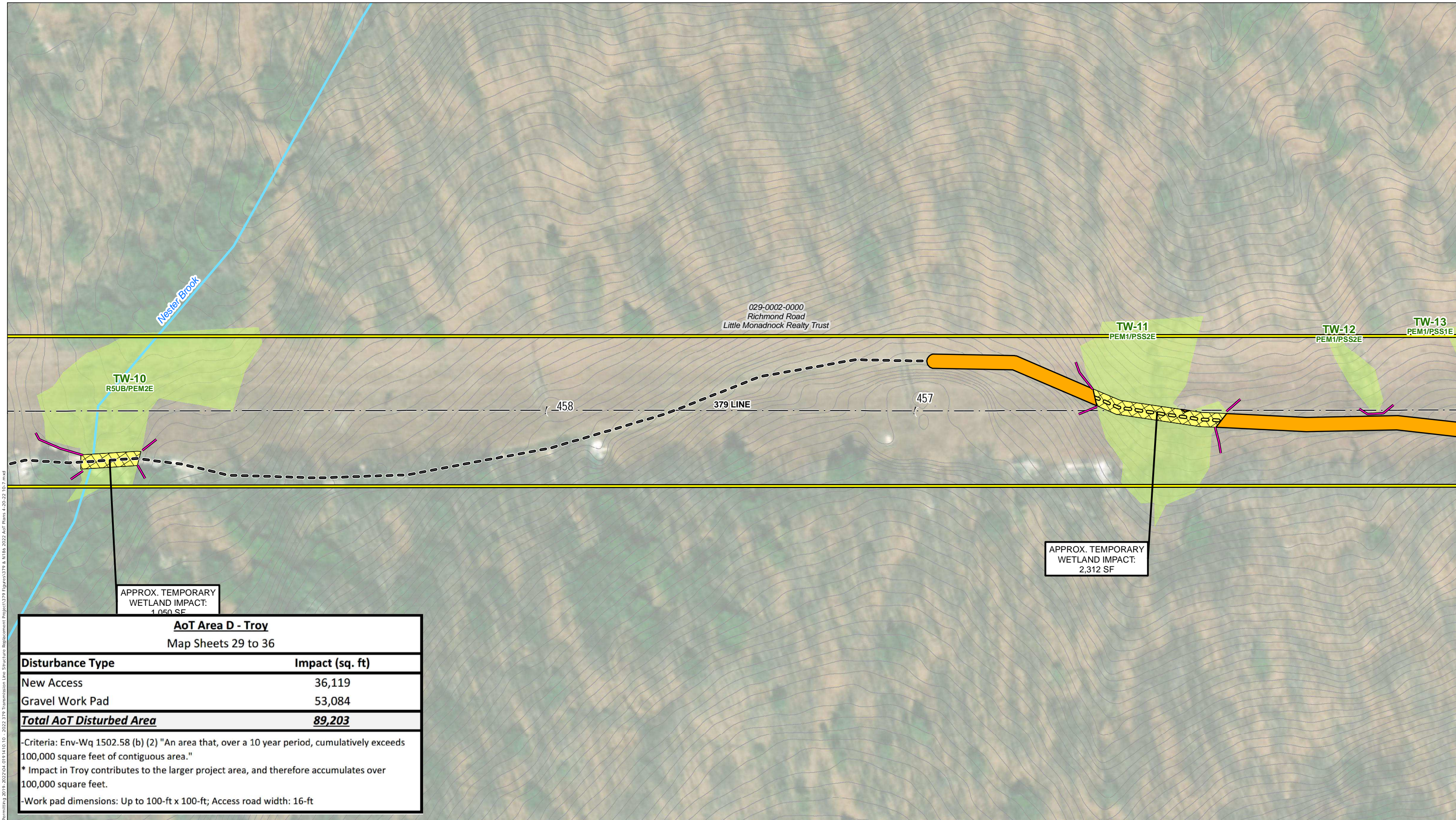
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EVERSOURCE ENERGY

2022 379 & N186 Transmission Line Structure Replacement Project
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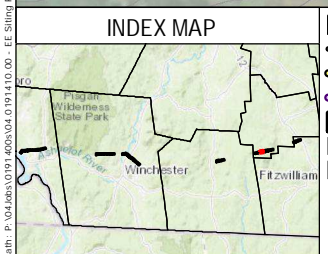


APPROX. TEMPORARY WETLAND IMPACT: 1,050 SF

APPROX. TEMPORARY WETLAND IMPACT: 2,312 SF

AoT Area D - Troy	
Map Sheets 29 to 36	
Disturbance Type	Impact (sq. ft)
New Access	36,119
Gravel Work Pad	53,084
Total AoT Disturbed Area	89,203

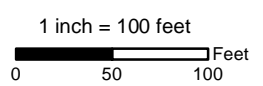
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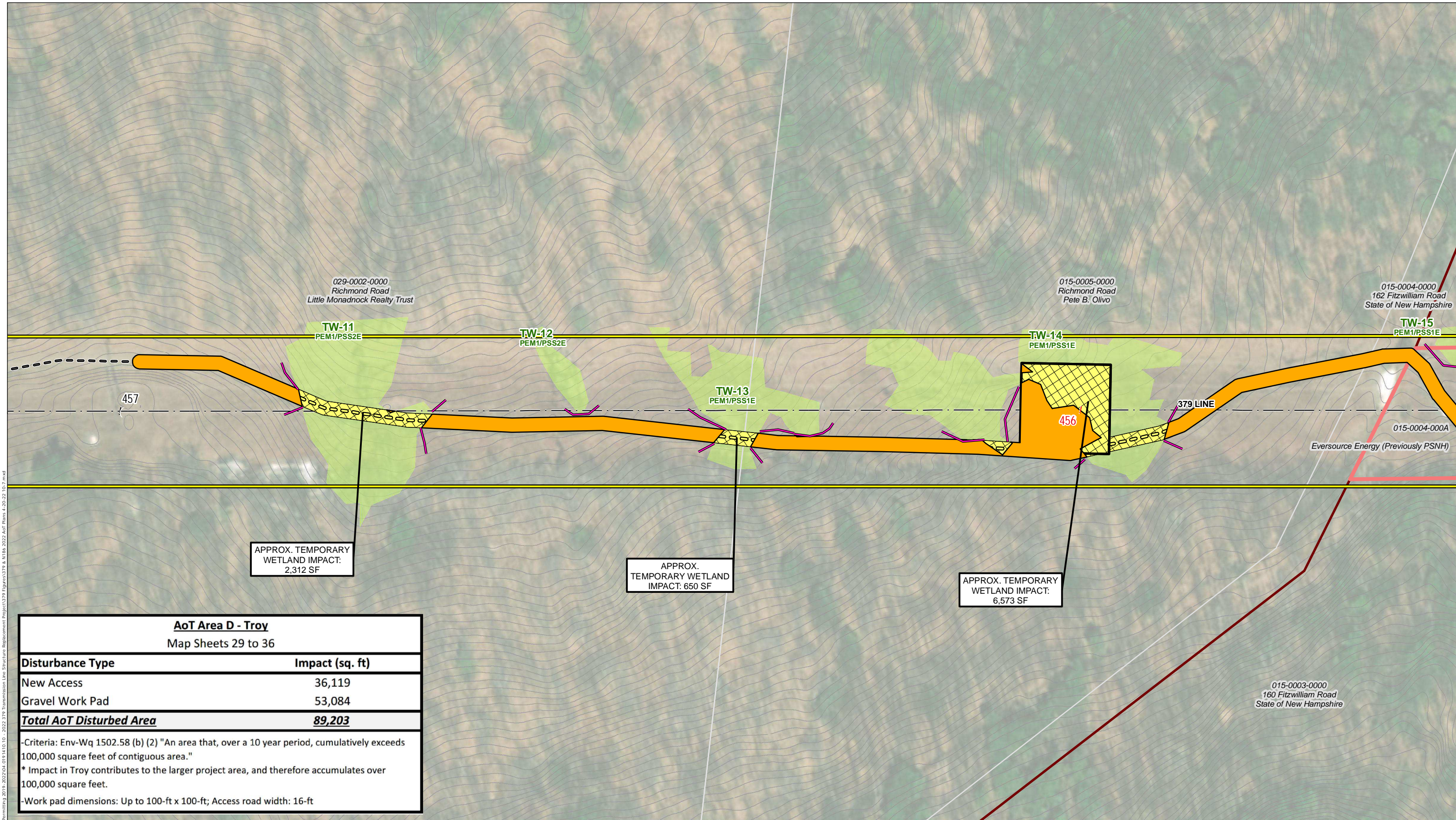
NO.	DATE	REVISIONS

EVERSOURCE ENERGY

2022 379 & N186 Transmission Line Structure Replacement Project Alteration of Terrain Permitting Plans

Troy, NH	MAP SHEET
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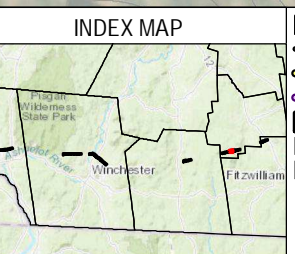
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AoT Area D - Troy	
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Disturbance Type	Impact (sq. ft)
New Access	36,119
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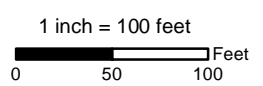
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NO.	DATE	REVISIONS

EVSOURCE ENERGY
2022 379 & N186 Transmission Line Structure Replacement Project
Alteration of Terrain Permitting Plans
 Troy, NH MAP SHEET
 Date: May, 2022
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015-0004-0000
162 Fitzwilliam Road
State of New Hampshire

015-0001-0000
Tommila Gravel Pit
Albert Pelletier

TW-18
PSS1/PEM1

TW-19
PSS1/PEM1E

TW-20
PSS1/PEM1E

TW-21
R4UB/PSS1/PEM1E

379 LINE

451

453

452

APPROX. TEMPORARY
WETLAND IMPACT:
13,007 SF

AoT Area D - Troy
Map Sheets 29 to 36

Disturbance Type	Impact (sq. ft)
New Access	36,119
Gravel Work Pad	53,084
Total AoT Disturbed Area	89,203

-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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INDEX MAP



- AOT DISTURBANCE AREA
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1 inch = 100 feet
0 50 100 Feet

NO.	DATE	REVISIONS

EVERSOURCE
ENERGY

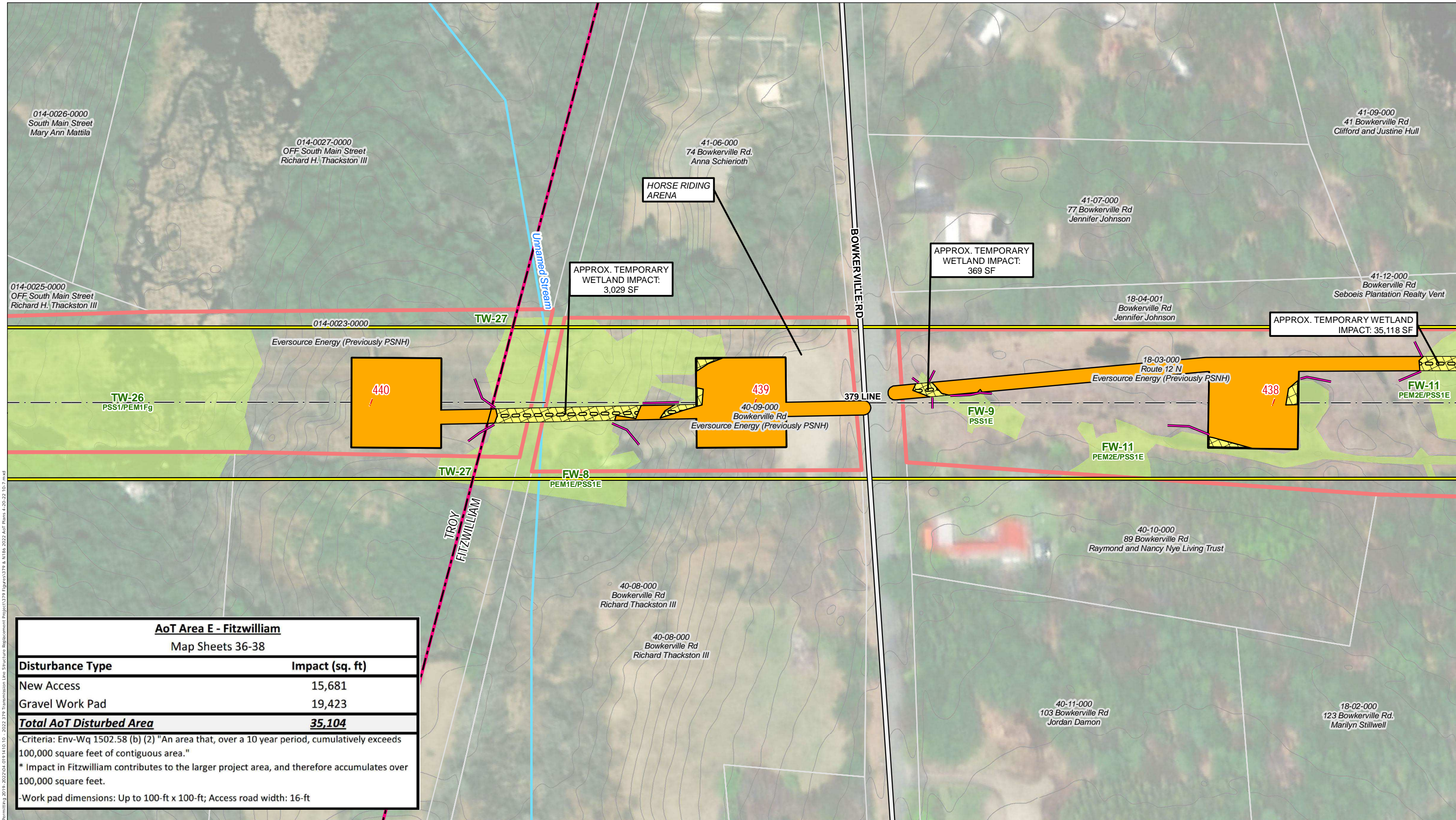
**2022 379 & N186 Transmission Line
Structure Replacement Project
Alteration of Terrain Permitting Plans**

Troy, NH MAP SHEET

Date: May, 2022

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AoT Area E - Fitzwilliam
Map Sheets 36-38

Disturbance Type	Impact (sq. ft)
New Access	15,681
Gravel Work Pad	19,423
Total AoT Disturbed Area	35,104

-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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 -Work pad dimensions: Up to 100-ft x 100-ft; Access road width: 16-ft

INDEX MAP

AOT DISTURBANCE AREA	EXISTING STRUCTURE - NO PROPOSED WORK	TOWN BOUNDARY
EXISTING ACCESS	EXISTING STRUCTURE TO BE REPLACED	RAILROAD/RAIL TRAIL
PROPOSED ACCESS	EXISTING TRANSMISSION LINE	PARCEL BOUNDARY
OFF-ROW ACCESS PENDING RIGHTS	OTHER TRANSMISSION LINE	EVERSOURCE OWNED PARCEL
WORKPAD	APPROXIMATE ROW	STATE OWNED PARCEL
TEMPORARY WETLAND IMPACT	NHD FLOWLINES	EROSION CONTROL
TEMPORARY UPLAND MATTING	FIELD DELINEATED WETLAND	CULVERT
PUBLIC ROADS	PARCEL BOUNDARY	2 FT ELEVATION CONTOUR
PRIVATE ROAD	EVERSOURCE OWNED PARCEL	
STATE ROAD	POTENTIAL VERNAL POOL	

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1 inch = 100 feet

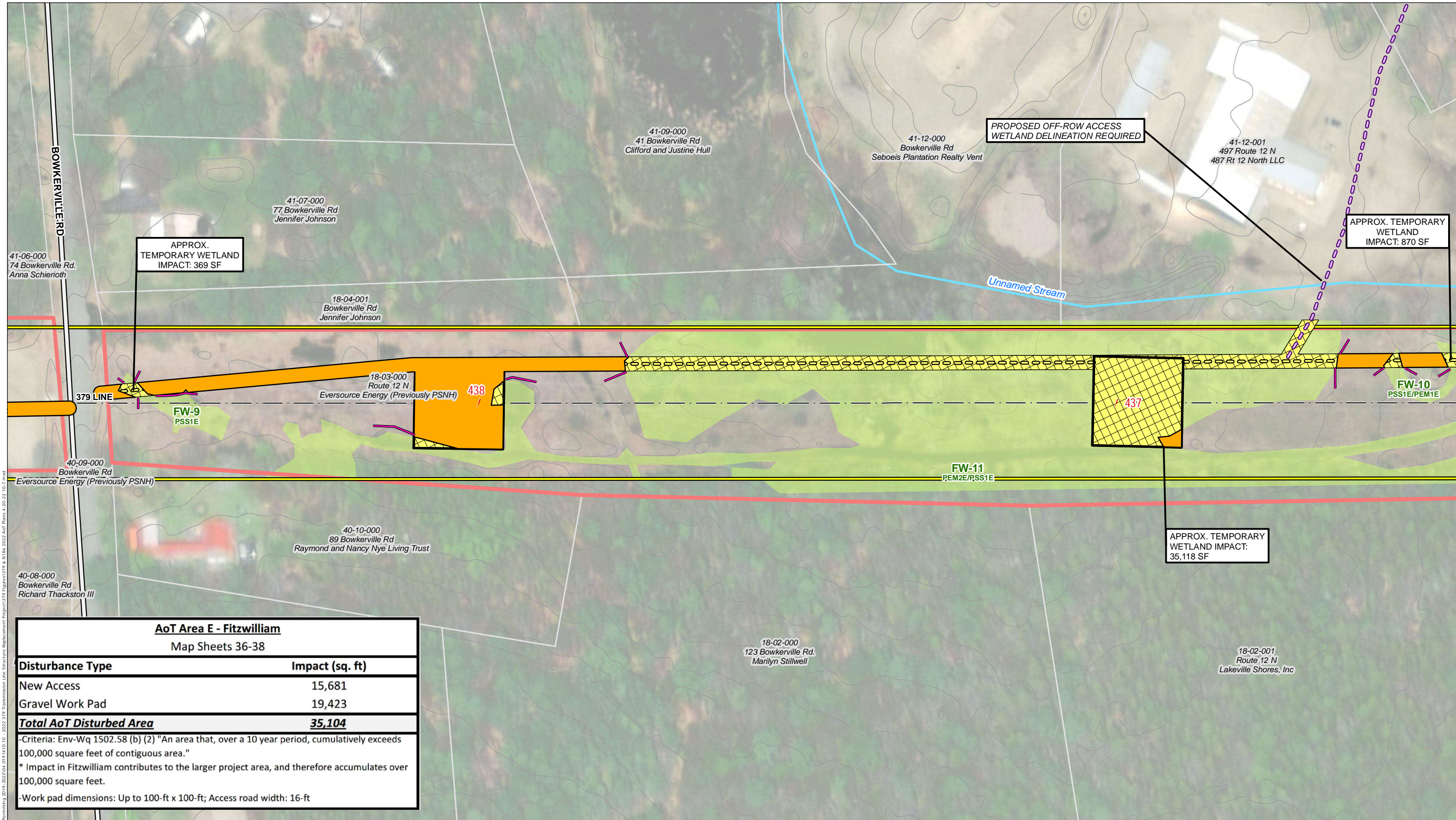
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2022 379 & N186 Transmission Line Structure Replacement Project
Alteration of Terrain Permitting Plans

Troy/Fitzwilliam, NH		MAP SHEET
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NO.	DATE	
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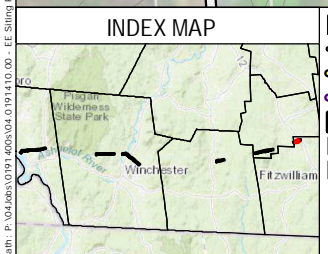
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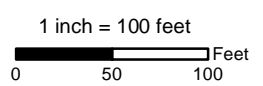
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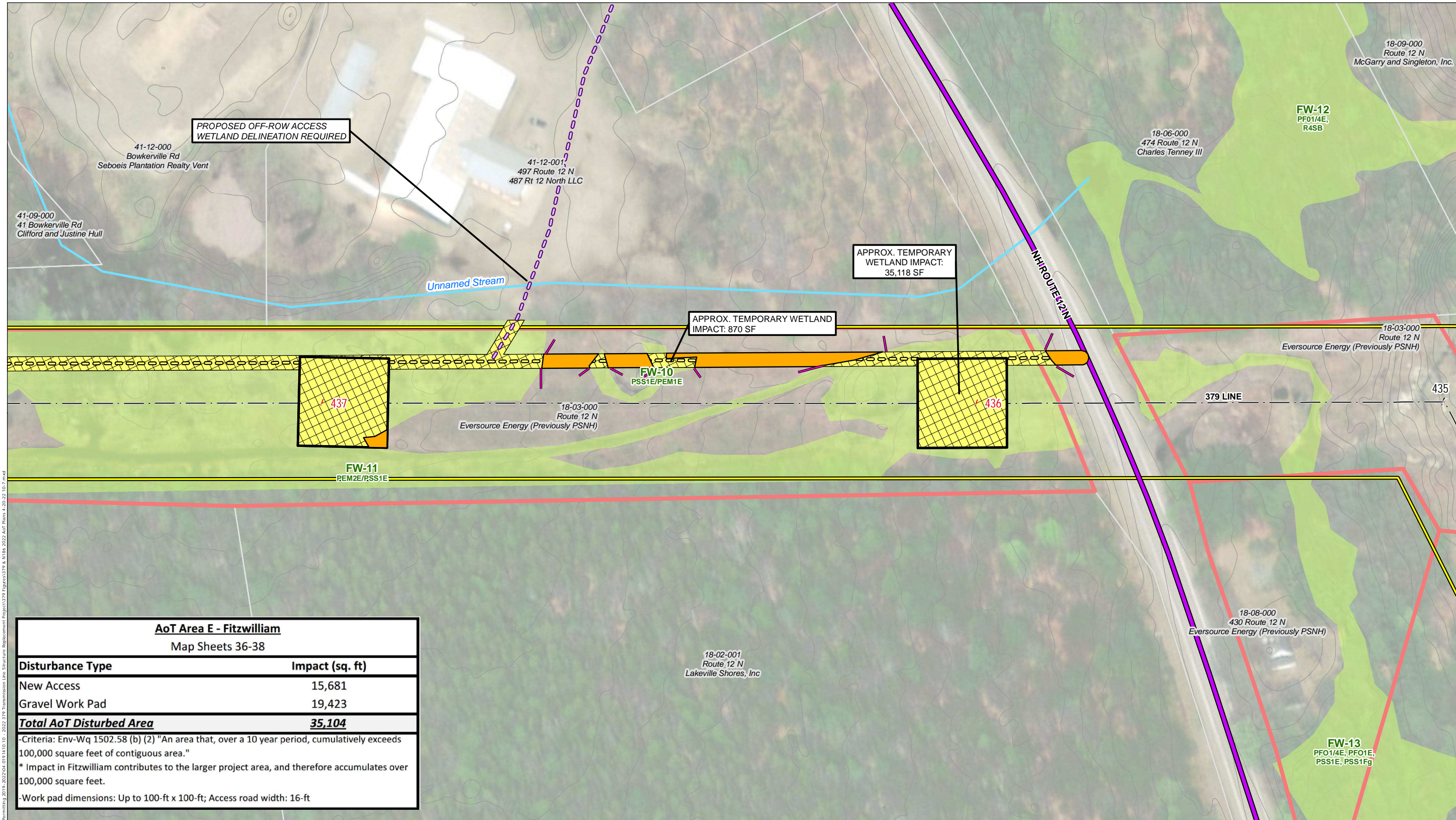
NO.	DATE	REVISIONS

EVSOURCE ENERGY

2022 379 & N186 Transmission Line Structure Replacement Project Alteration of Terrain Permitting Plans

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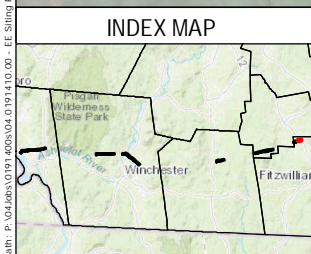
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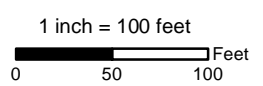
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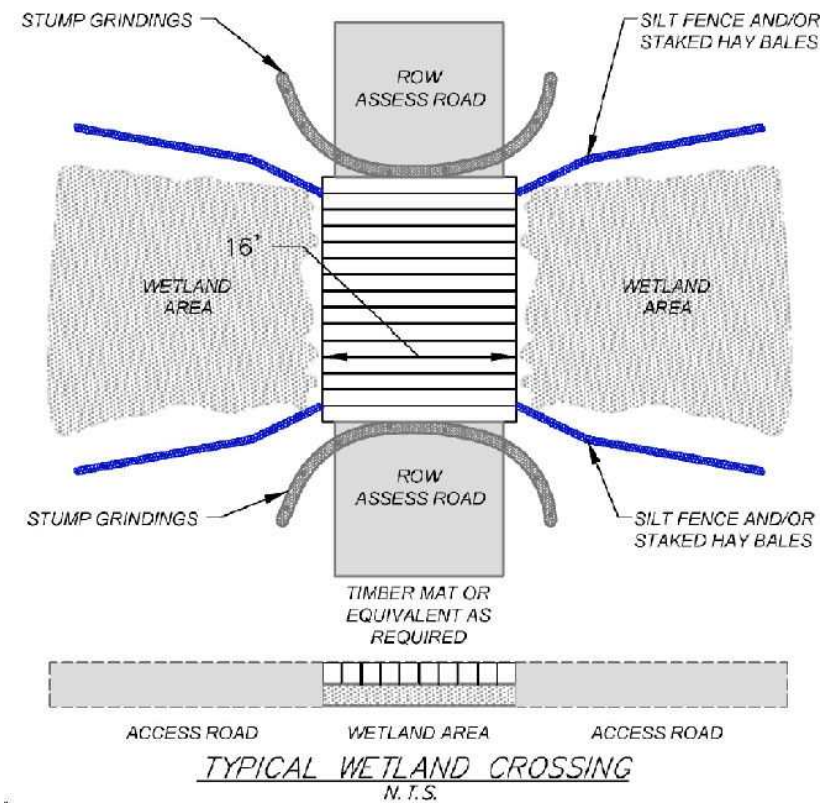
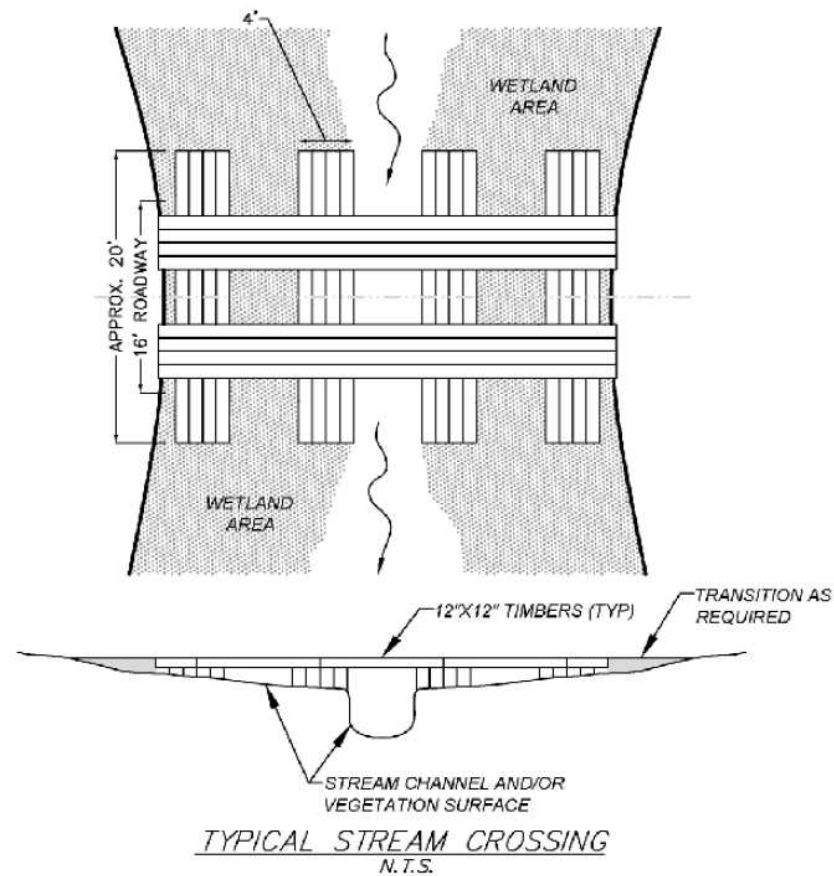
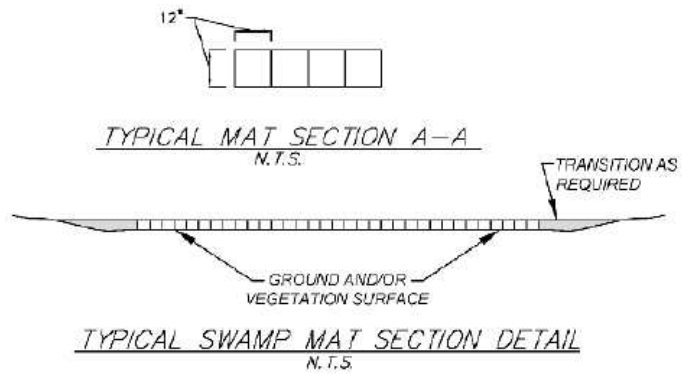
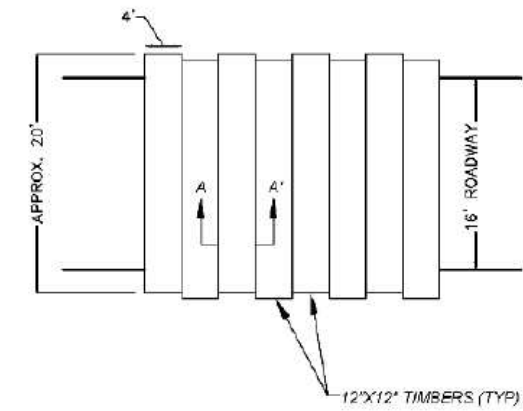
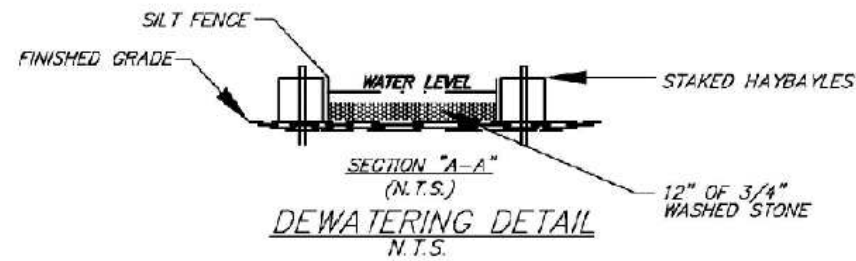
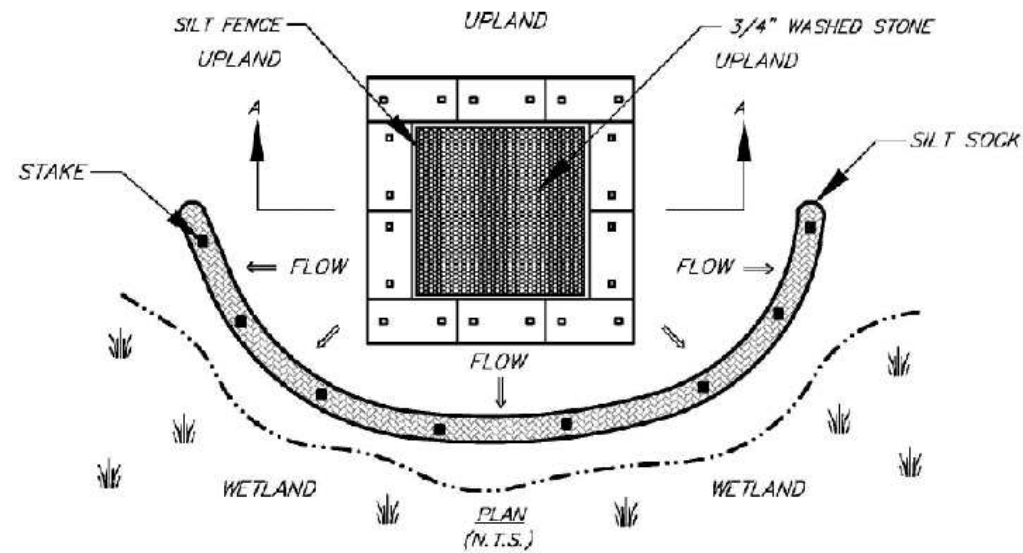
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2022 379 & N186 Transmission Line Structure Replacement Project Alteration of Terrain Permitting Plans

Fitzwilliam, NH	MAP SHEET
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**379 & N186 TRANSMISSION LINE
STRUCTURE REPLACEMENT PROJECT**
HINSDALE, WINCHESTER, RICHMOND, TROY,
AND FITZWILLIAM, NEW HAMPSHIRE

BMP DETAILS

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
EVERSOURCE
ENERGY

PROJ MGR: LEW	REVIEWED BY: TLT	CHECKED BY: DMZ	SHEET S3
DESIGNED BY: MJD	DRAWN BY: MJD	SCALE:	
DATE: 04/28/2022	PROJECT NO: 04.0191410.10	REVISION NO:	

Best Management Practices (BMP's) for Straw wattles

Definition and purpose:

Straw wattles are burlap rolls filled with straw that trap sediment and interrupt water flow by reducing slope lengths.

Applications:

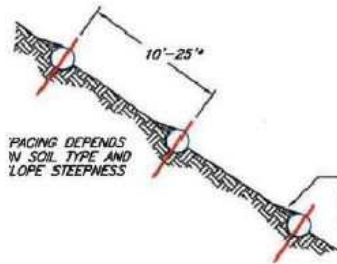
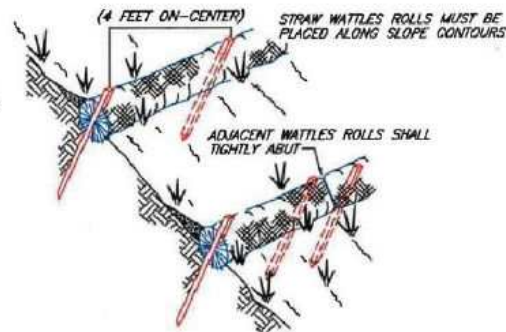
- * Along erodible or unstabilized slopes
- * Spread overland waterflow
- * Trap sediment
- * Around storm drain inlets to slow water and settle out sediment
- * Overlap ends approximately 6 inches

Installation:

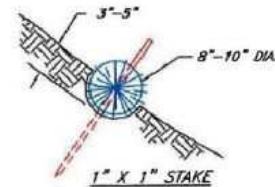
Straw wattles are installed parallel to slope contours and perpendicular to sheet flow.

Spacing* - Dependent on slope length, soil steepness and soil type (general range 10 - 25').

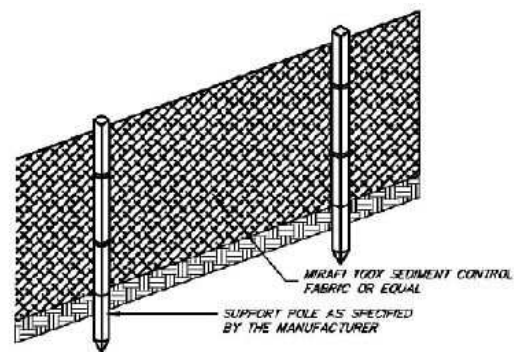
Trenching - 2"-5" inch trench
Stacking - at each end and four foot on center (i.e. 25 foot wattle uses 6 stacks)



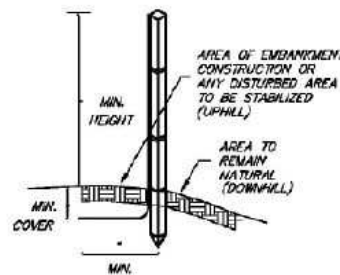
SEDIMENT, ORGANIC MATTER, AND NATIVE SEEDS ARE CAPTURED BEHIND THE WATTLE ROWS.



NOT TO SCALE



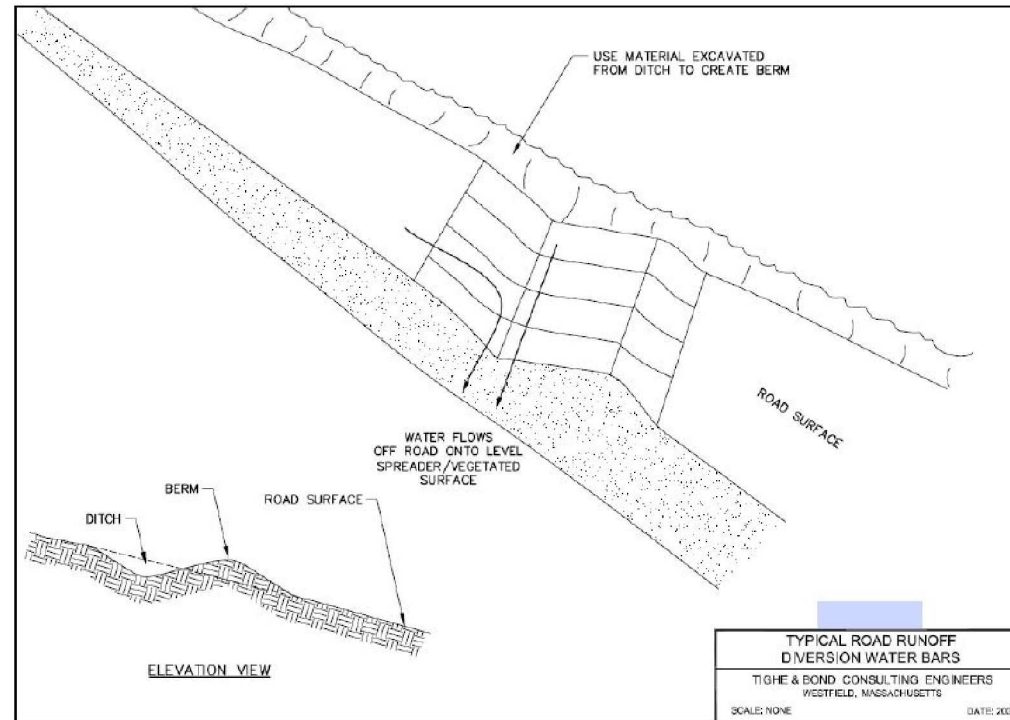
FRONT VIEW



SIDE VIEW

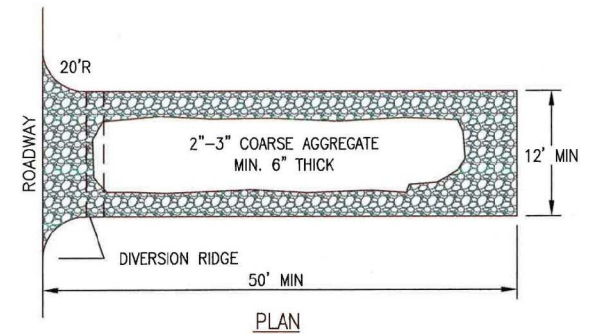
NOTES (SILT FENCE)

1. THE HEIGHT OF THE BARRIER SHALL NOT EXCEED 36 INCHES.
2. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPliced TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED. SEE MANUFACTURER'S RECOMMENDATIONS.
3. POSTS SHALL BE PLACED AT A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL BE AS MANUFACTURER RECOMMENDS.
4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE OF THE BARRIER IN ACCORDANCE WITH RECOMMENDATIONS
5. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE, AND WILL EXTEND A MINIMUM OF 8 INCHES INTO THE TRENCH. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
6. THE TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.
7. FABRIC BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
8. FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST ONCE DAILY DURING PROLONGED RAINFALL AND ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
9. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
10. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
11. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.



ELEVATION VIEW

TYPICAL ROAD RUNOFF DIVERSION WATER BARS
TIGHE & BOND CONSULTING ENGINEERS
WESTFIELD, MASSACHUSETTS
SCALE: NONE DATE: 2007



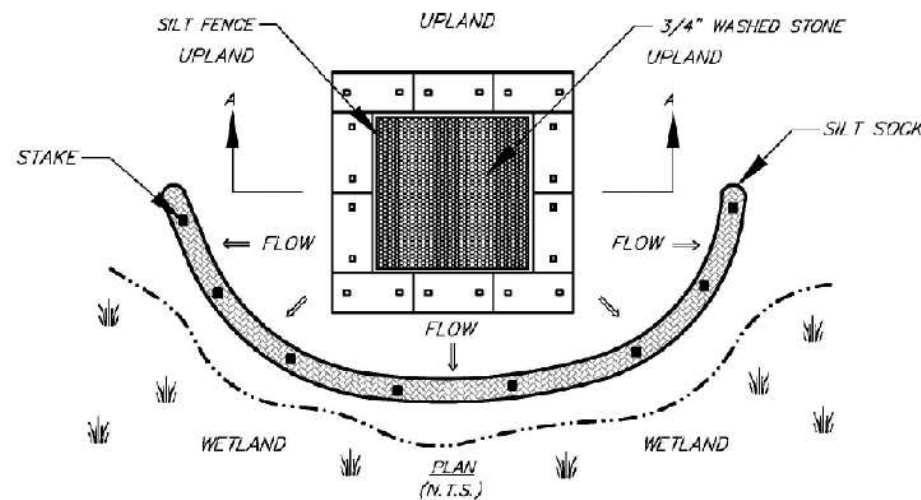
PLAN

NOTES:

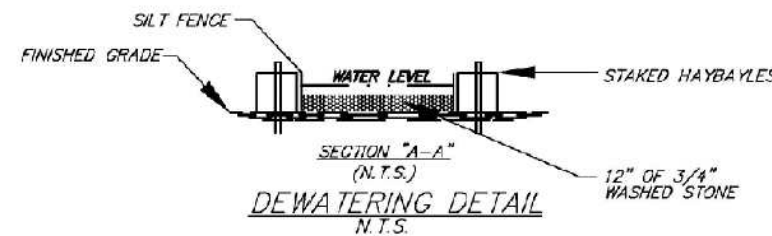
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.

CONSTRUCTION ENTRANCE

NOT TO SCALE



PLAN (N.T.S.)



SECTION "A-A" (N.T.S.)
DEWATERING DETAIL
N.T.S.

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.

379 & N186 TRANSMISSION LINE
STRUCTURE REPLACEMENT PROJECT
HINSDALE, WINCHESTER, RICHMOND, TROY,
AND FITZWILLIAM, NEW HAMPSHIRE

BMP DETAILS

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
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PREPARED FOR:
EVERSOURCE
ENERGY

PROJ MGR: CEM
DESIGNED BY: MJD
DATE: 04/28/2022

REVIEWED BY: TLT
DRAWN BY: MJD
PROJECT NO: 04.0191410.10

CHECKED BY: DMZ
SCALE:
REVISION NO.

SHEET
S2

© 2022 - GZA GeoEnvironmental, Inc. P:\04Jobs\0191410.00 - EE Stiling Permitting 2019-2022\04.0191410.10 - 2022 379 Transmission Line Structure Replacement Project\379 Figures\379 Aot Notesheet 1 10-7.mxd, 4/28/2022, 12:59:58 PM, lindsay.white

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.
3. WETLAND IMPACTS ASSOCIATED WITH WETLAND CROSSINGS ARE REQUIRED FOR ACCESS BETWEEN STRUCTURES WITHIN THE RIGHT OF WAY.
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 WITH 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 AND 20 FOOT TOTAL IMPACT AREA.
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 AND ROCKS SHALL NOT BE REMOVED, AND THERE SHALL BE NO EXCAVATIONS, FILLS OR GRADING DONE ADJACENT TO WETLANDS, UNLESS MINOR EXCAVATIONS IS NEEDED FOR ACCESS.
9. TIMBER MATS WILL BE USED ALONG ACCESS ROUTES 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 SWAMP 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. IF TIMBER MAT BMP IS NOT SUFFICIENT DUE TO HIGH WATER, ADDITIONAL BMP'S MAY INCLUDE THE PLACEMENT OF GEOTEXTILE FABRIC, 3"-4" STONE, AND GRAVEL TO PROVIDE A SUITABLE ROAD BED. A TEMPORARY CULVERT 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. 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.
13. 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.
14. EXCESS SOILS PRODUCED FROM DRILLING WILL BE DISPOSED IN APPROVED UPLAND AREAS AT A MINIMUM DISTANCE OF 100-FT FROM WETLAND AREAS.
15. INSTALL NEW POLES IN THE LOCATIONS DESIGNATED ON THE PERMITTING PLANS.
16. CABLE 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.
17. ALL TIMBER MATS, MATERIAL, AND DEBRIS WILL BE REMOVED FROM THE WORK AREA UPON THE COMPLETION OF CONSTRUCTION.
18. 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 AND SEED, AS NECESSARY.
19. ALL TEMPORARY WETLAND IMPACTS WILL BE RE-GRADED TO ORIGINAL CONTOURS FOLLOWING CONSTRUCTION. NEW ENGLAND EROSION CONTROL/RESTORATION MIX, AVAILABLE THROUGH NEW ENGLAND WETLAND PLANTS, INC., 820 WEST STREET, AMHERST, MA 01002, 413-548-8000, OR EQUIVALENT SEED MIX SHALL BE APPLIED IN WETLAND AREAS THAT ARE NOT INUNDATED, AS NECESSARY.
20. SEDIMENT AND EROSION CONTROL MEASURES WILL BE EVALUATED AND REMOVED IF NECESSARY UPON THE COMPLETION OF CONSTRUCTION.
21. COMMERCIAL LOAM WILL NOT BE USED AS PART OF RESTORATION. ONLY IN-SITU TOPSOIL WILL BE USED TO RESTORE DISTURBED AREAS.

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 (NHDOT 304.3).

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 GZA IN 2016 AND CONFIRMED IN 2022. 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.
3. GZA EVALUATED WETLANDS AS POTENTIAL VERNAL POOLS IN 2016 AND 2022 IN ACORDANCE WITH "IDENTIFICATION AND DOCUMENTATION OF VERNAL POOLS IN NEW HAMPSHIRE," 2016, NEW HAMPSHIRE FISH AND GAME DEPARTMENT, NONGAME AND ENDANGERED WILDLIFE PROGRAM.
4. GZA WILL PERFORM A WETLANDS FUNCTION AND VALUES ASSESSMENT IN ACCORDANCE WITH THE ACOE'S "HIGHWAY METHODOLOGY WORKBOOK SUPPLEMENT," SEPTEMBER 1999, IN 2020, AS NECESSARY.
5. SITE PLAN IS FOR PERMITTING PURPOSES ONLY AND DOES NOT REPRESENT A PROPERTY BOUNDARY SURVEY.
6. THE PROJECT WILL BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
7. IN ACCORANCE 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 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 AGAINST EROSION, AS NECESSARY.
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 ANNUAL RYEGRASS PRIOR TO OCTOBER 15TH.
6. EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.


NEW HAMPSHIRE FISH AND GAME TYPICAL BMPS RELATED TO THREATENED AND ENDAGERED SPECIES

1. PRIOR TO DAILY CONSTRUCTION ACTIVITIES, TIMBER MATTING WILL BE REVIEWED FOR SNAKES AND TURTLES. GZA WILL PROVIDE AN ENVIRONMENTAL ADDENDUM TO THE DAILY TAILBOARDS BY THE CONTRACTORS TO INLCUDE GUIDANCE ON PROTOCOLS FOR SNAKES AND PROVIDE IDENTIFICATION FOR SPOTTED TURTLE, WOOD TURTLE, BLANDING'S TURTLE, AND NORTHERN BLACK RACER SNAKE.
2. OBSERVED SNAKES AND TURTLES WILL BE MOVED OFF OF CONSTRUCTION ACCESS ROADS TO LIMIT AND PREVENT MORTALITY TO SNAKES AND TURTLES DURING CONSTRUCTION.
3. EROSION CONTROL MATTING, IF UTILIZED, WILL CONSIST OF JUTE MATTING. MATTING WITH PLASTIC MESH WILL BE AVOIDED TO LIMIT UNINTENTIONAL MORTALITY TO SNAKES.
4. AT THE CONCLUSION OF THE PROJECT, A SUMMARY REPORT OF ANY RARE SPECIES OBSERVATIONS WILL BE PROVIDED TO THE NHFG NONGAME PROGRAM.
5. IMPACTS TO VERNAL POOLS AND POTENTIAL VERNAL POOLS WILL BE AVOIDED.
6. IF SPOTTED, WOOD OR BLANDING'S TURTLES ARE FOUND LAYING EGGS IN A WORK AREA, PLEASE CONTACT MELISSA DOPERALSKI (603-479-1129 CELL) OR JOSH MEGYESY (978-578-0802 CELL) FOR FURTHER INSTRUCTIONS.
7. ALL OBSERVATIONS OF EASTERN HOGNOSE SNAKE SEEN AT ANY TIME MUST BE IMMEDIATELY REPORTED TO THE NHFG DEPARTMENT (MELISSA DOPERALSKI OR JOSH MEGYESY) FOR FURTHER INSTRUCTIONS. PLEASE ATTEMPT TO PHOTOGRAPH THIS SPECIES TO SEND FOR VERIFICATION.
8. ALL OBSERVATIONS OF NORTHERN BLACK RACER SNAKES ENCOUNTERED FROM THE END OF SEPTEMBER THROUGH THE MONTH OF APRIL MUST BE IMMEDIATELY REPORTED TO THE NHFG DEPARTMENT (MELISSA DOPERALSKI 603-479-1129 (CELL) OR BRENDAN CLIFFORD 603-944-0885) AS THIS INDICATES A POTENTIAL HIBERNACULUM IN THE AREA. PLEASE ATTEMPT TO PHOTOGRAPH THIS SPECIES IF POSSIBLE. BLACK RACERS HAVE BEEN KNOWN TO DEN COMMUNALLY AT THE BASE OF POWER POLES. IF ONE IS SEEN AT THE BASE OF A POLE DURING THIS TIME PERIOD, WORK SHOULD CEASE IMMEDIATELY AT THAT POLE LOCATION AND THE INCIDENT CALLED IN TO US.

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379 & N186 TRANSMISSION LINE
STRUCTURE REPLACEMENT PROJECT
HINSDALE, WINCHESTER, RICHMOND, TROY,
AND FITZWILLIAM, NEW HAMPSHIRE

NOTES

PREPARED BY:  GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: EVSOURCE ENERGY	
PROJ MGR: LEW	REVIEWED BY: TLT	CHECKED BY: DMZ	SHEET S1
DESIGNED BY: MJD	DRAWN BY: MJD	SCALE:	
DATE: 04/28/2022	PROJECT NO: 04.0191410.10	REVISION NO.	



Appendix A – Alteration of Terrain Permit Application Form



ALTERATION OF TERRAIN PERMIT APPLICATION



Water Division/ Alteration of Terrain Bureau/ Land Resources Management
Check the Status of your Application: www.des.nh.gov/onestop

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

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

1. APPLICANT INFORMATION (INTENDED PERMIT HOLDER)

Applicant Name: Eversource Energy	Contact Name: Jeremy Fennell
Email: jeremy.fennell@eversource.com	Daytime Telephone: 603-634-3396
Mailing Address: 13 Legends Drive	
Town/City: Hooksett	State: NH Zip Code: 03106

2. APPLICANT'S AGENT INFORMATION If none, check here:

Business Name: GZA GeoEnvironmental, Inc.	Contact Name: Lindsey White
Email: lindsey.white@gza.com	Daytime Telephone: 603-232-8753
Address: 5 Commerce Park North, Suite 201	
Town/City: Bedford	State: NH Zip Code: 03110

3. PROPERTY OWNER INFORMATION (IF DIFFERENT FROM APPLICANT)

Applicant Name: ROW consists of existing easements	Contact Name:
Email:	Daytime Telephone:
Mailing Address:	
Town/City:	State: Zip Code:

4. PROPERTY OWNER'S AGENT INFORMATION If none, check here:

Business Name:	Contact Name:
Email:	Daytime Telephone:
Address:	
Town/City:	State: Zip Code:

5. CONSULTANT INFORMATION If none, check here:

Engineering Firm: GZA GeoEnvironmental, Inc.	Contact Name: Lindsey White
Email: lindsey.white@gza.com	Daytime Telephone: 603-232-8753
Address: 5 Commerce Park North, Suite 201	
Town/City: Bedford	State: NH Zip Code: 03110

6. PROJECT TYPE			
<input type="checkbox"/> Excavation Only	<input type="checkbox"/> Residential	<input type="checkbox"/> Commercial	<input type="checkbox"/> Golf Course
<input type="checkbox"/> Agricultural	<input type="checkbox"/> Land Conversion	<input checked="" type="checkbox"/> Other: Utility	
<input type="checkbox"/> School			
<input type="checkbox"/> Municipal			
7. PROJECT LOCATION INFORMATION			
Project Name: 379 and N186 Transsmision Line Structure Replacement Project			
Street/Road Address: Existing Utility Right-of-Way			
Town/City: Hinsdale,Winchester,Richmond,Troy,Fitzwilliam		County: Cheshire	
Tax Map: See attached	Block:	Lot Number:	Unit:
Location Coordinates: 757679N, 108732E		<input type="checkbox"/> Latitude/Longitude	<input type="checkbox"/> UTM
<input checked="" type="checkbox"/> State Plane			
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 checked="" type="checkbox"/> No		
2. Man-made pond created by impounding a stream or wetland Purpose:	<input type="checkbox"/> Yes	<input type="checkbox"/> Withdrawal	<input type="checkbox"/> Discharge
	<input checked="" 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 checked="" type="checkbox"/> No		
Post-development, will the proposed project discharge to:			
• A surface water impaired for phosphorus and/or nitrogen? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - include information to demonstrate that project will not cause net increase in phosphorus and/or nitrogen			
• A Class A surface water or Outstanding Resource Water? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - include information to demonstrate that project will not cause net increase in phosphorus and/or nitrogen			
• A lake or pond not covered previously? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - include information to demonstrate that project will not cause net increase in phosphorus in the lake or pond			
Is the project a High Load area? <input type="checkbox"/> Yes <input checked="" 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 checked="" type="checkbox"/> No
Is the project within a Groundwater Protection Area (GPA)?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Will the well setbacks identified in Env-Wq 1508.02 be met?		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Note: Guidance document titled " Using NHDES's OneStop WebGIS to Locate Protection Areas " is available online. 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 checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
If yes: Cut volume: <u>N/A</u> cubic feet within the 100-year floodplain			
Fill volume: <u>N/A</u> cubic feet within the 100-year floodplain			
<input checked="" type="checkbox"/> Project IS within ¼ mile of a designated river		Name of River: Ashuelot River	
<input type="checkbox"/> Project is NOT within ¼ mile of a designated river			
<input type="checkbox"/> Project IS within a Coastal/Great Bay Region community - include info required by Env-Wq 1503.08(l) if applicable			
<input checked="" type="checkbox"/> Project is NOT within a Coastal/Great Bay Region community			
8. BRIEF PROJECT DESCRIPTION (PLEASE DO NOT REPLY "SEE ATTACHED")			
The proposed project includes the replacement of 36 existing utility structures, including 10 along the N186 Transmission Line and 26 along the 379 Transmission Line in the towns of Hinsdale, Winchester, Richmond, Troy and Fitzwilliam. Access road improvements and work pad grading are proposed as part of this project for continued maintenance of the existing line.			
9. IF APPLICABLE, DESCRIBE ANY WORK STARTED PRIOR TO RECEIVING PERMIT			
No work has been started prior to receiving a 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) ¹ : <u>5/16/2022</u> (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) ² : <u>5/16/2022</u> (Attach proof of delivery)				
C. Type of plan required: <input type="checkbox"/> Land Conversion <input type="checkbox"/> Detailed Development <input checked="" type="checkbox"/> Excavation, Grading & Reclamation <input type="checkbox"/> Steep Slope				
D. Additional plans required: <input type="checkbox"/> Stormwater Drainage & Hydrologic Soil Groups <input type="checkbox"/> Source Control <input type="checkbox"/> Chloride Management				
E. Total area of disturbance: <u>475,906</u> square feet				
F. Additional impervious cover as a result of the project: _____ square feet (use the "-" symbol to indicate a net reduction in impervious coverage). Total final impervious cover: <u>0</u> square feet				
G. Total undisturbed cover: <u>0</u> square feet				
H. Number of lots proposed: <u>0</u>				
I. Total length of roadway: <u>0</u> linear feet				
J. Name(s) of receiving water(s): <u>0</u>				
K. Identify all other NHDES permits required for the project, and for each indicate whether an application has been filed and is pending, or if the required approval has been issued provide the permit number, registration date, or approval letter number, as applicable.				
			Status	
Type of Approval	Application Filed?		Pending	If Issued:
1. Water Supply Approval	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/>	Permit number:
2. Wetlands Permit	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		<input checked="" type="checkbox"/>	Permit number: TBD
3. Shoreland Permit	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		<input checked="" type="checkbox"/>	Permit number: TBD
4. UIC Registration	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/>	Registration date:
5. Large/Small Community Well Approval	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/>	Approval letter date:
6. Large Groundwater Withdrawal Permit	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/>	Permit number:
7. Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>	Permit number:
L. List all species identified by the Natural Heritage Bureau as threatened or endangered or of concern: <u>None</u>				
M. Using NHDES's Web GIS OneStop program (www2.des.state.nh.us/gis/onestop/), with the Surface Water Impairment layer turned on, list the impairments identified for each receiving water. If no pollutants are listed, enter "N/A." <u>BENTHIC-MACROINVERTEBRATE BIOASSESSMENTS, 560</u>				
N. Did the applicant/applicant's agent have a pre-application meeting with AOT staff?			<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
If yes, name of staff member:				
O. Will blasting of bedrock be required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, estimated quantity of blast rock: _____ cubic yards If yes, standard blasting BMP notes must be placed on the plans, available at: http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-10-12.pdf NOTE: If greater than 5,000 cubic yards of blast rock will be generated, a groundwater monitoring program must be developed and submitted to NHDES. Contact AOT staff for additional detail.				

¹ 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.

² 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.

11. CHECK ALL APPLICATION ATTACHMENTS THAT APPLY (SUBMIT WITH APPLICATION IN ORDER LISTED)

LOOSE:

- Signed application form: des.nh.gov/organization/divisions/water/aot/index.htm (with attached proof(s) of delivery)
- Check for the application fee: des.nh.gov/organization/divisions/water/aot/fees.htm
- Color copy of a USGS map with the property boundaries outlined (1" = 2,000' scale)
- If 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.

BIND IN A REPORT IN THE FOLLOWING ORDER:

- Copy of the signed application form & application checklist (des.nh.gov/organization/divisions/water/aot/index.htm)
- 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
- Web GIS printout with the "Surface Water Impairments" layer turned on - <http://www4.des.state.nh.us/onestopdatamapper/onestopmapper.aspx>
- Web GIS printouts with the AOT screening layers turned on - <http://www4.des.state.nh.us/onestopdatamapper/onestopmapper.aspx>
- NHB letter using DataCheck Tool - www.nhdfi.org/about-forests-and-lands/bureaus/natural-heritage-bureau/
- The Web Soil Survey Map with project's watershed outlined - websoilsurvey.nrcs.usda.gov
- Aerial photograph (1" = 2,000' scale with the site boundaries outlined)
- Photographs representative of the site
- Groundwater Recharge Volume calculations (one worksheet for each permit application): des.nh.gov/organization/divisions/water/aot/documents/bmp_worksh.xls
- BMP worksheets (one worksheet for each treatment system): des.nh.gov/organization/divisions/water/aot/documents/bmp_worksh.xls
- Drainage analysis, stamped by a professional engineer (see Application Checklist for details)
- 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, *Site-Specific Soil Mapping Standards for NH & VT, SSSNNE Special Publication No. 3*.
- Infiltration Feasibility Report (example online) [Env-Wq 1503.08(f)(3)]
- Registration and Notification Form for Storm Water Infiltration to Groundwater (UIC Registration-for underground systems only, including drywells and trenches): http://des.nh.gov/organization/divisions/water/dwgb/dwspp/gw_discharge
- 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 & post-development color coded soil plans on 11" x 17" (see Application Checklist for details)
- Pre & post-development 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 Checklist for Details
- REVIEW APPLICATION FOR COMPLETENESS & CONFIRM INFORMATION LISTED ON THE APPLICATION IS INCLUDED WITH SUBMITTAL.

12. REQUIRED SIGNATURES

JF By initialing here, I acknowledge that I am required by Env-Wq 1503.20(e) to submit a copy of all approved documents to the department in PDF format on a CD within one week after permit approval.

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.

APPLICANT

Jeremy Fennell

APPLICANT'S AGENT:

Signature: _____

Date: 5/16/2022

Name (print or type): Jeremy Fennell

Title: Licensing and Permitting Specialist

PROPERTY OWNER

PROPERTY OWNER'S AGENT:

Signature: _____

Date: _____

Name (print or type): _____

Title: _____

ATTACHMENT A: ALTERATION OF TERRAIN PERMIT APPLICATION CHECKLIST

Check the box to indicate the item has been provided or provide an explanation why the item does not apply.

DESIGN PLANS

- Plans printed on 34 - 36" by 22 - 24" white paper
- PE stamp
- Wetland delineation
- Temporary erosion control measures
- Treatment for all stormwater runoff from impervious surfaces such as roadways (including gravel roadways), parking areas, and non-residential roof runoff. Guidance on treatment BMPs can be found in Volume 2, Chapter 4 of the NH Stormwater Management Manual.
- Pre-existing 2-foot contours
- Proposed 2-foot contours
- Drainage easements protecting the drainage/treatment structures
- Compliance with the Wetlands Bureau, RSA 482- A <http://des.nh.gov/organization/divisions/water/wetlands/index.htm>. Note that artificial detention in wetlands is not allowed.
- Compliance with the Comprehensive Shoreland Protection Act, RSA 483-B. <http://des.nh.gov/organization/divisions/water/wetlands/cspa>
- Benches. Benching is 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 need state Dam permits.
<http://des.nh.gov/organization/divisions/water/dam/documents/damdef.pdf>

DETAILS

- Typical roadway x-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 BMP's proposed
- Any innovative BMP's proposed

CONSTRUCTION SEQUENCE/EROSION CONTROL

- Note that the project is to be managed in a manner that meets the requirements and intent of RSA 430:53 and Chapter 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/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. (Reed canary grass is listed in the Green Book; however, this 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 double-side 8 1/2" x 11" sheets where possible but, do not reduce the text such that more than one page fits on one side.

- PE stamp
- Rainfall amount obtained from the Northeast Regional Climate Center- <http://precip.eas.cornell.edu/>. Include extreme precipitation table as obtained from the above referenced website.
- 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/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 & Grafton counties are Type II, all others Type III).

PRE- AND POST-DEVELOPMENT 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-DEVELOPMENT 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 which identifies each soil series symbol and its associated soil series name (e.g., 26 = Windsor).
- The hydrologic soil group color coding (A = Green, B = yellow, C= orange, D=red, Water=blue, & Impervious = gray).

Please note that excavation projects (e.g., gravel pits) have similar requirements to that above, however the following are common exceptions/additions:

- Drainage report is not needed if site does not have off-site flow.
- 5 foot contours allowed rather than 2 foot.
- No PE stamp needed on the plans.
- Add a note to the plans that the applicant must submit to the Department of Environmental Services 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.

See NRCS publication titled: *Vegetating New Hampshire Sand and Gravel Pits* for a good resource, it is posted online at: <http://des.nh.gov/organization/divisions/water/aot/categories/publications>.

ADDITIONAL INFORMATION RE: NUTRIENTS, CLIMATE

- If project will discharge stormwater to a surface water impaired for phosphorus and/or nitrogen, include information to demonstrate that project will not cause net increase in phosphorus and/or nitrogen.
- If project will discharge stormwater to a Class A surface water or Outstanding Resource Water, include information to demonstrate that project will not cause net increase in phosphorus and/or nitrogen.
- If project will discharge stormwater to a lake or pond not covered previously, include information to demonstrate that project will not cause net increase in phosphorus in the lake or pond.
- If project is within a Coastal/Great Bay Region community, include info required by Env-Wq 1503.08(l) if applicable.



Appendix B – Abutters List



Eversource N186 379 Transmission Line Structure Replacement Project
 Hinsdale, Winchester, Richmond, Troy and Fitzwilliam
 New Hampshire

Appendix B - Parcels Intersecting Project Area

Hinsdale	Winchester	Richmond	Troy	Fitzwilliam
Tax Map-Lot	Tax Map-Lot	Tax Map-Lot	Tax Map-Lot	Tax Map-Lot
020-004-000	08-118-0000	405-087-0	014-0023-0000	18-03-000
016-016-000	08-029-0000		015-0004-000A	40-09-000
015-039-000	08-028-0000		029-0002-0000	41-12-001
015-033-000	08-047-0000		015-0001-0000	
016-014-000	08-051-0000		015-0005-0000	
015-030-000	08-052-0000		015-0003-0000	
016-017-000	08-116-0000			
015-028-000	08-119-0000			
015-008-000				



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

New Hampshire Natural Heritage Bureau NHB DataCheck Results Letter

To: Conor Madison
5 Commerce Park N
Bedford, NH 03110

From: NH Natural Heritage Bureau

Date: 2/21/2022 (This letter is valid through 2/21/2023)

Re: Review by NH Natural Heritage Bureau of request dated 2/21/2022

Permit Types: Utility Statutory Permit by Notification (SPN)
Alteration of Terrain Permit
Stormwater Pollution Prevention
General Permit

NHB ID: NHB22-0746

Applicant: Conor Madison

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

Proj. Description: Eversource is proposing to replace several existing transmission structures within the existing 379 right-of-way in Fitzwilliam.

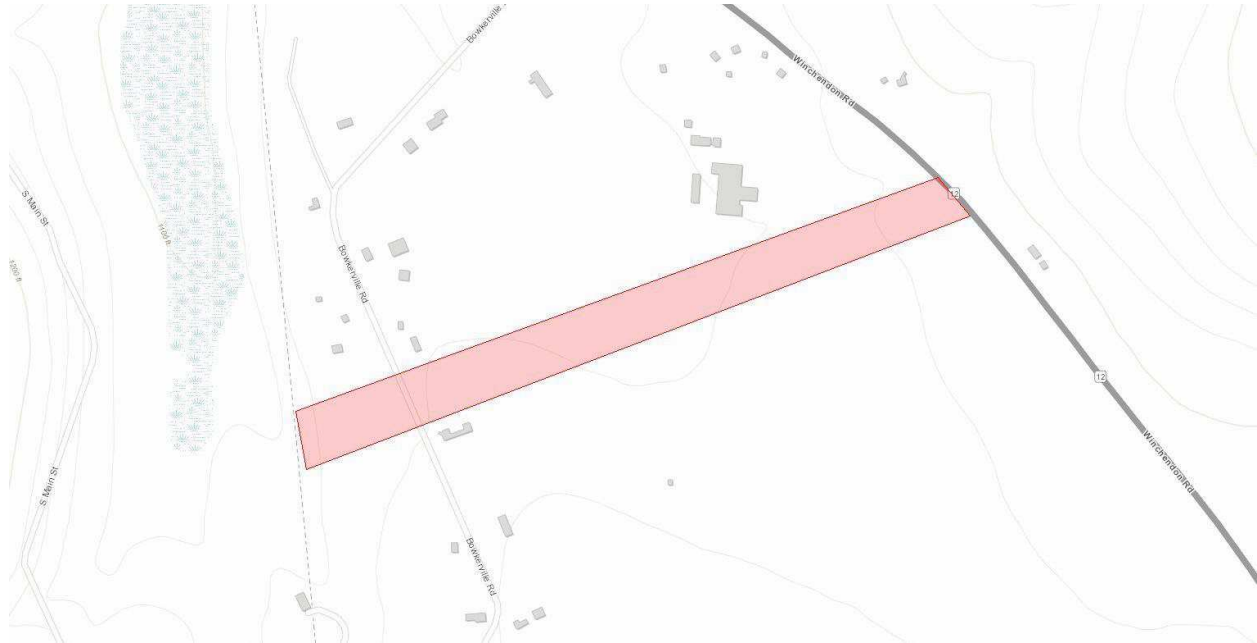
The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded 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: NHB22-0746



New Hampshire Natural Heritage Bureau NHB DataCheck Results Letter

To: Conor Madison
5 Commerce Park N
Bedford, NH 03110

From: NH Natural Heritage Bureau

Date: 2/21/2022 (This letter is valid through 2/21/2023)

Re: Review by NH Natural Heritage Bureau of request dated 2/21/2022

Permit Types: Utility Statutory Permit by Notification (SPN)
Alteration of Terrain Permit
Stormwater Pollution Prevention
General Permit

NHB ID: NHB22-0747

Applicant: Conor Madison

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

Proj. Description: Eversource is proposing to replace several existing transmission structures within the existing 379 right-of-way in Hinsdale.

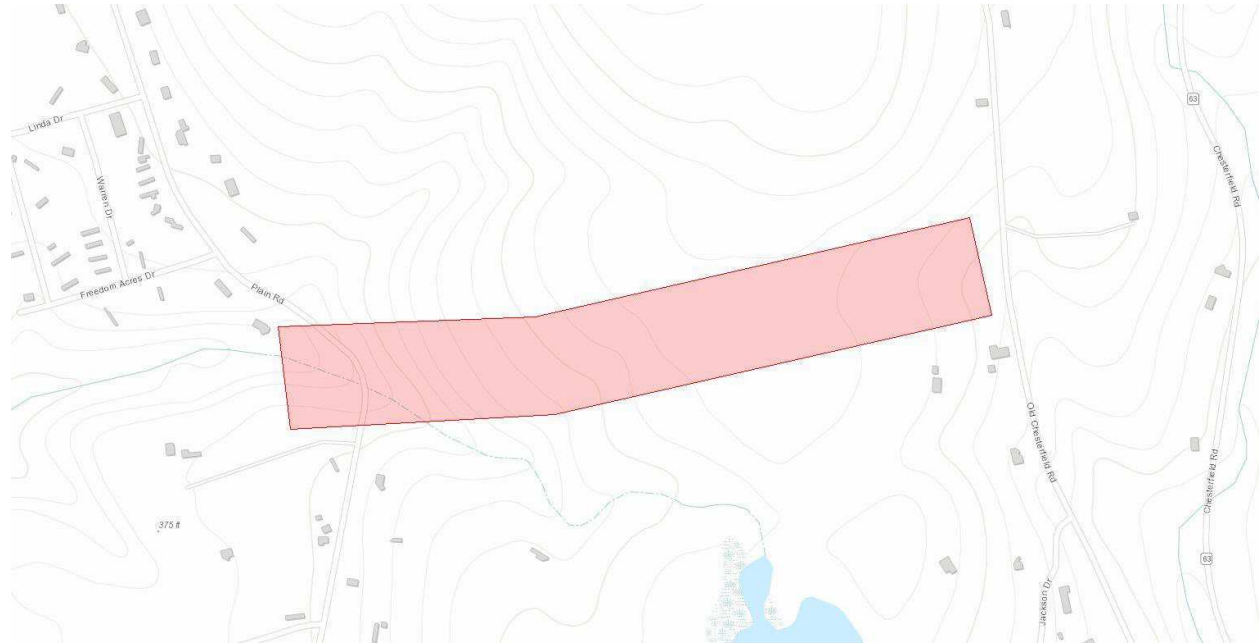
The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded 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: NHB22-0747



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: 2/21/2022 (This letter is valid through 2/21/2023)

Re: Review by NH Natural Heritage Bureau of request dated 2/21/2022

Permit Types: Utility Statutory Permit by Notification (SPN)
Alteration of Terrain Permit
Stormwater Pollution Prevention
General Permit

NHB ID: NHB22-0748

Applicant: Lindsey White

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

Proj. Description: Eversource is proposing to replace several existing transmission structures within the existing 379 right-of-way in Richmond.

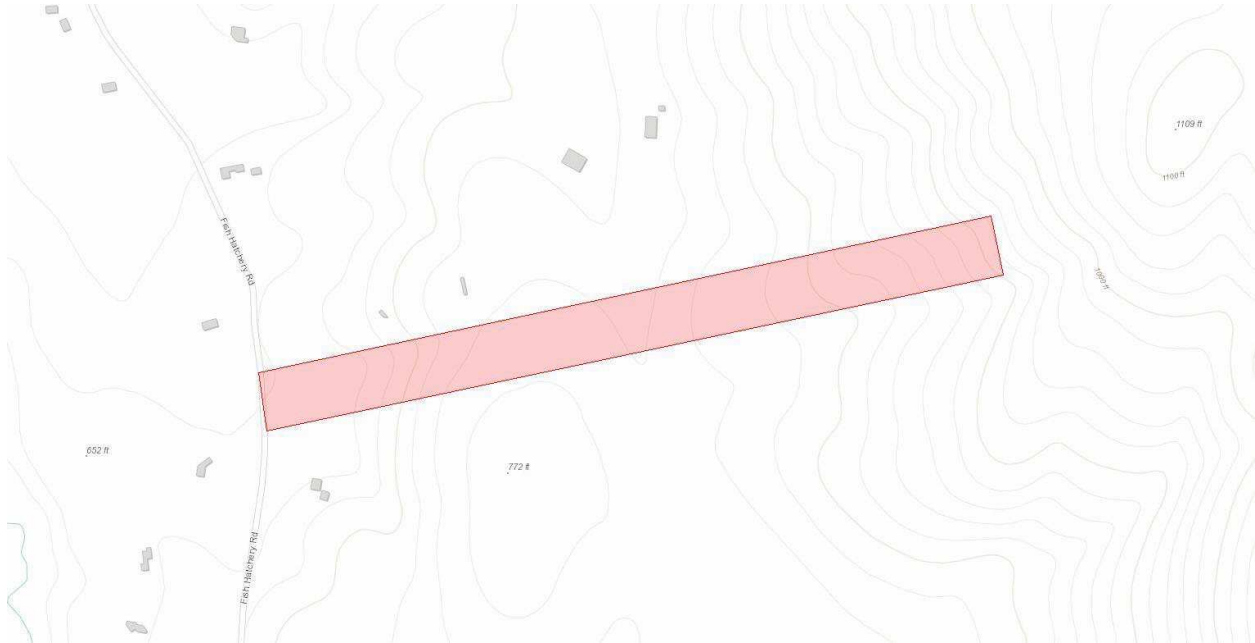
The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded 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: NHB22-0748



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: 5/6/2022 (This letter is valid through 5/6/2023)

Re: Review by NH Natural Heritage Bureau of request dated 5/6/2022

Permit Types: Shoreland Standard Permit
Utility Statutory Permit by Notification (SPN)
Alteration of Terrain Permit

NHB ID: NHB22-1652

Applicant: Lindsey White

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

Proj. Description: Eversource is proposing to replace a utility structure within the 379 right-of-way in Winchester.

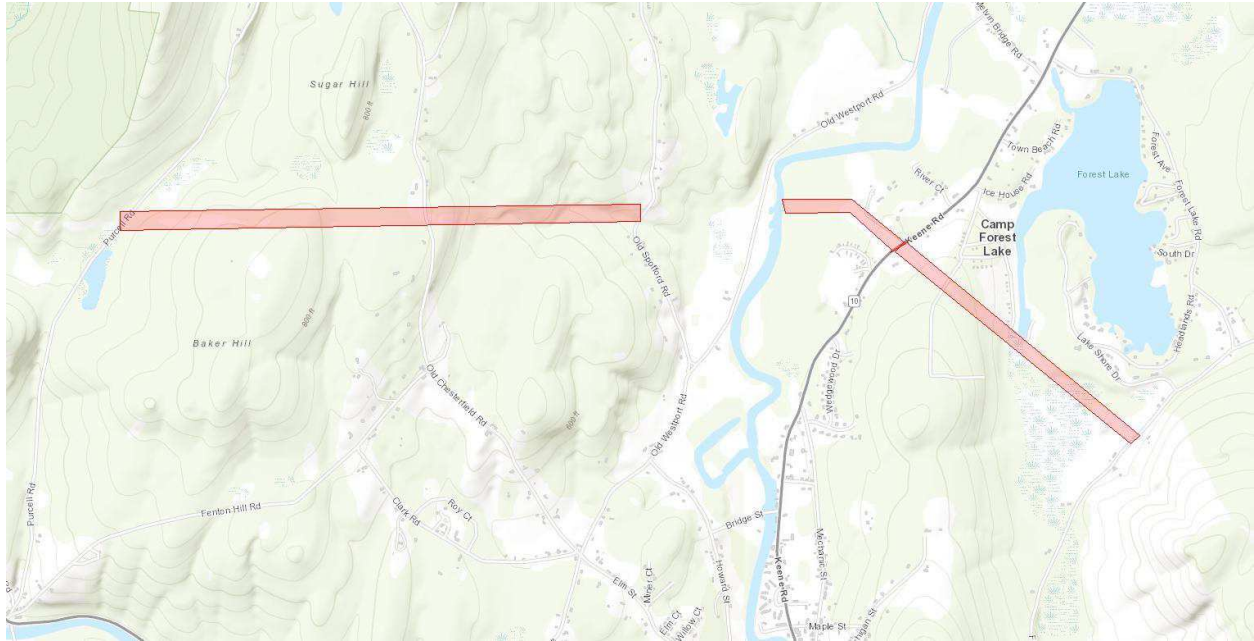
The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded 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: NHB22-1652



Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

Please note: portions of this document are confidential.

Maps and NHB record pages are confidential and should be redacted from public documents.

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

From: NHB Review, NH Natural Heritage Bureau

Date: 3/8/2022 (valid until 03/08/2023)

Re: Review by NH Natural Heritage Bureau

Permits: NHDES - Alteration of Terrain Permit, NHDES - Utility Statutory Permit by Notification (SPN), USACE - General Permit, USEPA - Stormwater Pollution Prevention

NHB ID: NHB22-0751

Town: Troy

Location: Eversource Right-of-way

Description: Eversource is proposing to replace several existing transmission structures within the existing 379 right-of-way in Troy.

cc: Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments NHB: No Comments At This Time

F&G: As of February 3, 2022, New Hampshire Fish and Game requirements for environmental review consultation have changed. To review the new rules, please go to <https://www.wildlife.state.nh.us/legislative/proposed-rules.html>. All requests for consultation and submittals should be sent via email to NHFGreview@wildlife.nh.gov or can be sent by mail. The NHB Datacheck results letter number needs to be included in the email subject line.

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 can be sent directly to kim.tuttle@wildlife.nh.gov.

Vertebrate species	State ¹	Federal	Notes
Northern Black Racer (<i>Coluber constrictor constrictor</i>)	T	--	Contact the NH Fish & Game Dept (see below).
Spotted Turtle (<i>Clemmys guttata</i>)	T	--	Contact the NH Fish & Game Dept (see below).

¹Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet

Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

Please note: portions of this document are confidential.

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been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

Contact for all animal reviews: Kim Tuttle, NHF&G, (603) 271-6544.

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.

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Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

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

From: Jessica Bouchard, NH Natural Heritage Bureau

Date: 10/1/2021 (valid until 10/01/2022)

Re: Review by NH Natural Heritage Bureau

Permits: NHDES - Utility Statutory Permit by Notification (SPN)

NHB ID: NHB21-2999 Town: Hinsdale Location: Eversource N186 Transmission Line
Description: Eversource Energy is proposing to replace select existing utility poles along the existing N186 Transmission Line.

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments NHB: Please provide a project narrative and description of the methods to be used to complete the project, and indicate anticipated project timing. Indicate if any wetland impacts are proposed, and the location of such impacts.

F&G: No Comments At This Time

Plant species	State ¹	Federal	Notes
leafy bulrush (<i>Scirpus polyphyllus</i>)	E	--	Threats include changes to local hydrology that would affect its habitat. It grows on river or streambanks, pond or lake shores, and in forested swamps.
lesser clearweed (<i>Pilea fontana</i>)	E	--	Threats are primarily alterations to the plants' rich mesic forest or riparian forest habitat.

¹Codes: "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 more than 20 years ago.

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Lindsey White

From: Fennell, Jeremy D <jeremy.fennell@eversource.com>
Sent: Friday, October 29, 2021 8:23 AM
To: Lindsey White
Subject: RE: NHB21-2999 Hinsdale - N186 Transmission Line

We will finish project by March 2022.

Thanks

From: Lindsey White <Lindsey.White@gza.com>
Sent: Thursday, October 28, 2021 7:42 AM
To: Fennell, Jeremy D <jeremy.fennell@eversource.com>
Subject: RE: NHB21-2999 Hinsdale - N186 Transmission Line

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Hi Jeremy,

Just bumping this back up into your review queue. Thanks! 😊

Lindsey

Lindsey E. White, CPSS
Project Manager
GZA | 5 Commerce Park North | Bedford, NH 03110
o: 603.232.8753 | c: 603.770.5752 | lindsey.white@gza.com | www.gza.com | [LinkedIn](#)

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From: Lindsey White
Sent: Friday, October 22, 2021 1:55 PM
To: Jeremy Fennell (jeremy.fennell@eversource.com) <jeremy.fennell@eversource.com>
Subject: FW: NHB21-2999 Hinsdale - N186 Transmission Line

Hi Jeremy,

We received correspondence below from Jessica Bouchard on the N186. She would like us to confirm that timber matting will be removed by June 2022.

I think we should indicate that matting will be removed by June 2022, with the exception of emergencies which delay construction, in which case we will coordinate with NHB. This is an item that would be added to the compliance tracking spreadsheet.

Does that sound ok?

Thanks!

Lindsey E. White, CPSS

Project Manager

GZA | 5 Commerce Park North | Bedford, NH 03110

o: 603.232.8753 | c: 603.770.5752 | lindsey.white@gza.com | www.gza.com | [LinkedIn](#)

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From: Bouchard, Jessica <Jessica.R.Bouchard@dn-cr.nh.gov>

Sent: Friday, October 22, 2021 1:41 PM

To: Lindsey White <Lindsey.White@gza.com>

Cc: Lamb, Amy <Amy.E.Lamb@dn-cr.nh.gov>

Subject: RE: NHB21-2999 Hinsdale - N186 Transmission Line

Hi Lindsey,

Thank you for the plan set and information.

The plans indicate that wetland impacts proposed are temporary and will be for 1) the placement of timber matting over a wetland for access in one location and 2) placement of timber matting in a wetland portion of one proposed work pad. NHB concurs with the use of timber matting in wetlands, which is appropriate habitat for lesser bulrush, as it prevents soil disturbance (rutting) and it reduces soil compaction by distributing weight and tire pressure along the extent of the matting. If timber matting will be installed in March 2022, work is expected to end by June 2022, and timber matting is also expected to be removed by June, then potential impacts to lesser bulrush (if present) are minimal and temporary, as the perennial plant's root system will not be impacted and it will be allowed to grow once the matting is removed.

Lesser clearweed is only known in a single riparian area along the Connecticut River and appropriate habitat is not expected to be within the ROW corridor.

Please verify that timber matting is expected to be removed by June 2022.

Thank you,

Jessica Bouchard

Environmental Reviewer / Ecological Information Specialist

New Hampshire Natural Heritage Bureau (NHB)

Division of Forests & Lands

NH Dept. of Natural & Cultural Resources

172 Pembroke Rd

Concord, NH 03301

(603) 271-2834 (office)

[NHB DataCheck Tool](#)

From: Lindsey White <Lindsey.White@gza.com>

Sent: Tuesday, October 5, 2021 10:30 AM

To: Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>

Subject: NHB21-2999 Hinsdale - N186 Transmission Line

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Hi Jessica,

Please find attached NHB21-2999 for the N186 Transmission Line Structure Replacement Project in Hinsdale. Eversource is proposing to replace five existing utility poles in the Town of Hinsdale. We have also attached basic aerial plans depicting proposed access and work pad areas for poles to be replaced. This plan set also shows proposed minimal wetland impacts. Where wetland impacts are proposed, Eversource will utilize timber matting to minimize and prevent rutting and compaction in wetlands. Existing access routes will be utilized to the greatest extent to minimize project impacts. The project is proposed to begin March 2022 and pending any emergencies should end by June 2022.

Please let us know if you have any additional questions.

Thanks!

Lindsey

Lindsey E. White, CPSS

Project Manager

GZA | 5 Commerce Park North | Bedford, NH 03110

o: 603.232.8753 | c: 603.770.5752 | lindsey.white@gza.com | www.gza.com | [LinkedIn](#)

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Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

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5 Commerce Park North
Suite 201
Bedford, NH 03110

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Date: 10/1/2021 (valid until 10/01/2022)

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Lindsey White

From: Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>
Sent: Wednesday, November 24, 2021 3:46 PM
To: Lindsey White
Cc: Lamb, Amy
Subject: RE: NHB21-2999 Hinsdale - N186 Transmission Line

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Hi Lindsey,

Thank you for running these changes by NHB. NHB has no concerns as long as the original recommendations sent via email on October 22, 2021 are adhered to.

Thank you and have a nice holiday vacation.

Jessica Bouchard
Environmental Reviewer / Ecological Information Specialist
New Hampshire Natural Heritage Bureau (NHB)
Division of Forests & Lands
NH Dept. of Natural & Cultural Resources
172 Pembroke Rd
Concord, NH 03301
(603) 271-2834 (office)

[NHB DataCheck Tool](#)

From: Lindsey White <Lindsey.White@gza.com>
Sent: Thursday, November 18, 2021 8:29 AM
To: Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>
Cc: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Subject: RE: NHB21-2999 Hinsdale - N186 Transmission Line

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Hi Jessica,

Eversource has added some additional poles to be replaced for the upcoming N186 Transmission Line Pole Replacement Project including Utility Poles 255, 254, 247, 246, and 245. These poles are located within the same vicinity as the original scope of work. Timber matting will continued to be utilized to cross wetlands and will be removed upon completion of work, and it is still anticipated that timber matting will be removed by June 2022.

The proposed work adds minimal wetland impacts for work pad placement around Structure 247 and a small wetland crossing for access to Structure 245. The remaining additional work will be located in uplands.

We want to confirm with you if there are any additional recommendations as a result of the additional work areas. We have attached updated plans for your review.

Thanks!
Lindsey

Lindsey E. White, CPSS
Project Manager

GZA | 5 Commerce Park North | Bedford, NH 03110
o: 603.232.8753 | c: 603.770.5752 | lindsey.white@gza.com | www.gza.com | [LinkedIn](#)

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From: Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>

Sent: Friday, October 22, 2021 1:41 PM

To: Lindsey White <Lindsey.White@gza.com>

Cc: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>

Subject: RE: NHB21-2999 Hinsdale - N186 Transmission Line

Hi Lindsey,

Thank you for the plan set and information.

The plans indicate that wetland impacts proposed are temporary and will be for 1) the placement of timber matting over a wetland for access in one location and 2) placement of timber matting in a wetland portion of one proposed work pad. NHB concurs with the use of timber matting in wetlands, which is appropriate habitat for lesser bulrush, as it prevents soil disturbance (rutting) and it reduces soil compaction by distributing weight and tire pressure along the extent of the matting. If timber matting will be installed in March 2022, work is expected to end by June 2022, and timber matting is also expected to be removed by June, then potential impacts to lesser bulrush (if present) are minimal and temporary, as the perennial plant's root system will not be impacted and it will be allowed to grow once the matting is removed.

Lesser clearweed is only known in a single riparian area along the Connecticut River and appropriate habitat is not expected to be within the ROW corridor.

Please verify that timber matting is expected to be removed by June 2022.

Thank you,

Jessica Bouchard
Environmental Reviewer / Ecological Information Specialist
New Hampshire Natural Heritage Bureau (NHB)
Division of Forests & Lands
NH Dept. of Natural & Cultural Resources
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Concord, NH 03301
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From: Lindsey White <Lindsey.White@gza.com>

Sent: Tuesday, October 5, 2021 10:30 AM

To: Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>

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Lindsey

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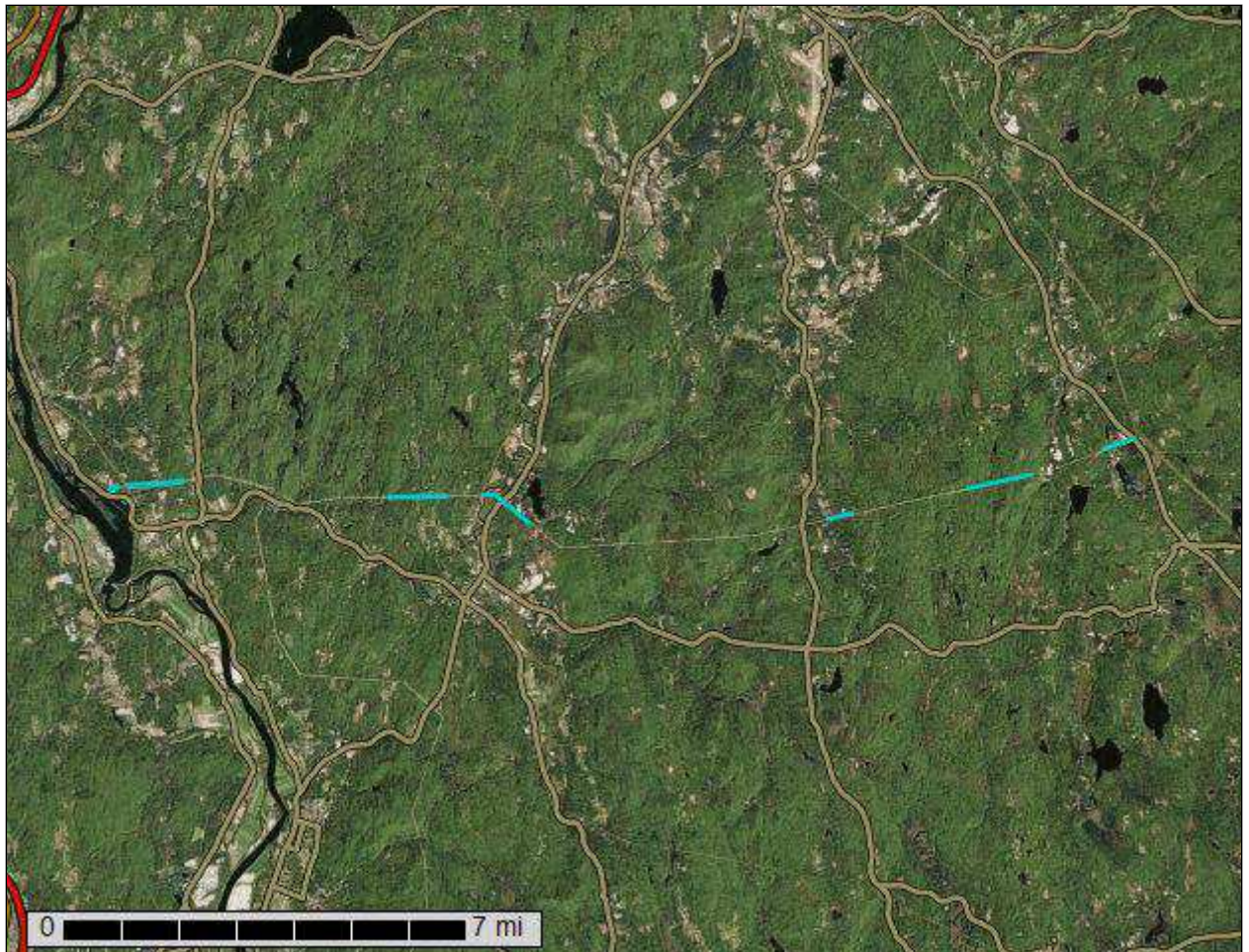
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Appendix D – Natural Resources Conservation Service Web Soil Survey

Custom Soil Resource Report for Cheshire County, New Hampshire



Preface

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).

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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Custom Soil Resource Report

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How Soil Surveys Are Made

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

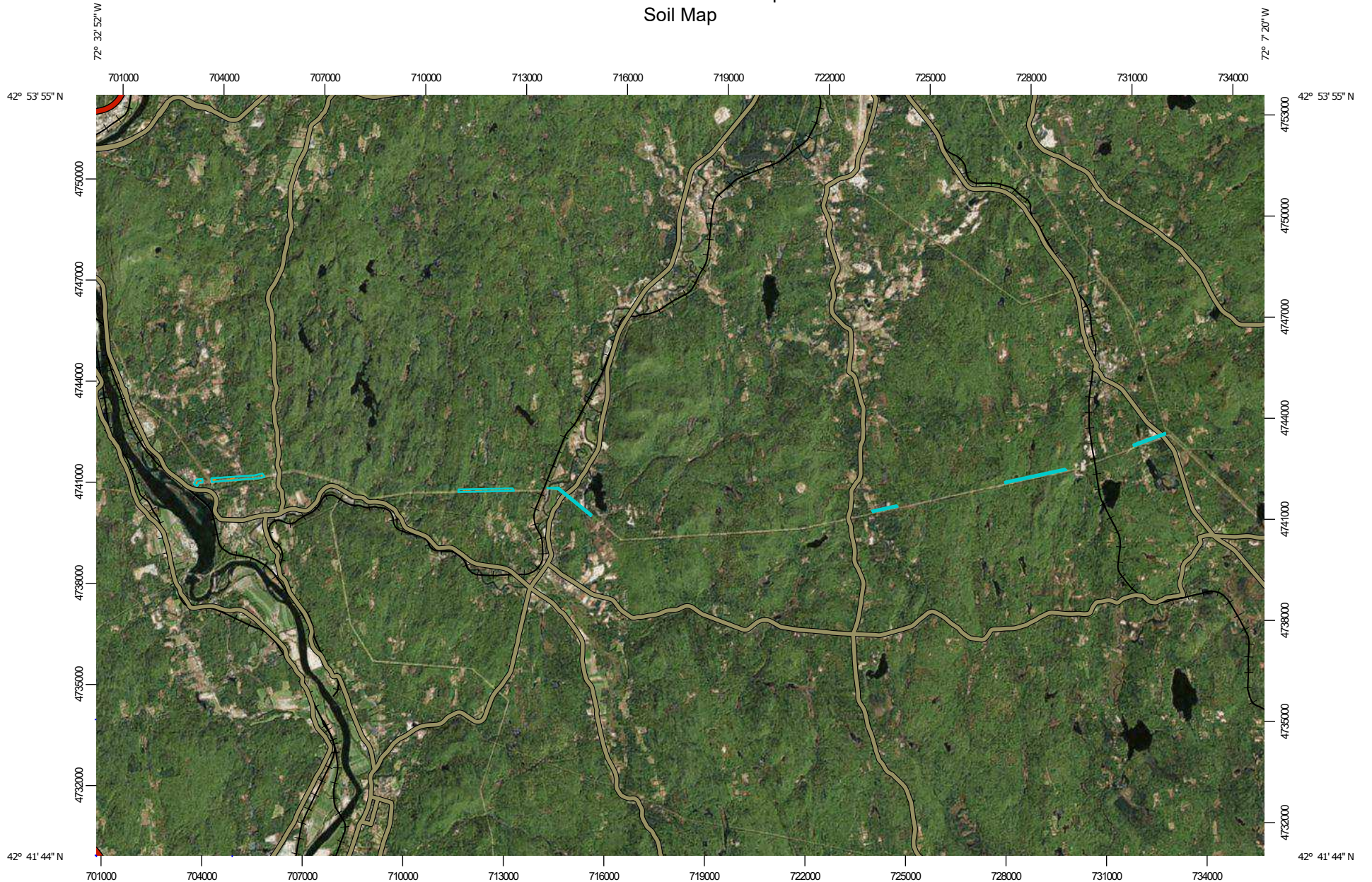
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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

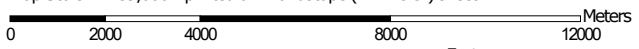
Soil Map

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: 1:159,000 if printed on A landscape (11" x 8.5") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N 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 1:20,000.

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: Cheshire County, New Hampshire
 Survey Area Data: Version 25, Aug 31, 2021

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 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
2	Suncook loamy fine sand	1.1	0.8%
4	Pootatuck fine sandy loam	0.8	0.6%
10C	Merrimac fine sandy loam, 8 to 15 percent slopes	1.5	1.0%
24C	Agawam fine sandy loam, 8 to 15 percent slopes	0.7	0.5%
26A	Windsor loamy sand, 0 to 3 percent slopes	14.0	9.8%
26B	Windsor loamy sand, 3 to 8 percent slopes	3.5	2.5%
26C	Windsor loamy sand, 8 to 15 percent slopes	1.1	0.8%
26E	Windsor loamy sand, 15 to 60 percent slopes	20.6	14.4%
36C	Adams loamy sand, 8 to 15 percent slopes	1.3	0.9%
36E	Adams loamy sand, 15 to 60 percent slopes	2.5	1.7%
56C	Becket fine sandy loam, 8 to 15 percent slopes	1.7	1.2%
57C	Becket fine sandy loam, 8 to 15 percent slopes, very stony	4.8	3.3%
57D	Becket fine sandy loam, 15 to 25 percent slopes, very stony	4.9	3.4%
60C	Tunbridge-Berkshire complex, 8 to 15 percent slopes, very stony	6.4	4.5%
60D	Tunbridge-Berkshire complex, 15 to 25 percent slopes, very stony	13.9	9.7%
61C	Tunbridge-Lyman-Rock outcrop complex, 8 to 15 percent slopes	2.5	1.7%
61D	Tunbridge-Lyman-Rock outcrop complex, 15 to 25 percent slopes	2.9	2.0%
73D	Berkshire fine sandy loam, 15 to 25 percent slopes, very stony	1.6	1.1%
79B	Peru fine sandy loam, 0 to 8 percent slopes, very stony	0.1	0.1%
143D	Monadnock fine sandy loam, 15 to 25 percent slopes, very stony	8.7	6.1%

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Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
161E	Lyman-Tunbridge-Rock outcrop complex, 25 to 60 percent slopes	9.3	6.5%
168B	Sunapee fine sandy loam, 3 to 8 percent slopes	0.1	0.1%
169B	Sunapee fine sandy loam, 0 to 8 percent slopes, very stony	2.7	1.9%
169C	Sunapee fine sandy loam, 8 to 15 percent slopes, very stony	1.6	1.1%
197	Borohemists, ponded	1.3	0.9%
347B	Lyme and Moosilauke soils, 0 to 5 percent slopes, very stony	1.6	1.1%
395	Chocorua mucky peat	0.0	0.0%
414	Moosilauke fine sandy loam	0.7	0.5%
495	Ossipee mucky peat	1.2	0.9%
526B	Caesar loamy sand, 3 to 8 percent slopes	6.6	4.6%
526C	Caesar loamy sand, 8 to 15 percent slopes	1.4	0.9%
526E	Caesar loamy sand, 15 to 50 percent slopes	0.4	0.3%
558B	Skerry fine sandy loam, 3 to 8 percent slopes	1.0	0.7%
559B	Skerry fine sandy loam, 0 to 8 percent slopes, very stony	7.9	5.5%
559C	Skerry fine sandy loam, 8 to 15 percent slopes, very stony	6.5	4.5%
647B	Pillsbury fine sandy loam, 0 to 8 percent slopes, very stony	6.1	4.3%
W	Water	0.1	0.1%
Totals for Area of Interest		143.3	100.0%

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 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

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

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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.

Cheshire County, New Hampshire

2—Suncook loamy fine sand

Map Unit Setting

National map unit symbol: 9cyw
Elevation: 180 to 770 feet
Mean annual precipitation: 44 to 46 inches
Mean annual air temperature: 46 degrees F
Frost-free period: 145 to 150 days
Farmland classification: Farmland of local importance

Map Unit Composition

Suncook and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Suncook

Typical profile

H1 - 0 to 8 inches: loamy fine sand
H2 - 8 to 26 inches: stratified loamy fine sand to coarse sand
H3 - 26 to 60 inches: stratified loamy fine sand to gravelly coarse sand

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: About 36 to 72 inches
Frequency of flooding: NoneOccasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY006CT - High Floodplain Levee
Hydric soil rating: No

Minor Components

Occum

Percent of map unit: 4 percent
Hydric soil rating: No

Not named

Percent of map unit: 3 percent
Hydric soil rating: No

Not named wet

Percent of map unit: 3 percent
Landform: Flood plains

Hydric soil rating: Yes

4—Pootatuck fine sandy loam

Map Unit Setting

National map unit symbol: 9d0n
Elevation: 200 to 1,210 feet
Mean annual precipitation: 44 to 46 inches
Mean annual air temperature: 46 degrees F
Frost-free period: 140 to 150 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Pootatuck

Setting

Parent material: Sandy and/or coarse-loamy alluvium derived from granite, gneiss or schist

Typical profile

H1 - 0 to 9 inches: fine sandy loam
H2 - 9 to 28 inches: fine sandy loam
H3 - 28 to 60 inches: stratified loamy fine sand to very gravelly coarse sand

Properties and qualities

Slope: 0 to 3 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 (0.60 to 6.00 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: NoneOccasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144AY012CT - Sandy Low Floodplain
Hydric soil rating: No

Minor Components

Rippowam

Percent of map unit: 5 percent

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Landform: Flood plains
Hydric soil rating: Yes

Suncook

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

Occum

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

10C—Merrimac fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2tyqt
Elevation: 0 to 1,030 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Merrimac

Setting

Landform: Outwash terraces, kames, moraines, outwash plains, eskers
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Side slope, crest, riser, tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss

Typical profile

Ap - 0 to 10 inches: fine sandy loam
Bw1 - 10 to 22 inches: fine sandy loam
Bw2 - 22 to 26 inches: stratified gravel to gravelly loamy sand
2C - 26 to 65 inches: stratified gravel to very gravelly sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)

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Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline (0.0 to 1.4 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Minor Components

Hinckley

Percent of map unit: 5 percent
Landform: Outwash plains, eskers, kames, deltas
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Sudbury

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

Windsor

Percent of map unit: 5 percent
Landform: Outwash terraces, deltas, dunes, outwash plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

24C—Agawam fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2tyqy
Elevation: 0 to 360 feet
Mean annual precipitation: 36 to 71 inches

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Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Agawam and similar soils: 85 percent

Minor components: 15 percent

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

Description of Agawam

Setting

Landform: Kames, moraines, outwash terraces, outwash plains, kame terraces

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

Landform position (three-dimensional): Side slope, crest, riser, tread, rise, dip

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from gneiss, granite, schist, and/or phyllite

Typical profile

Ap - 0 to 11 inches: fine sandy loam

Bw1 - 11 to 16 inches: fine sandy loam

Bw2 - 16 to 26 inches: fine sandy loam

2C1 - 26 to 45 inches: loamy fine sand

2C2 - 45 to 55 inches: loamy fine sand

2C3 - 55 to 65 inches: loamy sand

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 15 to 35 inches to strongly contrasting textural stratification

Drainage class: Well drained

Runoff class: Very low

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 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Ecological site: F145XY008MA - Dry Outwash

Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 5 percent

Landform: Outwash plains, outwash terraces, dunes, deltas

Landform position (three-dimensional): Tread, riser

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

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Hydric soil rating: No

Merrimac

Percent of map unit: 5 percent

Landform: Kames, moraines, outwash terraces, eskers, outwash plains

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

Landform position (three-dimensional): Side slope, crest, riser, tread

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Ninigret

Percent of map unit: 5 percent

Landform: Terraces

Down-slope shape: Linear

Across-slope shape: Concave

Hydric soil rating: No

26A—Windsor loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svkg

Elevation: 0 to 990 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of local importance

Map Unit Composition

Windsor, loamy sand, and similar soils: 85 percent

Minor components: 15 percent

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

Description of Windsor, Loamy Sand

Setting

Landform: Dunes, deltas, outwash terraces, outwash plains

Landform position (three-dimensional): Tread, riser

Down-slope shape: Convex, linear

Across-slope shape: Convex, linear

Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

O - 0 to 1 inches: moderately decomposed plant material

A - 1 to 3 inches: loamy sand

Bw - 3 to 25 inches: loamy sand

C - 25 to 65 inches: sand

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Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 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): 2s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Deerfield, loamy sand

Percent of map unit: 10 percent
Landform: Outwash plains, terraces, deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, tal
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hinckley, loamy sand

Percent of map unit: 5 percent
Landform: Outwash plains, eskers, kames, deltas
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

26B—Windsor loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svkf
Elevation: 0 to 1,210 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of local importance

Map Unit Composition

Windsor, loamy sand, and similar soils: 85 percent

Minor components: 15 percent

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

Description of Windsor, Loamy Sand

Setting

Landform: Outwash terraces, deltas, outwash plains, dunes

Landform position (three-dimensional): Tread, riser

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

O - 0 to 1 inches: moderately decomposed plant material

A - 1 to 3 inches: loamy sand

Bw - 3 to 25 inches: loamy sand

C - 25 to 65 inches: sand

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 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 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A

Ecological site: F144AY022MA - Dry Outwash

Hydric soil rating: No

Minor Components

Hinckley, loamy sand

Percent of map unit: 10 percent

Landform: Outwash plains, eskers, kames, deltas

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

Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise

Down-slope shape: Convex

Across-slope shape: Linear, convex

Hydric soil rating: No

Deerfield, loamy sand

Percent of map unit: 5 percent

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Landform: Outwash plains, terraces, deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

26C—Windsor loamy sand, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2svkq
Elevation: 0 to 1,260 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of local importance

Map Unit Composition

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

Description of Windsor

Setting

Landform: — error in exists on —
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, riser
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
Ap - 1 to 11 inches: loamy sand
Bw - 11 to 31 inches: loamy sand
C - 31 to 65 inches: sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

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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): 3e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Hinckley

Percent of map unit: 10 percent
Landform: Outwash plains, eskers, kames, deltas
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, crest, side slope, rise
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Deerfield

Percent of map unit: 5 percent
Landform: Outwash plains, terraces, deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, tal
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

26E—Windsor loamy sand, 15 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2w2ws
Elevation: 0 to 760 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Windsor

Setting

Landform: Outwash plains, outwash terraces, deltas, dunes
Landform position (three-dimensional): Tread, riser

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Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 3 inches: loamy sand

Bw - 3 to 25 inches: loamy sand

C - 25 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): Moderately high to very high (1.42 to 99.90 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 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A

Ecological site: F144AY022MA - Dry Outwash

Hydric soil rating: No

Minor Components

Hinckley

Percent of map unit: 10 percent

Landform: Outwash plains, eskers, kames, deltas

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

Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise

Down-slope shape: Convex

Across-slope shape: Linear, convex

Hydric soil rating: No

Deerfield

Percent of map unit: 5 percent

Landform: Outwash plains, terraces, deltas

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread, tal

Down-slope shape: Linear

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

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 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: 2wqnf
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: Not prime farmland

Map Unit Composition

Adams and similar soils: 85 percent

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Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Adams

Setting

Landform: Eskers
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: 15 to 60 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): 7e
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Colton

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

Croghan

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

Salmon

Percent of map unit: 2 percent
Landform: Eskers
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

56C—Becket fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w9pl
Elevation: 200 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 statewide importance

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): 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

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: 8 to 15 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

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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): 3e
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): 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

Tunbridge

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
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Pillsbury

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

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

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
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

O_i - 0 to 2 inches: slightly decomposed plant material
E - 2 to 4 inches: fine sandy loam
B_{hs} - 4 to 5 inches: fine sandy loam
B_{s1} - 5 to 7 inches: fine sandy loam
B_{s2} - 7 to 14 inches: fine sandy loam
B_{s3} - 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 (K_{sat}): 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

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
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

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

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
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): 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

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

60C—Tunbridge-Berkshire complex, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2wlpn
Elevation: 560 to 2,130 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, very stony, and similar soils: 50 percent
Berkshire, very stony, and similar soils: 35 percent
Minor components: 15 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): Mountainflank, mountainbase, interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or phyllite and/or 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
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 14.17 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: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Description of Berkshire, Very Stony

Setting

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

Sunapee, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope

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Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, 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

Marlow, 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, side slope

Down-slope shape: Convex

Across-slope shape: Convex

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, mountainbase, interfluve, 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: 3 percent

Landform: Mountains, hills

Landform position (two-dimensional): Footslope, toeslope

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

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

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

60D—Tunbridge-Berkshire complex, 15 to 25 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2wlpp

Elevation: 330 to 2,130 feet

Mean annual precipitation: 31 to 95 inches

Mean annual air temperature: 27 to 52 degrees F

Frost-free period: 60 to 160 days

Custom Soil Resource Report

Farmland classification: Not prime farmland

Map Unit Composition

Tunbridge, very stony, and similar soils: 55 percent

Berkshire, very stony, and similar soils: 35 percent

Minor components: 10 percent

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

Description of Tunbridge, 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 till derived from granite and gneiss and/or phyllite and/or 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: 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 14.17 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: F144BY501ME - Loamy Slope (Northern Hardwoods)

Hydric soil rating: No

Description of Berkshire, 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 phyllite and/or granite and gneiss and/or mica schist

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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: 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 (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): 6s
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Marlow, very stony

Percent of map unit: 3 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

Sunapee, very stony

Percent of map unit: 3 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: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope

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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: 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

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, crest, 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

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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, crest, 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: 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
Frequency of ponding: None

Custom Soil Resource Report

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

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, crest, 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

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, crest, side slope

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

Down-slope shape: Concave

Across-slope shape: Concave

Custom Soil Resource Report

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, crest, side slope

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, crest, 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

Custom Soil Resource Report

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, crest, side slope
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
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, crest, 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): Mountaintop, mountainflank, crest, side slope

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

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_i - 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_{s1} - 5 to 7 inches: fine sandy loam

B_{s2} - 7 to 13 inches: fine sandy loam

B_{s3} - 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

Custom Soil Resource Report

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 (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): 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

Custom Soil Resource Report

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

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
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)

Custom Soil Resource Report

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, interfluve
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, interfluve
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, 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: 1 percent
Landform: Hills, mountains
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

143D—Monadnock fine sandy loam, 15 to 25 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2wlm8
Elevation: 390 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 150 days
Farmland classification: Not prime farmland

Map Unit Composition

Monadnock, very stony, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monadnock, 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 granite and gneiss and/or mica schist over sandy and gravelly supraglacial meltout till derived from phyllite and/or granite and gneiss and/or mica schist

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)

Custom Soil Resource Report

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

Berkshire, very stony

Percent of map unit: 10 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

Tunbridge, 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

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Sunapee, very stony

Percent of map unit: 3 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

Cabot, 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

161E—Lyman-Tunbridge-Rock outcrop complex, 25 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2trpr
Elevation: 460 to 2,490 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

Lyman, very stony, and similar soils: 50 percent
Tunbridge, very stony, and similar soils: 26 percent
Rock outcrop: 12 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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
Ecological site: F143XY702ME - Shallow And Moderately Deep Till
Hydric soil rating: No

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

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: F143XY702ME - Shallow And Moderately Deep Till
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, free face, side slope, free face
Down-slope shape: Convex
Across-slope shape: Convex

Custom Soil Resource Report

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

Hydric soil rating: Unranked

Minor Components

Monadnock, very stony

Percent of map unit: 7 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

Marlow, very stony

Percent of map unit: 3 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

Cabot, very stony

Percent of map unit: 2 percent

Landform: Mountains, hills

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

168B—Sunapee fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2trs5
Elevation: 460 to 1,640 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 54 degrees F
Frost-free period: 70 to 150 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Sunapee

Setting

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

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bs1 - 8 to 17 inches: gravelly fine sandy loam
Bs2 - 17 to 26 inches: gravelly fine sandy loam
C1 - 26 to 38 inches: gravelly sandy loam
C2 - 38 to 65 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 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 14.03 in/hr)
Depth to water table: About 18 to 36 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: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Lyme

Percent of map unit: 5 percent
Landform: Hills, mountains
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

Monadnock

Percent of map unit: 5 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

Moosilauke

Percent of map unit: 3 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

Berkshire

Percent of map unit: 2 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

169B—Sunapee fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2trs7
Elevation: 620 to 1,800 feet

Custom Soil Resource Report

Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 54 degrees F
Frost-free period: 70 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

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

Description of Sunapee, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy supraglacial meltout till derived from phyllite and/or granite and gneiss and/or mica schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 3 inches: fine sandy loam
E - 3 to 5 inches: gravelly fine sandy loam
Bhs - 5 to 6 inches: gravelly fine sandy loam
Bs1 - 6 to 8 inches: gravelly fine sandy loam
Bs2 - 8 to 17 inches: gravelly fine sandy loam
Bs3 - 17 to 26 inches: gravelly fine sandy loam
C1 - 26 to 38 inches: gravelly sandy loam
C2 - 38 to 65 inches: gravelly 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: Moderately 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: About 18 to 36 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: Moderate (about 7.8 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

Berkshire, very stony

Percent of map unit: 5 percent
Landform: Hills, mountains

Custom Soil Resource Report

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: 4 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

Monadnock, 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

Moosilauke, very stony

Percent of map unit: 2 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

169C—Sunapee fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2trs8
Elevation: 690 to 2,200 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

Sunapee, very stony, 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 Sunapee, 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 supraglacial meltout till derived from phyllite and/or granite and gneiss and/or mica schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material

A - 2 to 3 inches: fine sandy loam

E - 3 to 5 inches: gravelly fine sandy loam

Bhs - 5 to 6 inches: gravelly fine sandy loam

Bs1 - 6 to 8 inches: gravelly fine sandy loam

Bs2 - 8 to 17 inches: gravelly fine sandy loam

Bs3 - 17 to 26 inches: gravelly fine sandy loam

C1 - 26 to 38 inches: gravelly sandy loam

C2 - 38 to 65 inches: gravelly 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: Moderately 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: About 18 to 36 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: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: C

Ecological site: F143XY501ME - Loamy Slope

Hydric soil rating: No

Minor Components

Lyme, very stony

Percent of map unit: 6 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

Custom Soil Resource Report

Hydric soil rating: Yes

Berkshire, very stony

Percent of map unit: 5 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: 2 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: 2 percent

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

Hydric soil rating: No

197—Borohemists, ponded

Map Unit Setting

National map unit symbol: 9cyv

Elevation: 10 to 2,800 feet

Mean annual precipitation: 28 to 49 inches

Mean annual air temperature: 37 to 50 degrees F

Frost-free period: 80 to 170 days

Farmland classification: Not prime farmland

Map Unit Composition

Borohemists and similar soils: 90 percent

Minor components: 10 percent

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

Description of Borochemists

Setting

Landform: Bogs

Typical profile

O - 0 to 65 inches: mucky peat

Properties and qualities

Slope: 0 to 1 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 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): 8w

Hydrologic Soil Group: A/D

Ecological site: F144BY230ME - Acidic Peat Wetland Complex

Hydric soil rating: Yes

Minor Components

Raynham

Percent of map unit: 3 percent

Landform: Lake terraces

Hydric soil rating: Yes

Searsport

Percent of map unit: 3 percent

Landform: Bogs

Hydric soil rating: Yes

Saco

Percent of map unit: 2 percent

Landform: Flood plains

Hydric soil rating: Yes

Lyme

Percent of map unit: 2 percent

Landform: Depressions

Hydric soil rating: Yes

347B—Lyme and Moosilauke soils, 0 to 5 percent slopes, very stony

Map Unit Setting

National map unit symbol: 9czy
Elevation: 10 to 2,800 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 80 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyme and similar soils: 40 percent
Moosilauke and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyme

Setting

Landform: Depressions
Parent material: Till

Typical profile

H1 - 0 to 6 inches: fine sandy loam
H2 - 6 to 25 inches: loam
H3 - 25 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 5 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: 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 18 inches
Frequency of flooding: None
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): 7s
Hydrologic Soil Group: A/D
Ecological site: F144BY305ME - Wet Loamy Flat
Hydric soil rating: Yes

Description of Moosilauke

Setting

Landform: Depressions

Parent material: Glacial drift

Typical profile

H1 - 0 to 7 inches: fine sandy loam

H2 - 7 to 20 inches: loamy sand

H3 - 20 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 5 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: Very 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

Monadnock

Percent of map unit: 5 percent

Hydric soil rating: No

Ossipee

Percent of map unit: 5 percent

Landform: Bogs

Hydric soil rating: Yes

Naumburg

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

Pillsbury

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

Searsport

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

395—Chocorua mucky peat

Map Unit Setting

National map unit symbol: 9d01
Elevation: 10 to 2,800 feet
Mean annual precipitation: 28 to 49 inches
Mean annual air temperature: 37 to 46 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 14 inches: mucky peat
O2 - 14 to 34 inches: mucky peat
H - 34 to 60 inches: stratified gravelly sand to loamy fine sand

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 19.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: A/D
Ecological site: F144BY303ME - Acidic Swamp
Hydric soil rating: Yes

Minor Components

Greenwood

Percent of map unit: 3 percent

Landform: Bogs
Hydric soil rating: Yes

Searsport

Percent of map unit: 3 percent
Landform: Outwash terraces
Hydric soil rating: Yes

Saco

Percent of map unit: 3 percent
Landform: Flood plains
Hydric soil rating: Yes

Not named

Percent of map unit: 3 percent
Landform: Bogs
Hydric soil rating: Yes

Ossipee

Percent of map unit: 3 percent
Landform: Bogs
Hydric soil rating: Yes

414—Moosilauke fine sandy loam

Map Unit Setting

National map unit symbol: 9d0t
Elevation: 10 to 2,800 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 80 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Moosilauke and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Moosilauke

Setting

Landform: Depressions
Parent material: Glacial drift

Typical profile

H1 - 0 to 7 inches: fine sandy loam
H2 - 7 to 20 inches: loamy sand
H3 - 20 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches

Custom Soil Resource Report

Drainage class: Poorly drained
Runoff class: Very 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): 4w
Hydrologic Soil Group: A/D
Ecological site: F144BY303ME - Acidic Swamp
Hydric soil rating: Yes

Minor Components

Naumburg

Percent of map unit: 8 percent
Landform: Depressions
Hydric soil rating: Yes

Not named wet

Percent of map unit: 7 percent
Landform: Depressions
Hydric soil rating: Yes

Searsport

Percent of map unit: 4 percent
Landform: Swamps
Hydric soil rating: Yes

Croghan

Percent of map unit: 3 percent
Hydric soil rating: No

Sheepscot

Percent of map unit: 3 percent
Hydric soil rating: No

495—Ossipee mucky peat

Map Unit Setting

National map unit symbol: 9d0v
Elevation: 300 to 1,750 feet
Mean annual precipitation: 28 to 48 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 60 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Ossipee and similar soils: 85 percent

Minor components: 15 percent

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

Description of Ossipee

Setting

Landform: Bogs

Parent material: Organic material over till

Typical profile

O1 - 0 to 11 inches: mucky peat

O2 - 11 to 30 inches: mucky peat

H - 30 to 60 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 to 6 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: Very high (about 20.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8w

Hydrologic Soil Group: B/D

Ecological site: F144BY301ME - Loamy Till Swamp

Hydric soil rating: Yes

Minor Components

Greenwood

Percent of map unit: 5 percent

Landform: Bogs

Hydric soil rating: Yes

Saco

Percent of map unit: 5 percent

Landform: Flood plains

Hydric soil rating: Yes

Chocorua

Percent of map unit: 5 percent

Landform: Bogs

Hydric soil rating: Yes

526B—Caesar loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9d13
Elevation: 150 to 1,200 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Caesar and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Caesar

Setting

Parent material: Outwash

Typical profile

H1 - 0 to 5 inches: loamy sand
H2 - 5 to 18 inches: loamy sand
H3 - 18 to 60 inches: coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 to 99.90 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: Very low (about 2.7 inches)

Interpretive groups

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

Minor Components

Windsor

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

Croghan

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

526C—Caesar loamy sand, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9d14
Elevation: 150 to 1,310 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Caesar and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Caesar

Setting

Parent material: Outwash

Typical profile

H1 - 0 to 5 inches: loamy sand
H2 - 5 to 18 inches: loamy sand
H3 - 18 to 60 inches: coarse sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 to 99.90 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: Very low (about 2.7 inches)

Interpretive groups

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

Minor Components

Croghan

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

Windsor

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

526E—Caesar loamy sand, 15 to 50 percent slopes

Map Unit Setting

National map unit symbol: 9d15
Elevation: 150 to 1,800 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Caesar and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Caesar

Setting

Parent material: Outwash

Typical profile

H1 - 0 to 5 inches: loamy sand
H2 - 5 to 18 inches: loamy sand
H3 - 18 to 60 inches: coarse sand

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 to 99.90 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: Very low (about 2.7 inches)

Interpretive groups

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

Custom Soil Resource Report

Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Windsor

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

Croghan

Percent of map unit: 3 percent
Hydric soil rating: No

Naumburg

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

558B—Skerry fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w9p8
Elevation: 260 to 1,210 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

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

Description of Skerry

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

Ap - 0 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

Custom Soil Resource Report

Properties and qualities

Slope: 3 to 8 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 18 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 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Colonel

Percent of map unit: 6 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase, interfluve
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: No

Becket

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

Brayton

Percent of map unit: 3 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

Hermon

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve

Custom Soil Resource Report

Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

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

Custom Soil Resource Report

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

Colonel, very stony

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: Concave, linear
Across-slope shape: Concave
Hydric soil rating: No

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

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, 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 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
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: Linear, concave
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

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, interflue, 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
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

Custom Soil Resource Report

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
Across-slope shape: Convex
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- 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

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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf



Appendix E – Photo Log

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 1: Looking at proposed access and work pad location for N186 Structure 261.



Photograph No. 2: Looking at proposed access and work pad location for N186 Structure 260.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 3: Looking at proposed access and work pad location for N186 Structure 259.



Photograph No. 4: Looking at proposed access and work pad location for N186 Structure 256.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 5: Looking at proposed access and work pad location adjacent to N186 Structure 255.



Photograph No. 6: Looking at proposed work pad location adjacent to N186 Structure 254.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 7: Looking at proposed access and work pad location adjacent to N186 Structure 249.



Photograph No. 8: Looking at proposed access and work pad location for N186 Structure 248.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 9: Looking at proposed access and work pad location adjacent to N186 Structure 247.



Photograph No. 10: Looking at proposed access and work pad location for N186 Structure 246.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 11: Looking at proposed access and work pad location for 379 Structure 581.



Photograph No. 12: Looking at proposed access and work pad location adjacent to N186 Structure 245.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 13: Looking at proposed access and work pad location for N186 Structure 244.



Photograph No. 14: Looking at proposed access and work pad location for 379 Structure 549.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 15: Looking at proposed access and work pad location for 379 Structure 548.



Photograph No. 16: Looking at proposed access and work pad location for 379 Structure 547.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 17: Looking at proposed access and work pad location adjacent to 379 Structure 546.



Photograph No. 18: Looking at proposed work pad location adjacent to 379 Structure 544.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 19: Looking at proposed access and work pad location for 379 Structure 542.



Photograph No. 20: Looking at proposed access and work pad location for 379 Structure 541.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 21: Looking at proposed access and work pad location for 379 Structure 540.



Photograph No. 22: Looking at proposed access and work pad location for 379 Structure 530.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 23: Looking at proposed access and work pad location adjacent to 379 Structure 529.



Photograph No. 24: Looking at proposed access and work pad location for 379 Structure 524.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 25: Looking at proposed access and work pad location for 379 Structure 523.



Photograph No. 26: Looking at proposed access and work pad location for 379 Structure 479.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 27: Looking at proposed access and work pad location for 379 Structure 478.



Photograph No. 28: Looking at proposed access and work pad location for 379 Structure 477.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 29: Looking at proposed access and work pad location for 379 Structure 456.

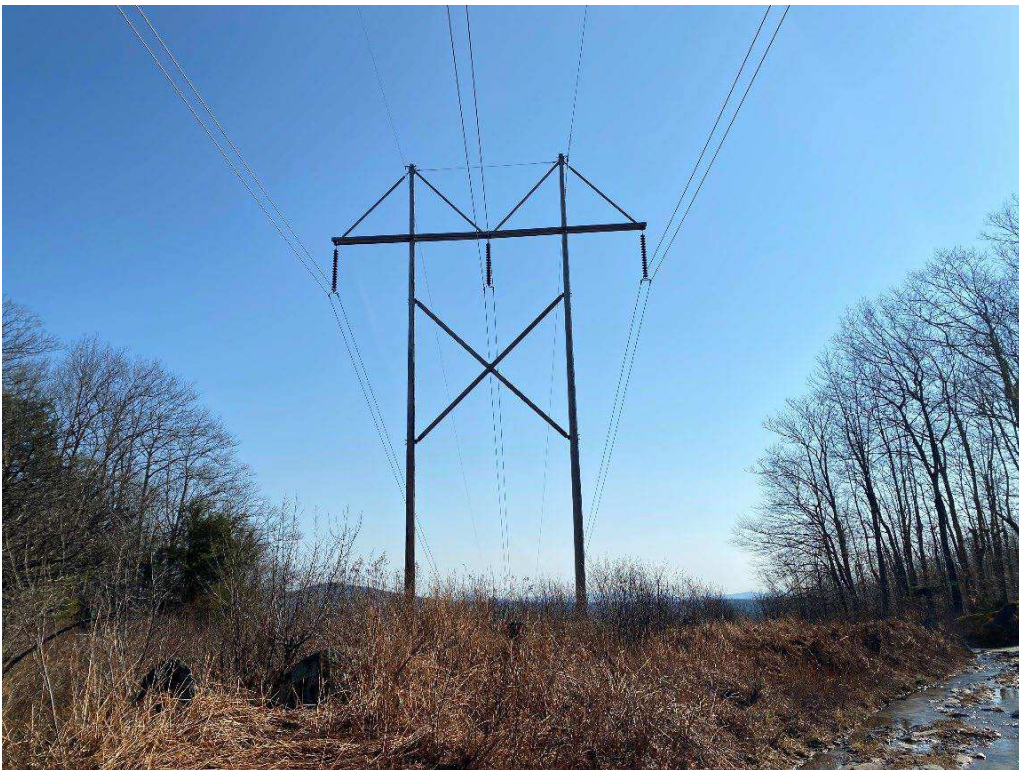


Photograph No. 30: Looking at proposed access and work pad location for 379 Structure 455.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 31: Looking at proposed access and work pad location for 379 Structure 454.



Photograph No. 32: Looking at proposed access and work pad location for 379 Structure 453.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022

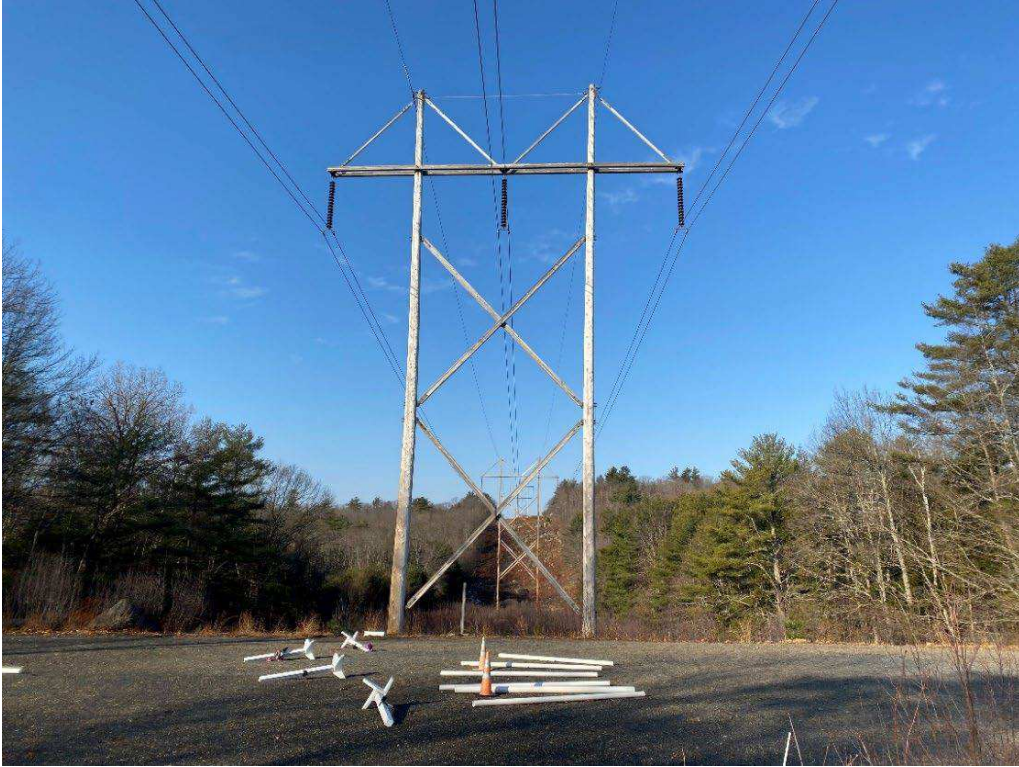


Photograph No. 33: Looking at proposed access and work pad location for 379 Structure 452.



Photograph No. 34: Looking at proposed access and work pad location for 379 Structure 440.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 35: Looking at proposed access and work pad location for 379 Structure 439 from Bowkerville Road.



Photograph No. 36: Looking at proposed access and work pad location adjacent to 379 Structure 438.

PHOTO LOG
379 & N186 Transmission Line Structure Replacement Project
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam, New Hampshire
Photos Taken: March 18 & 21, 2022



Photograph No. 37: Looking at proposed access and work pad location for 379 Structure 437.



Photograph No. 38: Looking at proposed work pad location adjacent to 379 Structure 436 from NH Route 12 North.



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		
379 and N186 Transmission Line Structure Replacement Project Project Name		
Existing 379 and N186 Transmission Line Right-of-Way Street Address		
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam City/Town	Multiple Zip Code	
Multiple – see attached Tax Map/Lot Number		
B. APPLICANT/OWNER INFORMATION		
Jeremy First Name	Fennell Last Name	
Eversource Energy Organization		
13 Legends Drive Street Address		
Hooksett City/Town	New Hampshire State	03106 Zip Code
jeremy.fennell@eversource.com Email	603-634-3396 Telephone Number	
C. APPLICANT/OWNER AGENT INFORMATION		
Lindsey First Name	White Last Name	
GZA GeoEnvironmental, Inc. Organization		
5 Commerce Park North, Suite 201 Street Address		
Bedford City/Town	New Hampshire State	03110 Zip Code
Lindsey.white@gza.com Email	603-232-8753 Telephone Number	

D. WAIVER REQUESTS	
<p>Env-Wq 1504.09</p> <p>Rule Section Waiver Request</p>	<p>Stormwater Drainage Report; Drainage Area Plans; Hydrologic Soil Group Plans</p> <p>Name of Rule</p>
<p>Reason for Waiver Request</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 379 and N186 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>Waiver Timeline</p> <p>Permanent</p>	
<p>Proposed Alternative</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>Compliance with Env- WQ 1509.04</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>	

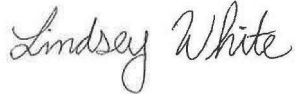
E. SIGNATURES



Applicant/Owner, Jeremy Fennell,
Eversource Energy

5/16/2022

Date



Applicant/Owner Agent, Lindsey White,
GZA GeoEnvironmental, Inc.

5/16/2022

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		
379 and N186 Transmission Line Structure Replacement Project Project Name		
Existing 379 and N186 Transmission Line Right-of-Way Street Address		
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam City/Town	Multiple Zip Code	
Multiple – see attached plans Tax Map/Lot Number		

B. APPLICANT/OWNER INFORMATION		
Jeremy First Name	Fennell Last Name	
Eversource Energy Organization		
13 Legends Drive Street Address		
Hooksett City/Town	New Hampshire State	03106 Zip Code
Jeremy.fennell@eversource.com Email	603-634-3396 Telephone Number	

C. APPLICANT/OWNER AGENT INFORMATION		
Lindsey First Name	White Last Name	
GZA GeoEnvironmental, Inc. Organization		
5 Commerce Park North, Suite 201 Street Address		
Bedford City/Town	New Hampshire State	03110 Zip Code
Lindsey.white@gza.com Email	603-770-5752 Telephone Number	

D. WAIVER REQUESTS	
Env-Wq 1503.12 (d)(1&2) Rule Section Waiver Request	Measurement of Contiguous Area Disturbed; Inclusion in Plans Name of Rule
Reason for Waiver Request Eversource is requesting a waiver for including past terrain disturbance in the measurement of contiguous disturbed area included in this 379 and N186 Line AOT application. Future disturbance, beyond the scope of 379 and N186 line structure replacement project described in this application is not known at this time.	
Waiver Timeline Permanent	
Proposed Alternative 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 379 and N186 ROWs. Eversource, through consultation with NHDES, will evaluate whether future terrain disturbances within the 379 and N186 ROWs will be permitted with an amendment to this application or subject to a new, separate application.	
Compliance with Env-Wq 1503.12 (d)(1&2) 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 2022 within the 379 and N186 ROWs 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 379 and N186 ROWs. Eversource respectfully requests a waiver from including past disturbance in this application. Future disturbances within the 379 and N186 ROWs will be evaluated and discussed with NHDES and permit amendments or new permit applications will be submitted, if necessary.	

E. SIGNATURES



 Applicant/Owner, Jeremy Fennell,
 Eversource Energy

5/16/2022

 Date



 Applicant/Owner Agent, Lindsey White,
 GZA GeoEnvironmental, Inc.

5/16/2022

 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		
379 and N186 Transmission Line Structure Replacement Project Project Name		
Existing 379 and N186 Transmission Line Right-of-Way Street Address		
Hinsdale, Winchester, Richmond, Troy, and Fitzwilliam City/Town	Multiple Zip Code	
Multiple – see attached plans Tax Map/Lot Number		
B. APPLICANT/OWNER INFORMATION		
Jeremy First Name	Fennell Last Name	
Eversource Energy Organization		
13 Legends Drive Street Address		
Hooksett City/Town	New Hampshire State	03106 Zip Code
Jeremy.fennell@eversource.com Email	603-634-3396 Telephone Number	
C. APPLICANT/OWNER AGENT INFORMATION		
Lindsey First Name	White Last Name	
GZA GeoEnvironmental, Inc. Organization		
5 Commerce Park North, Suite 201 Street Address		
Bedford City/Town	New Hampshire State	03310 Zip Code
Lindsey.white@gza.com Email	603-770-5752 Telephone Number	

D. WAIVER REQUESTS	
<p>Env-Wq 1503.21 (d)(6&7)</p> <p>Rule Section Waiver Request</p>	<p>Notification; Certification</p> <p>Name of Rule</p>
<p>Reason for Waiver Request</p> <p>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.</p>	
<p>Waiver Timeline</p> <p>Permanent</p>	
<p>Proposed Alternative</p> <p>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 379 and N186 Lines). 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.</p> <p>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 379 and N186 Lines). Shifts would not create greater than 5% increase in disturbed area at each work pad.</p> <p>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.</p>	
<p>Compliance with Env-Wq 1503.21 (d)(6&7)</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 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.</p>	

E. SIGNATURES



Applicant/Owner, Jeremy Fennell,
Eversource Energy

5/16/2022

Date



Applicant/Owner Agent, Lindsey White,
GZA GeoEnvironmental, Inc.

5/16/2022

Date



Appendix G – Certified Mail Receipts
[Reserved for DES certified mailing receipts]

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GZA GeoEnvironmental, Inc.

Revised Plan Pages

© 2022 - GZA GeoEnvironmental, Inc. P:\04Jobs\0191410.00 - EE Slings Permitting 2019-2022\04.0191410.10 - 2022 379 Transmission Line Structure Replacement Project\379 Figures\379 AOT Notesheet1 10-7.mxd, 7/7/2022, 7:47:06 AM, lindsey.white

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.
3. WETLAND IMPACTS ASSOCIATED WITH WETLAND CROSSINGS ARE REQUIRED FOR ACCESS BETWEEN STRUCTURES WITHIN THE RIGHT OF WAY.
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 WITH 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 AND 20 FOOT TOTAL IMPACT AREA.
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 AND ROCKS SHALL NOT BE REMOVED, AND THERE SHALL BE NO EXCAVATIONS, FILLS OR GRADING DONE ADJACENT TO WETLANDS, UNLESS MINOR EXCAVATIONS IS NEEDED FOR ACCESS.
9. TIMBER MATS WILL BE USED ALONG ACCESS ROUTES 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 SWAMP 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. IF TIMBER MAT BMP IS NOT SUFFICIENT DUE TO HIGH WATER, ADDITIONAL BMP'S MAY INCLUDE THE PLACEMENT OF GEOTEXTILE FABRIC, 3"-4" STONE, AND GRAVEL TO PROVIDE A SUITABLE ROAD BED. A TEMPORARY CULVERT 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. 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.
13. 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.
14. EXCESS SOILS PRODUCED FROM DRILLING WILL BE DISPOSED IN APPROVED UPLAND AREAS AT A MINIMUM DISTANCE OF 100-FT FROM WETLAND AREAS.
15. INSTALL NEW POLES IN THE LOCATIONS DESIGNATED ON THE PERMITTING PLANS.
16. CABLE 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.
17. ALL TIMBER MATS, MATERIAL, AND DEBRIS WILL BE REMOVED FROM THE WORK AREA UPON THE COMPLETION OF CONSTRUCTION.
18. 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 AND SEED, AS NECESSARY.
19. ALL TEMPORARY WETLAND IMPACTS WILL BE RE-GRADED TO ORIGINAL CONTOURS FOLLOWING CONSTRUCTION. NEW ENGLAND EROSION CONTROL/RESTORATION MIX, AVAILABLE THROUGH NEW ENGLAND WETLAND PLANTS, INC., 820 WEST STREET, AMHERST, MA 01002, 413-548-8000, OR EQUIVALENT SEED MIX SHALL BE APPLIED IN WETLAND AREAS THAT ARE NOT INUNDATED, AS NECESSARY.
20. SEDIMENT AND EROSION CONTROL MEASURES WILL BE EVALUATED AND REMOVED IF NECESSARY UPON THE COMPLETION OF CONSTRUCTION.
21. COMMERCIAL LOAM WILL NOT BE USED AS PART OF RESTORATION. ONLY IN-SITU TOPSOIL WILL BE USED TO RESTORE DISTURBED AREAS.

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 (NHDOT 304.3).

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 GZA IN 2016 AND CONFIRMED IN 2022, 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.
3. GZA EVALUATED WETLANDS AS POTENTIAL VERNAL POOLS IN 2016 AND 2022 IN ACORDANCE WITH "IDENTIFICATION AND DOCUMENTATION OF VERNAL POOLS IN NEW HAMPSHIRE," 2016, NEW HAMPSHIRE FISH AND GAME DEPARTMENT, NONGAME AND ENDANGERED WILDLIFE PROGRAM.
4. GZA WILL PERFORM A WETLANDS FUNCTION AND VALUES ASSESSMENT IN ACCORDANCE WITH THE ACOE'S "HIGHWAY METHODOLOGY WORKBOOK SUPPLEMENT," SEPTEMBER 1999, IN 2020, AS NECESSARY.
5. SITE PLAN IS FOR PERMITTING PURPOSES ONLY AND DOES NOT REPRESENT A PROPERTY BOUNDARY SURVEY.
6. THE PROJECT WILL BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
7. IN ACCORANCE 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 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 AGAINST EROSION, AS NECESSARY.
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 ANNUAL RYEGRASS PRIOR TO OCTOBER 15TH.
6. EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.

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.

**379 & N186 TRANSMISSION LINE
STRUCTURE REPLACEMENT PROJECT**

HINSDALE, WINCHESTER, RICHMOND, TROY,
AND FITZWILLIAM, NEW HAMPSHIRE

NOTES

PREPARED BY: GZA 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:	S1
DATE: 07/07/2022	PROJECT NO: 04.0191410.10	REVISION NO.	

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NOTES

1. NORTHERN BLACK RACER (STATE THREATENED), SPOTTED TURTLE (STATE THREATENED), AND BLANDING'S TURTLE (STATE ENDANGERED) 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.
2. VERNAL POOLS AND POTENTIAL VERNAL POOLS SHALL BE FLAGGED PRIOR TO WORK AND ALL IMPACTS TO VERNAL POOLS AND POTENTIAL VERNAL POOLS SHALL BE AVOIDED.
3. TURTLES MAY BE ATTRACTED TO DISTURBED GROUND DURING NESTING SEASON (MAY 15TH – JUNE 30TH). ALL TURTLE SPECIES NESTS ARE PROTECTED BY NH LAWS. 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.
4. OBSERVATIONS OF NORTHERN BLACK RACERS IN THE MONTHS OF APRIL-MAY AND SEPTEMBER-OCTOBER MAY INDICATE THE POTENTIAL FOR A DEN SITE ON OR NEAR THE PROJECT SITE. OBSERVATIONS OF THIS SPECIES DURING THIS TIMEFRAME SHALL BE REPORTED IMMEDIATELY TO THE NEW HAMPSHIRE FISH AND GAME DEPARTMENT NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM. PLEASE CONTACT MELISSA DOPERLSKI (603-479-1129) OR BRENDAN CLIFFORD (603-944-0885). OBSERVATIONS OF THIS SPECIES OUTSIDE OF THIS TIMEFRAME CAN FOLLOW GENERAL REPORTING GUIDANCE. PLEASE INCLUDE PHOTOGRAPH WITH TEXT IF FEASIBLE.
5. AT THE CONCLUSION OF THE PROJECT, A SUMMARY REPORT OF ANY RARE SPECIES OBSERVATIONS SHALL BE PROVIDED TO THE NHFG NONGAME PROGRAM.
6. 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;
7. 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;
8. 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;
9. 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.
10. SITE OPERATORS 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.
11. THE NHFG, INCLUDING ITS EMPLOYEES AND AUTHORIZED AGENTS, SHALL HAVE ACCESS TO THE PROPERTY DURING THE TERM OF THE PERMIT.

NORTHERN BLACK RACER (COLUBER CONSTRUCTOR)

STATE THREATENED



NORTHERN BLACK RACER IDENTIFICATION

1. SOLID BLACK WITH A WHITE THROAT.
2. SLENDER WITH GLOSSY SCLAES.
3. 3-6 FT. LONG.
4. HATCHLINGS ARE VERY SMALL AND PATTERNED.



SPOTTED TURTLE (CLEMYS GUTTATA)

STATE THREATENED

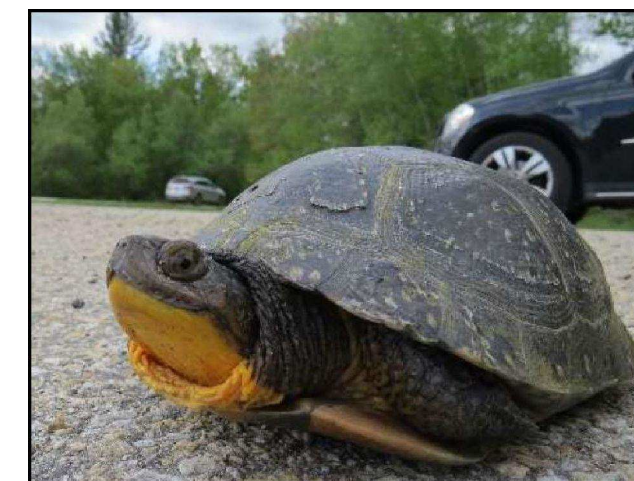


SPOTTED TURTLE IDENTIFICATION

1. SMALL, MOSTLY AQUATIC WITH BLACK OR DARK BROWN WITH YELLOW SPOTS.
2. FAIRLY FLAT SHELL COMPARED TO BLANDING'S TURTLE.
3. SPOTS VARY IN COLOR AND NUMBER.

BLANDING'S TURTLE (EMYDOIDEA BLANDINGII)

STATE ENDANGERED



BLANDING'S TURTLE IDENTIFICATION

1. LARGE, DARK/BLACK DOMED SHELL WITH LIGHTER SPECKLES.
2. DISTINCT YELLOW THROAT/CHIN.
3. AQUATIC BUT OFTEN MOVES ON LAND.

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379 TRANSMISSION LINE
STRUCTURE REPLACEMENT PROJECT
FITZWILLIAM, HINSDALE, RICHMOND, TROY,
AND WINCHESTER, NEW HAMPSHIRE

WILDLIFE NOTES

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: 	
PROJ MGR: LEW	REVIEWED BY: TLT	CHECKED BY: DMZ	SHEET S4
DESIGNED BY: MJD	DRAWN BY: MJD	SCALE:	
DATE: 06/30/2022	PROJECT NO: 04.0191410.10	REVISION NO:	

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Redaction Log

Total Number of Redactions in Document: 9

Redaction Reasons by Page

Page	Reason	Description	Occurrences
115	CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	1
116	CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	1
117	CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	1
119	CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	1
120	CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	1
121	CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	1
126	CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	1
127	CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	1

Redaction Log

Page	Reason	Description	Occurrences
128	CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	1

Redaction Log

Redaction Reasons by Exemption

Reason	Description	Pages (Count)
CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	115(1) 116(1) 117(1) 119(1) 120(1) 121(1) 126(1) 127(1) 128(1)