



May 5, 2023

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

Re: Alteration of Terrain Permit Application
Eversource RASH Structure Replacement Project
Fremont, Brentwood, and Exeter, New Hampshire

Dear Mr. Mauck:

On behalf of Public Service Company of New Hampshire d/b/a Eversource Energy (Eversource), Normandeau Associates, Inc. (Normandeau) is submitting this Alteration of Terrain (AoT) Permit Application for the proposed Eversource RASH Structure Replacement Project within the Towns of Fremont, Brentwood, and Exeter in accordance with Terrain Alteration Law (RSA 485-A:17), Administrative Rules (Env-Wq 1500), and discussions between the New Hampshire Department of Environmental Services (NHDES) AoT Bureau and Eversource.

The proposed project includes the replacement of 76 existing utility structures on the R193, A126, and H141 transmission lines that must be replaced because they have reached the end of their service life. The proposed project crosses through portions of Fremont, Brentwood, and Exeter. 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 R193, A126, and H141 Transmission Lines, 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 or 50,000 square feet of contiguous disturbance within the protected shoreland as defined in RSA 483- B.

Included with this submittal is a copy of the application fee check, a completed AoT Permit Application Form, a detailed project overview narrative, required plans and figures, and additional supporting materials. Consultation with NHNH and NHFG is on-going. In addition, a waiver request for the preparation of a stormwater drainage report, drainage area plans, and hydrologic soil group plans and from amendment requirements for shifting of access roads greater than 20 feet is enclosed as required by Env- Wq 1509.04. The proposed project is scheduled to start in September 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 William McCloy at 802-855-1246 or at wmccloy@normandeau.com if you have any questions.

Sincerely,



Senior Scientist

Attachments: Alteration of Terrain Permit Application

cc: Town of Fremont, New Hampshire (USPS)
Town of Brentwood, New Hampshire (USPS)
Town of Exeter, New Hampshire (USPS)
Exeter-Squamscott River Local Advisory Committee (USPS)

Eversource RASH Structure Replacement Project – Fremont, Brentwood, and Exeter

AoT Permit Application

Prepared For

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1 Project Background and Purpose

The proposed Eversource RASH Line Structure Replacement Project in the Towns of Fremont, Brentwood, and Exeter (project) involves the replacement of 76 existing structures on the R193, A126, and H141 Transmission Lines in portions of Fremont, Brentwood, and Exeter, New Hampshire. The proposed replacement structures have reached the end of their service life and must be replaced for the transmission line to continue to function safely and reliably. The proposed structure replacements were selected based on site visit evaluations, including pole and equipment condition. Impacts have been minimized and avoided to the greatest extent practicable through site evaluations of access routes and work pad placements.

The project requires approximately 793,090 square feet (sq. ft.) of total ground disturbance. The total disturbance area exceeds the Alteration of Terrain (AoT) threshold (Env-Wq 1500 and RSA 485-A:17).

2 Site Information

2.1 Site Location and Description

The existing Eversource R193, A126, and H141 115 kilovolt (kV) transmission lines are located within an existing Eversource right-of-way (ROW) that runs between the Peaslee Tap in Danville, NH and the Squamscott River in Exeter, NH. In Fremont the work areas cover approximately 1.4 miles of ROW and will be accessed via improved and/or existing access roads off Taylor Lane, South Road, Danville Road, Red Brook Road, and Copp Drive. In Brentwood, the work areas cover approximately 2.4 miles of ROW and will be accessed via improved and/or existing access roads off Route 125, Prescott Road, Homestead Lane, Longmeadow Drive, and Pine Road. In Exeter, the work areas cover approximately 2.5 miles of ROW and will be accessed via improved and/or existing access roads off Pine Road in Brentwood, and Old Town Farm Road, Beechhill Road, Watson Road, Captain's Way, and Newfield Road in Exeter.

The project area passes through a matrix of emergent and scrub-shrub wetland areas, shrubby upland areas, and farm fields with numerous all-terrain vehicle trails, paths and some residential area encroachments from adjacent homes. There are 63 wetlands the project vicinity, 26 of which will be avoided and 37 that will be impacted temporarily. There are 7 streams in the project vicinity, 5 of which will be avoided and 2 that will be temporarily crossed. Finally, there are 5 vernal pools in the project vicinity, all of which will be avoided. The majority of ground disturbance resulting from the project will be related to access and work pad improvements.

2.2 Tax Map and Lot(s)

Eversource owns or holds easements across all parcels within the ROW (see Figure 3). In Fremont, work will occur across approximately 18 parcels: two are owned by the Town of Fremont, while the remainder are privately owned. In Brentwood, work will occur across approximately 19 parcels: one is owned by Eversource and is associated with the Brentwood Substation, three are owned by the Town of Brentwood and are associated with the Brentwood Recreation Department off Route 125, and one is owned by the State of New Hampshire off Pine Road, while the remainder are privately owned. In Exeter, work will occur across approximately 19 parcels: five are owned by the Town of Exeter, two are owned by homeowner associations, while the remainder are privately owned. Where easements are present, the easements are considered “subject property” because Eversource is the applicant/owner and only has control over the easement. These project parcels have been identified and listed below in Table 2-1 and in Appendix B.

Table 2–1. Project Parcels by Town

Fremont	Brentwood	Exeter
2-21, 2-22-10, 2-22-11, 2-22-30, 2-22-30, 2-22-42, 2-22-9, 2-22-39, 2-77-2-1, 2-73-1, 2-73-2 , 2-77-1-1, 2-156-1-23, 2-156-2, 2-156-2-1 , 2-156-2-3, 2-174, 2-175	216-30, 216-31, 216-32 , 215-32-1*, 216-42, 216-52, 209-58, 215-5, 215-4, 215-6, 215-12, 210-5, 210-53, 210-77, 206-8, 206-29, 205-13, 205-15 , 205-18	30-8, 30-9, 29-31, 29-32, 28-3, 28-6, 28-13 , 28-18, 18-3, 19-3, 19-2, 19-1, 19-16 , 19-16-1, 24-1, 25-1, 20-8 , 24-3, 24-30
*Owned by Eversource Owned by local municipality (Town) <i>Owned by the State of New Hampshire</i>		

2.3 Identification of Natural and Cultural Resources

Normandeau Associates, Inc. (Normandeau) has been retained by Eversource to provide professional services on this project that relate to natural and cultural resource identification and assessment as well as permit applications for natural resource and alteration of terrain impacts required to complete the project. Normandeau 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 between 2013 and 2017. Normandeau reviewed, and adjusted these delineations as necessary, as well as collected updated photos and data relevant to functions and services provide by these natural resources in the proposed work areas in April 2023. The wetlands were delineated in accordance with the United States Army Corps of Engineers (USACE) Wetlands Delineation Manual using the Routine Determinations Method, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual as required by the New Hampshire Department of Environmental Services

(NHDES) Wetlands Bureau and the USACE. A NH Certified Wetland Scientist (NHCWS) completed the review and the necessary adjustment of the previous delineations.

Normandeau reviewed the project area for vernal pools in accordance with “Identification and Documentation of Vernal Pools in New Hampshire,” 2016, New Hampshire Fish and Game Department, Nongame and Endangered Wildlife Program at the same time as the wetland and stream delineation review in April 2023. All surface waters or wetlands that exhibited vernal pool criteria as outlined in the New Hampshire Code of Administrative Rules, Env-Wt 103.64, 104.15, and 104.44 identified in the project area were recorded by delineating the highest observable water line for the pool. Based on the April 2023 review, five potential vernal pools are present within the project area; one in the Town of Fremont, one in the Town of Brentwood, and three in the Town of Exeter. As part of typical avoidance and minimization for Eversource maintenance projects, all direct impacts to these vernal pools have been avoided and impacts to their 50-foot buffers has been avoided to the greatest extent practicable.

2.3.2 Identification of Surface Waters

Surface waters of the State of New Hampshire were delineated by VHB and GZA in 2013 and 2014. Normandeau reviewed and adjusted these delineations as necessary in April 2023 in accordance with their definition in RSA 485-A:2 XIV, 482-A:4 II and rule Env-Wt 104.33. Surface waters include wherever freshwater flows or stands and tidal waters. This includes, but is not limited to, rivers, perennial and intermittent streams, lakes, ponds, intertidal zones, and tidal waters.

2.3.3 Identification of Rare, Threatened, and Endangered Species

The Natural Heritage Bureau (NHB) and New Hampshire Fish and Game (NHFG) have identified several records of known RTE wildlife species (including snake and turtle species) within and near the RASH project area in Fremont, Brentwood, and Exeter. (See Appendix C for the NHB Report and regulatory correspondence).

Normandeau consulted NHB and NHFG and will provide flyers of species including snake and turtle species to construction personnel prior to the start of work. The results of the formal consultation are not yet known as the consultations are on-going at this time.

2.3.4 Identification of Cultural and Historical Resources

Normandeau and Independent Archaeological Consulting, LLC (IAC) will be submitting a Request for Project Review (RPR) to the New Hampshire Division of Historical Resources (NHDHR) for the proposed project.

IAC has reviewed prior Phase IA Archeological Assessments for the R193, H141, and A126 ROW and will be completing Phase IB Archeological Survey within select archeological sensitivity areas where work is proposed. Results of this work will be submitted to DHR when complete.

2.3.5 Identification of Conservation and Public Lands

A desktop review of publicly available data determined 15 separate Conservation, Public Land, and/or Open Spaces are intersected by the proposed project footprint; 1 in the Town of Fremont; 5 in the Town of Brentwood; and 9 in the Town of Exeter (See Table 2-1). The majority of these consist of areas under the management of the hosting local municipality, while the remainder consist of areas associated with homeowner associations, NH Fish & Game, and the US Dept. of Agriculture, Natural Resource Conservation Services. Normandeau will coordinate with each of the local municipalities, as necessary, for any local permitting requirements associated with project activities within the Eversource ROW, including these Conservation and Public Lands. Please see Figure 3 – Alteration of Terrain Permitting Plans for the locations where Conservation and Public Lands intersect the project footprint.

Table 2–2. Conservation and Public Lands in the Project Area

Town	Conservation/Public Land Name	Project Footprint Intersection Details
Fremont	Town of Fremont Conservation Easement (Spruce Swamp)	Strs. 257 and 254 work pads on the R193 line and portions of associated access road.
Brentwood	Town of Brentwood Land around the Brentwood substation and associated with the recreational facilities between the substation and Route 125.	Access route between Str. 254 (R193 line) and Route 125.
Brentwood	Gallant Easement, part of the NRCS Wetland Reserve Program	Str. 219 work pad on the H141 line and portions of access road.
Brentwood	Town Hall Town Forest	Str. 217 work pad on the H141 line and portions of access road.
Brentwood	Schmalzer Conservation Easement	Strs. 238-240 on the A126 line and Strs. 214-216 on the H141 line work pads and portions of associated access road.
Brentwood	Mink Run Open Space	Str. 204 work pad on the H141 and associated access road.
Exeter	Tomilson Kenick Land	Str. 190-193 work pads on the A126 line and associated access road.
Exeter	Piscassic River Wildlife Management Area	Strs. 189 (A126 line) and 169 (H141 line) work pads and associated access road.
Exeter	Bunker Property	Strs. 183-184 (A126 line) and 163-164 (H141 line) work pads and associated access road.
Exeter	Beech Hill Estates	Portion of the Str. 160 work pad on the H141 line.
Exeter	Forest Ridge OSA	Strs. 151-157 work pads on the H141 line and associated access roads.
Exeter	Chamberline Conservation Easement	Strs. 149-150 work pads on the H141 line and associated access road.

Exeter	Oaklands Town Forest	Strs. 148-149 work pads on the H141 line and associated access road.
Exeter	Captains Meadow Open Space	Strs. 141-144 work pads on the H141 line and associated access roads.
Exeter	Raynes Farm	Str. 139 work pad on the H141 line and associated access road.

3 Existing Conditions

The proposed project is located within the existing and maintained R193, H141, and A126 Transmission Line ROW. The proposed project work areas subject to the Alteration of Terrain permit cross through portions of the Towns of Fremont, Brentwood, and Exeter. The ROW is accessible by a large network of trails, old access roads and paths along with multiple streets. Existing 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 top-dressing the existing access roads to result in an up to 16-foot-wide gravel and stone roads. Based on NRCS soil mapping, existing upland soils are primarily sandy loams. Slopes are variable and generally range from 0 to 35%, with an average of approximately 6%.

The project area is comprised of a matrix of wetland and upland areas within or directly adjacent the existing Eversource ROW for the R193, A126, and H141 transmission lines. The vegetation within the ROW is routinely maintained via mechanical mowing as necessary to maintain a safe vertical distance between the vegetation and the existing transmission lines, thus maintaining a shrub and/or herbaceous habitat. The wetland areas are seasonally to semi-permanently flooded and are primarily palustrine scrub-shrub (PSS) wetlands interspersed with palustrine emergent (PEM) cover types. Species typically found within these wetlands include tree species, which are not permitted to grow beyond a sapling growth stage, including red maple (*Acer rubrum*), white pine (*Pinus strobus*), poplar (*Populus* spp.), and birch (*Betula* spp.). Common dominant shrub species found within these wetlands include meadowsweets (*Spirea* spp.), glossy buckthorn (*Frangula alnus*), maleberry (*Lyonia ligustrina*), winterberry (*Ilex verticillata*), speckled alder (*Alnus incana*), and willow (*Salix* spp.). PEM wetlands are typically dominated by New England aster (*Symphotrichum novae-angliae*), woolgrass (*Scripus cyperinus*), interrupted fern (*Osmunda claytoniana*), sensitive fern (*Onoclea sensibilis*), and bristly dewberry (*Rubis hispidus*), cinnamon fern (*Osmundastrum cinnamoemeum*), sedges (*Carex* spp.), cattails (*Typha* spp.), and other typical herbaceous species. In uplands, the shrub layer contains gray birch (*Betula populifolia*), staghorn sumac (*Rhus typhina*), sweet fern (*Comptonia peregrina*). Common herbaceous species include goldenrod (*Solidago* spp.), deer tongue (*Dichanthelium clandestinum*), bracken fern (*Pteridium aquilinum*), and grasses (*Poaceae* spp.).

Existing conditions along the R193, H141, and A126 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 Fremont, Brentwood, and Exeter

3.1.1 Surface and Groundwater Protection

A total of 37 wetlands and 2 streams will be temporarily impacted as part of this project.

The southwestern portion of the project, including structures 259-261, 274-279, 282-284 on the R193 line, structures 235, 237, and 250-252 on the H141 line, and a portion of the access route from Route 125 to the Brentwood Substation, is located within the Exeter Water Department Source Water Protection Areas.

Portions of the project are in the Forest Ridge Wellhead Protection Area operated by Pennichuck East Utility, Inc. in Exeter and the Swasey Central School Wellhead Protection Area in Brentwood, including structures 146-160 and 214-217 on the H141 line and 183-184 and 239-240 on the A126 line. A portion of the project in Exeter, including structures 183-184 on the A126 line and structures 158-160 and 163-164 on the H141 line, is in the mapped Class A Surface Waters (RSA 485 A:9) Watershed for the Piscassic River and its tributaries. Additionally, the structure 181 work pad on the H141 and associated access are in a mapped Groundwater Classification Area (GA2) resource.

A large portion of the project in Fremont and Brentwood, including structures 254-258 on the R193 line; structures 194, 204-205, 207, 212-217, and 219 on the H141 line; and structures 217 and 237-240 on the A126 line, is located in the mapped quarter mile buffer for Dudley Brook (AUID: NHRIV600030804-06), which has impairments related to stormwater: Benthic-Macroinvertebrate Bioassessments (Streams), Dissolved oxygen saturation, Dissolved Oxygen (mg/L). Finally, structure 139 on the H141 line and the associated access route at the east end of the project in Exeter is in the mapped quarter mile buffer for the Squamscott River, South (AUID: NHRIV600030804-06), which has impairments related to stormwater: Benthic-Macroinvertebrate Bioassessments (Streams), Dissolved oxygen saturation, Dissolved Oxygen (mg/L).

The AoT Screening Layers not present within the RASH project area in Fremont, Brentwood, and Exeter include: “Outstanding Resource Water Watersheds”, “Watersheds with Chloride Impairments 2016”, “All Lakes within a Quarter Mile Buffer”, “Groundwater Classification Areas GA1”, “Groundwater Classification Areas GAA, and “Water Supply Intake Protection Areas”. Please see Figure 4 – OneStop Maps for all maps showing project area locations in relation to all required AoT Screening Layers.

3.1.2 FEMA 100-Year Floodplain, Shoreland and Designated Rivers

Structure 139 on the H141 line at the eastern end of the project area in Exeter is located within ¼-mile of the Squamscott River, a designated river, but is not located in a mapped FEMA 100-year floodplain.

The southwestern portion of the project area in Fremont, including structures 274-279 on the R193 line and structures 250-252 on the H141 line are located within ¼-mile of the Exeter River,

a designated river. Within this ¼-mile buffer, structures 277-278 on the R193 line and structure 251 on the H141 line are also located within the mapped FEMA 100-year floodplain of the Exeter River. In accordance with Env-Wq 1503.09, the Exeter River's watershed above the project area was determined to be ~56 square miles using USGS StreamStats and photos of the left and right banks in the vicinity of the project work were collected. While the FEMA floodplain in this area is mapped as Zone A, we argue execution of a HEC RAS study to determine refined 100-year floodplain elevation and boundaries as outlined in Env-Wq 1503.09 (c)(2) and 1503.09(e) is unnecessary in this case as the project will result in no change to grades and/or flood storage capacity within the mapped floodplain or adjacent areas; Eversource will be temporarily timber matting all work areas within the mapped floodplain and the replacement structures will not result in the change to the floodplain compared with existing conditions in terms of flood storage capacity or any other factors. Please see Page 2 of 27 for the mapped FEMA 100-year floodplain and Area 1 of 7 in Figure 4 – OneStop Maps for surface water groundwater maps for the portion of the project near the Exeter River in Fremont. See Appendix F – USGS StreamStats Report for the Exeter River watershed above the Eversource RASH Structure Replacement Project in Fremont, Brentwood, and Exeter. See Appendix E – Photo Log for photos of the Protected Shoreland in Fremont, NH in the vicinity of the proposed project work.

No other portions of the project area are subject to NHDES Shoreland jurisdiction or fall within FEMA 100-year floodplains.

3.1.3 Coastal and/or Great Bay Communities

The Town of Exeter is considered a Coastal and/or Great Bay Community, which hosts approximately half of the structures proposed to be replaced. As these structures have a projected life beyond 2050, the potential future impacts of projected storm surge, sea level rise, and precipitation events on the proposed infrastructure was assessed in accordance Env-Wq 1503.08(l). Of the 38 structures to be replaced in the Town of Exeter, only one (structure 139 on the H141 line) was found to be in the general vicinity of a coastal/tidally influenced waterway (the Squamscott River). However, review of projected rise in water levels relative to the current Mean Higher High Water line due to 8-ft of sea level rise, the most conservative amount of sea level rise selectable on the NHDES Wetland Permit Planning Tool, and a 1% flood found that structure 139 remains above flood levels. All other proposed structure replacements are located at greater distances from coastal/tidally influenced waterways. Please see the final map in Figure 4 – OneStop for the approximate location of structure 139 on the H141 line relative to the projected MHHW line with an 8-ft SLR and a 1% flood assumed.

4 Project Description

4.1 Structure Replacement

The proposed project includes the replacement of 76 existing utility structures that must be replaced because they have reached the end of their service life (see Table 4-1, below for additional details). 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 feet from wetland areas. Upland roads will remain for future maintenance and access to structures in emergencies. There are no permanent wetland impacts associated with this project. Anchors will also be installed to stabilize new structures. Anchors will be installed by excavating trenches, installing the concrete block anchors, and backfilling trenches.

Old structures will be cut at the ground surface. 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.

Table 4–1. List of Structures to be Replaced by Town

Line	Exeter	Brentwood	Fremont
R193	None	None	254-261, 274-279, 282, 283, 284
A126	183, 184, 189, 190, 191, 192, 193, 194, 195	217, 237, 238, 239, 240	None
H141	139, 141-160, 163, 164, 169, 174, 178, 179, 180, 181, 194, 204	205, 207, 212, 213, 214, 215, 216, 217, 219	235, 237, 250, 251, 252

4.1.1 Access

The proposed structure replacement project utilizes existing access routes within the existing R193, A126, and H141 ROWs to the greatest extent practicable. The existing access routes 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.

Road Construction

Proposed access road improvements include top dressing existing access roads/trails with gravel/stone up to 16-foot-wide and establishing new gravel roads where no existing roads/trails exist. The roads will provide access to existing utility structures for routine maintenance activities. Improved access will provide reliable, permanent, and efficient access

to utility structures for future maintenance activities and when emergency repairs are required (see Appendix E – Photo Log).

Wetland and Upland Matting

Timber matting will be used in and immediately adjacent to all wetlands and where temporary stream crossings are required. The timber matting will be placed either from upland areas or from timber matting that has already been installed, thereby limiting soil disturbance. Timber matting may be stacked to level work areas as needed. Timber matting will be removed when work is complete in the reverse of the process used to install the mats with equipment only working from non-wetland areas or other mats. 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 and near or within sensitive archaeological resource areas.

4.1.2 Work Pad Construction

The proposed project includes the construction of 30-foot by 60-foot, 75-foot by 75-foot and/or 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 stone (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.

4.2 Construction Sequence

This proposed project is scheduled to begin September 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.

- Install sediment and erosion controls in proposed locations as shown in Figure 3.
- Upgrade access routes and build work pads. Timber matting to be used in wetland and certain uplands as designated by Figure 3.
- Conduct drilling activities including drilling of approximately 4-ft diameter holes for caisson placement approximately 7-15-ft below ground surface.
- Conduct structure replacement activities including removal of old structures and installation of new structures.
- 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.

- Remove temporary timber matting and stabilize exposed soils within the ROW and restore temporarily disturbed wetland areas with appropriate wetland seed mix.
- Remove erosion and sedimentation controls following stabilization.

4.3 Best Management Practices (BMP)

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.

Where necessary, perimeter protective measures consisting of a silt fence, straw wattle, mulch, ECM berms, or straw bales will be installed around the structures to minimize potential impacts to nearby resource areas. All protective measures will be wildlife friendly and not contain openings larger than 1/8-inch square. 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 Figure 3 to minimize potential impacts during construction (see Figure 3 – Alteration of Terrain Permitting Plans).

Timber matting will be used in wetlands and 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. Soils disturbance in wetlands where timber matting is used is expected to be minimal and appropriate restoration measures will be implemented where required including wetland seed mix. Additionally, should any removal of BMPs be necessary, it will occur during restoration activities.

5 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 proposes to upgrade access roads and work pads totaling more than 100,000 square feet along the R193, A126, and H141 Transmission Line ROWs based on continuous areas of disturbance. Details on impacts 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 G.

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 RASH Structure Replacement AOT application. Existing terrain alteration associated with past transmission line maintenance within the R193, A126, and H141 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 the RASH 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 ROW. Eversource respectfully requests a waiver from including past disturbance in this application. A formal waiver request is provided in Appendix G.

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 G.

5.1.4 Quantification of Impacts

The project proposes approximately 793,090 square feet (sq. ft.) of total disturbance along the R193, A126, and H141 Transmission Line ROWs 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 3.

Table 5–1. Summary of Proposed Ground Disturbance by Town

Disturbance Type	Ground Disturbance (Sq. Ft.)			Total (Sq. Ft.)
	Fremont	Brentwood	Exeter	
New Access Road and Work Pad	231401	176,239	385,450	793,090
<ul style="list-style-type: none"> 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 				

5.2 Other Regulatory Programs

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

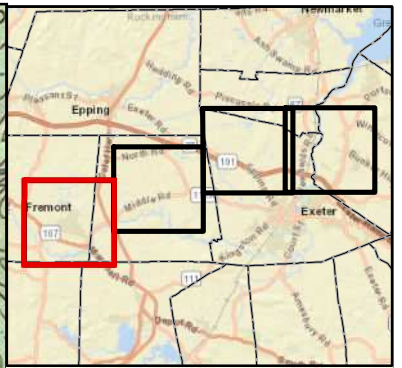
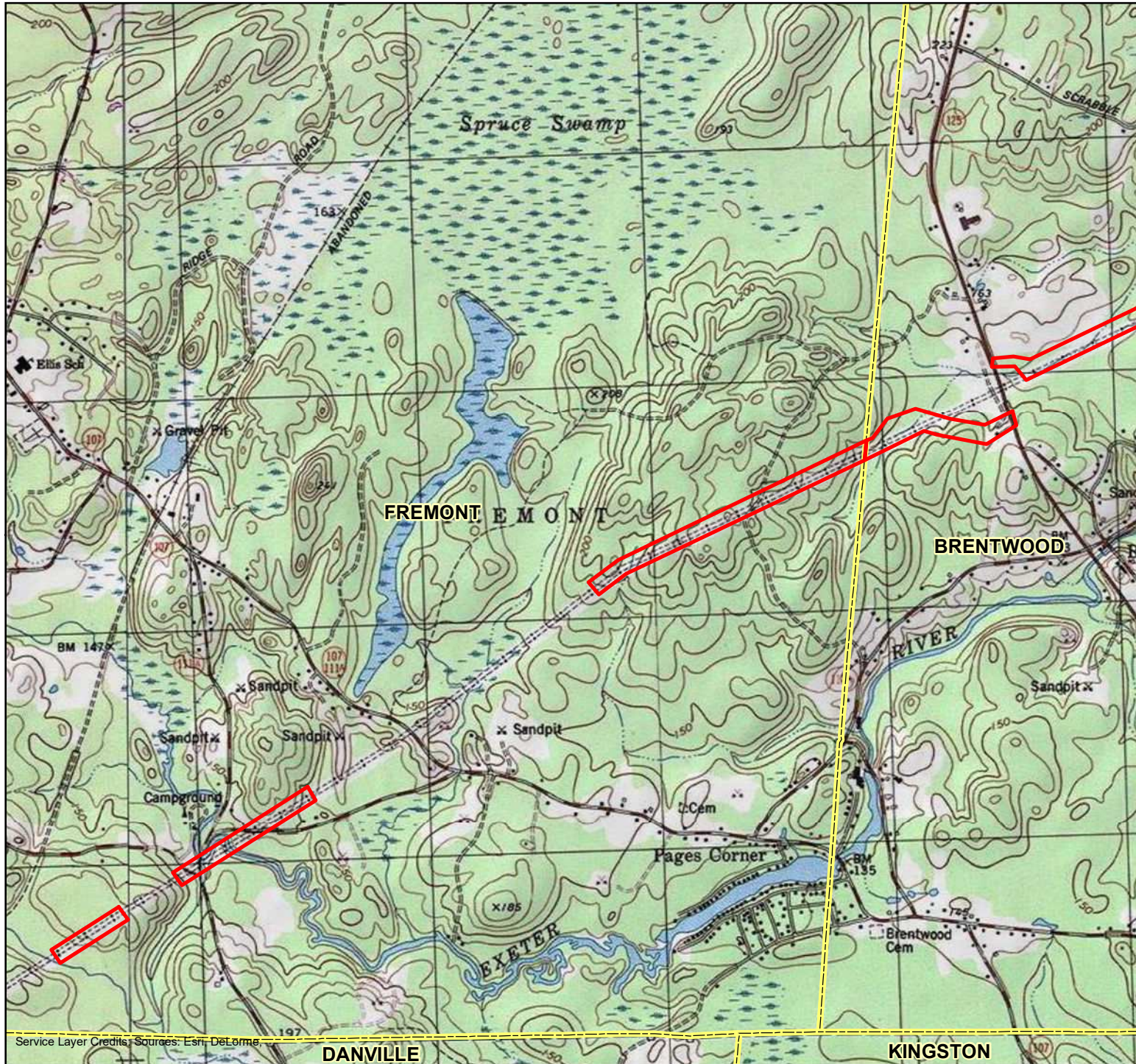
Table 5–2. Summary of Other Anticipated Regulatory Permits Required for Project

Agency	Permit/Notification	Status
Local		
Town of Fremont	None Required	<i>N/A</i>
Town of Brentwood	Conditional Use Permit	<i>Pending</i>
Town of Exeter	Conditional Use Permit	<i>Pending</i>
State		
NHDES Wetlands Bureau	Three Utility Maintenance Activity Statutory Permit-By-Notifications (SPNs) in the Towns of Fremont, Brentwood, and Exeter	<i>Pending</i>
NHDES Shorelands Program	Seven Shoreland Permit By Notifications (PBNs) in the Towns of Fremont and Exeter.	<i>Pending</i>
Federal		
EPA (Construction General Permit)	Stormwater Pollution Prevention Plan (SWPPP) and USACE Self-Verification under the NH CGP	<i>Pending</i>

The proposed project is necessary for routine maintenance of the R193, A126, and H141 Transmission Lines and to ensure the long-term safety and reliability of the electrical infrastructure.

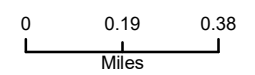
6 Figures

6.1 Figure 1. USGS Topo Map



USGS Overview Map
Eversource RASH Project
2023 Structure Replacement
Maintenance Project
Brentwood, Exeter &
Fremont, NH
 Map 1 of 4
 Date: 2/9/2023

- RASH Project Areas
- Town Border



1 in equals 0.38 miles

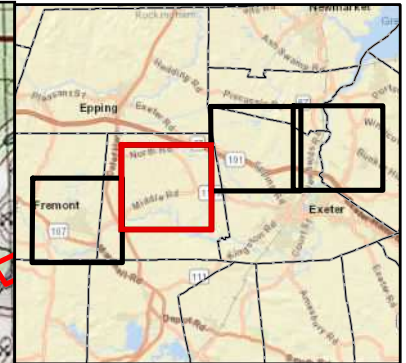
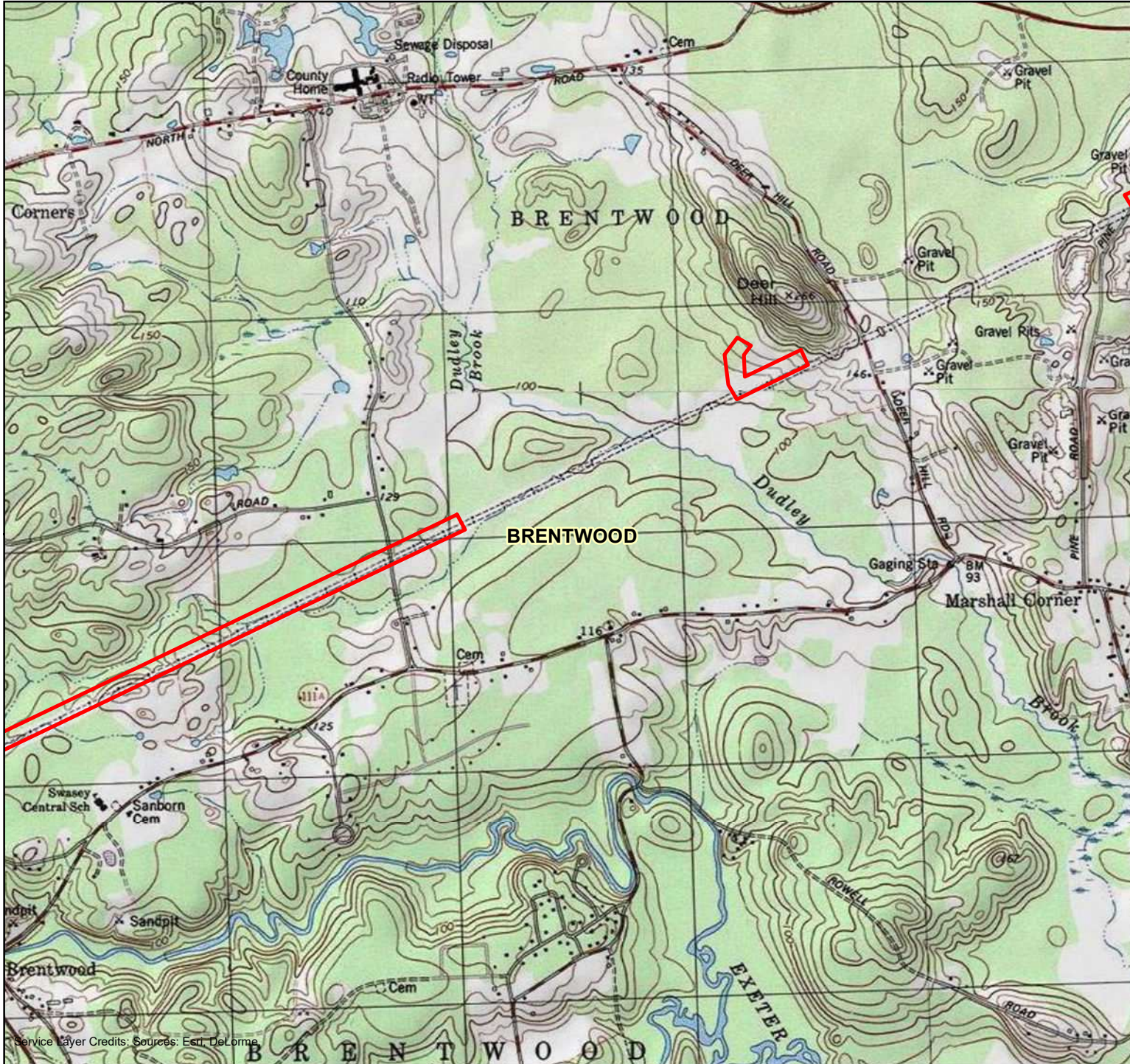
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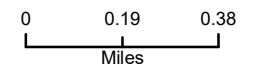
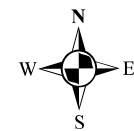
DANVILLE

KINGSTON



**USGS Overview Map
Eversource RASH Project
2023 Structure Replacement
Maintenance Project
Brentwood, Exeter &
Fremont, NH
Map 2 of 4
Date: 2/9/2023**

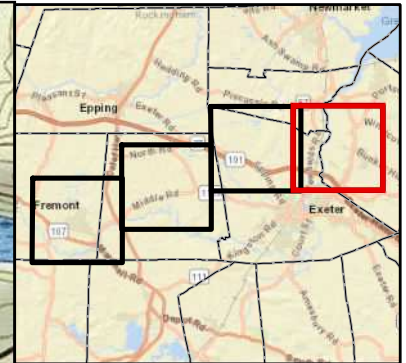
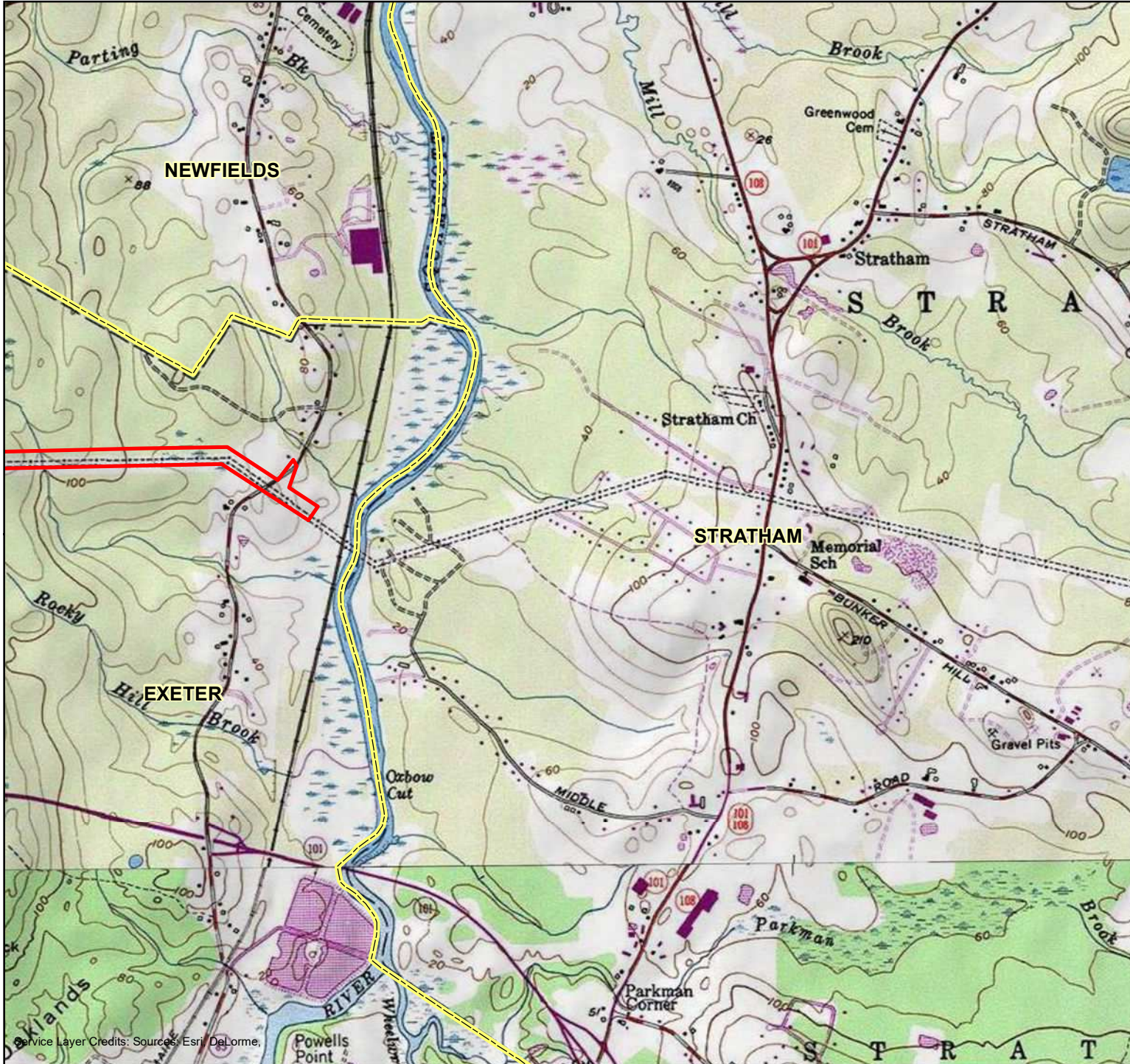
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-  Town Border





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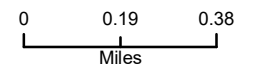
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USGS Overview Map
Eversource RASH Project
2023 Structure Replacement
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Brentwood, Exeter &
Fremont, NH
 Map 4 of 4
 Date: 2/9/2023

-  RASH Project Areas
-  Town Border

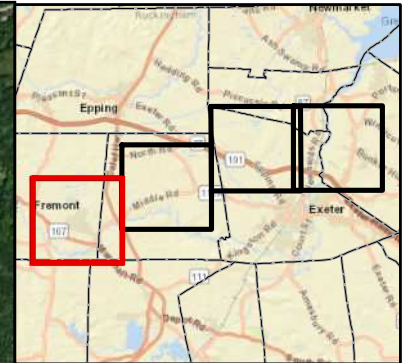


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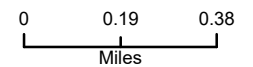
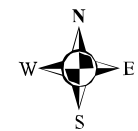


6.2 Figure 2. Orthophoto Map



Orthophoto Map
Eversource RASH Project
2023 Structure Replacement
Maintenance Project
Brentwood, Exeter &
Fremont, NH
 Map 1 of 4
 Date: 5/4/2023

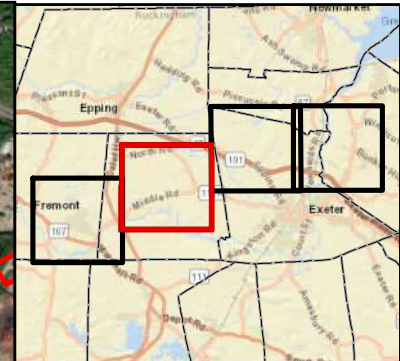
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-  Town Border





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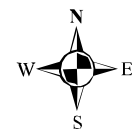
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Orthophoto Map
Eversource RASH Project
2023 Structure Replacement
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Brentwood, Exeter &
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 Map 2 of 4
 Date: 5/4/2023

-  RASH Project Areas
-  Town Border

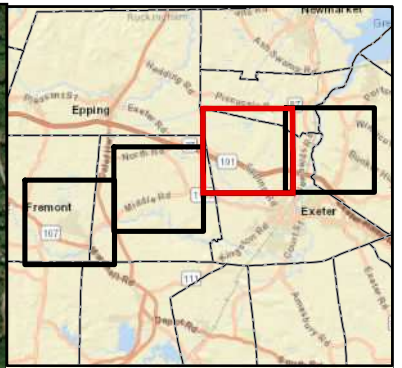
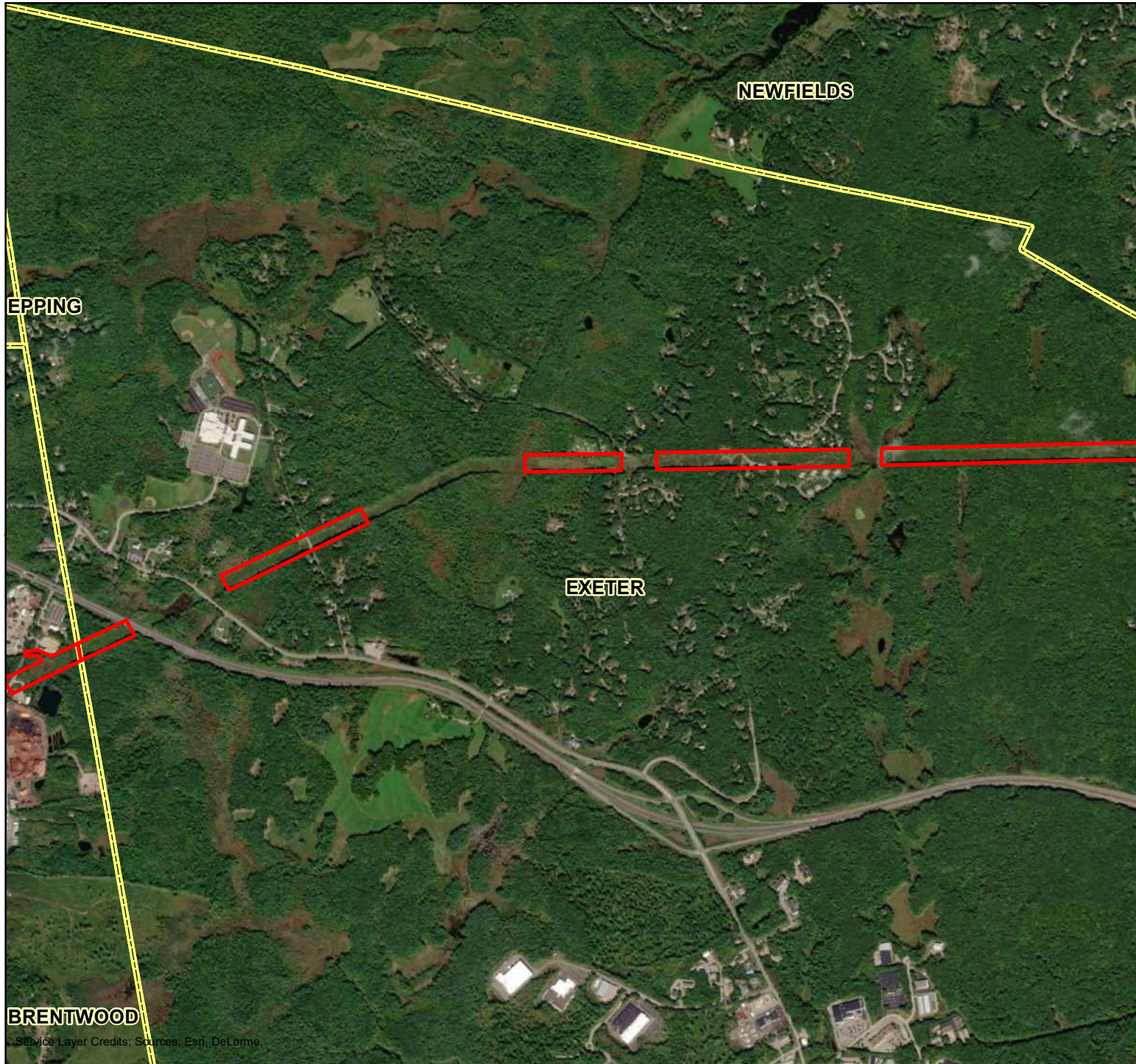


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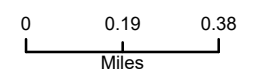
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Orthophoto Map
Eversource RASH Project
2023 Structure Replacement
Maintenance Project
Brentwood, Exeter &
Fremont, NH
Map 3 of 4
Date: 5/4/2023

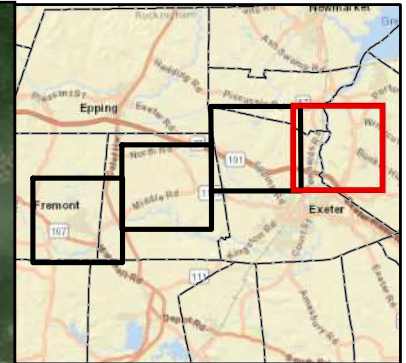
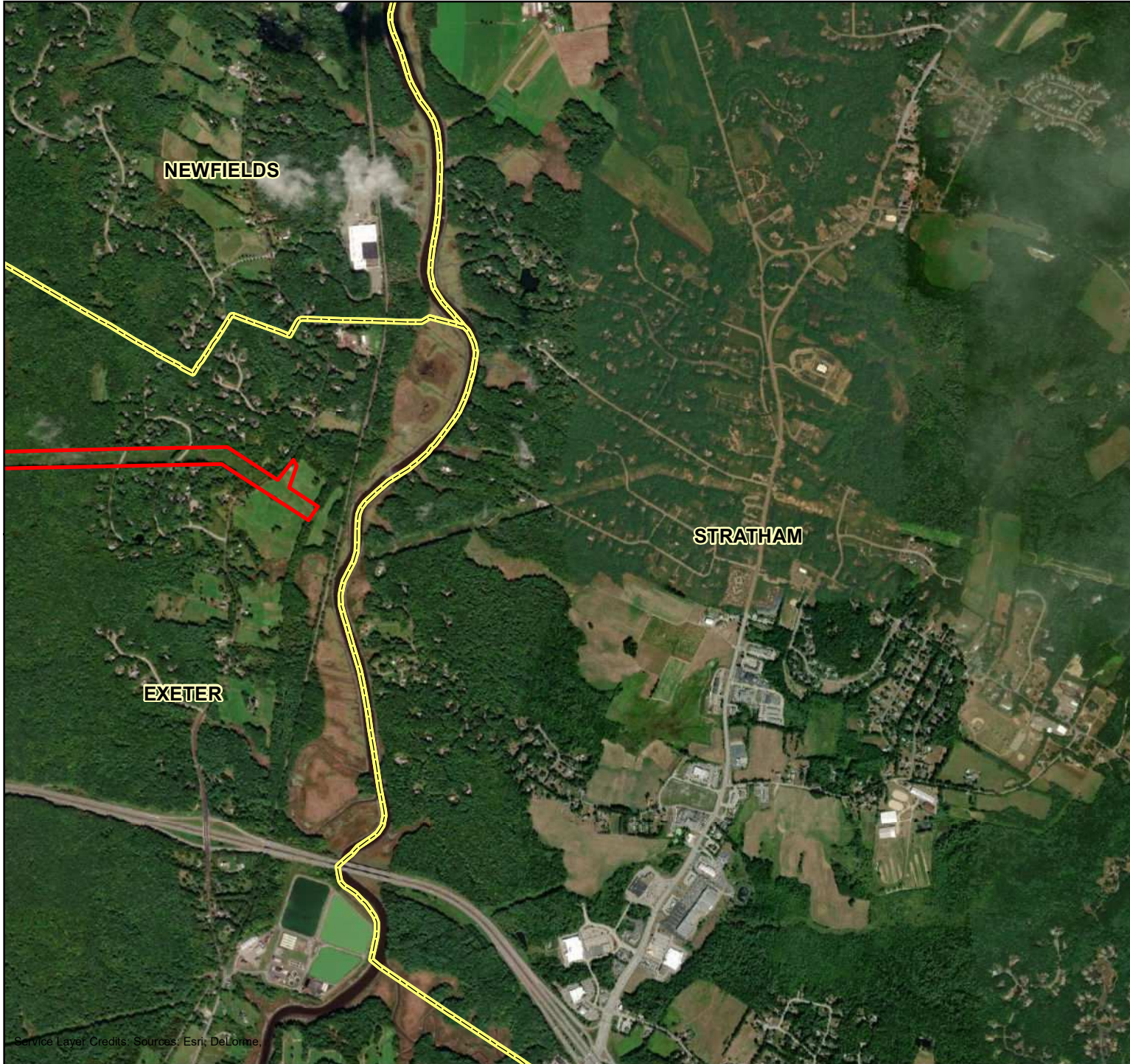
-  RASH Project Areas
-  Town Border





1 in equals 0.38 miles

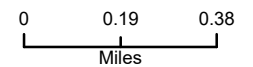
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**Orthophoto Map
Eversource RASH Project
2023 Structure Replacement
Maintenance Project
Brentwood, Exeter &
Fremont, NH
Map 4 of 4
Date: 5/4/2023**

-  RASH Project Areas
-  Town Border



1 in equals 0.38 miles

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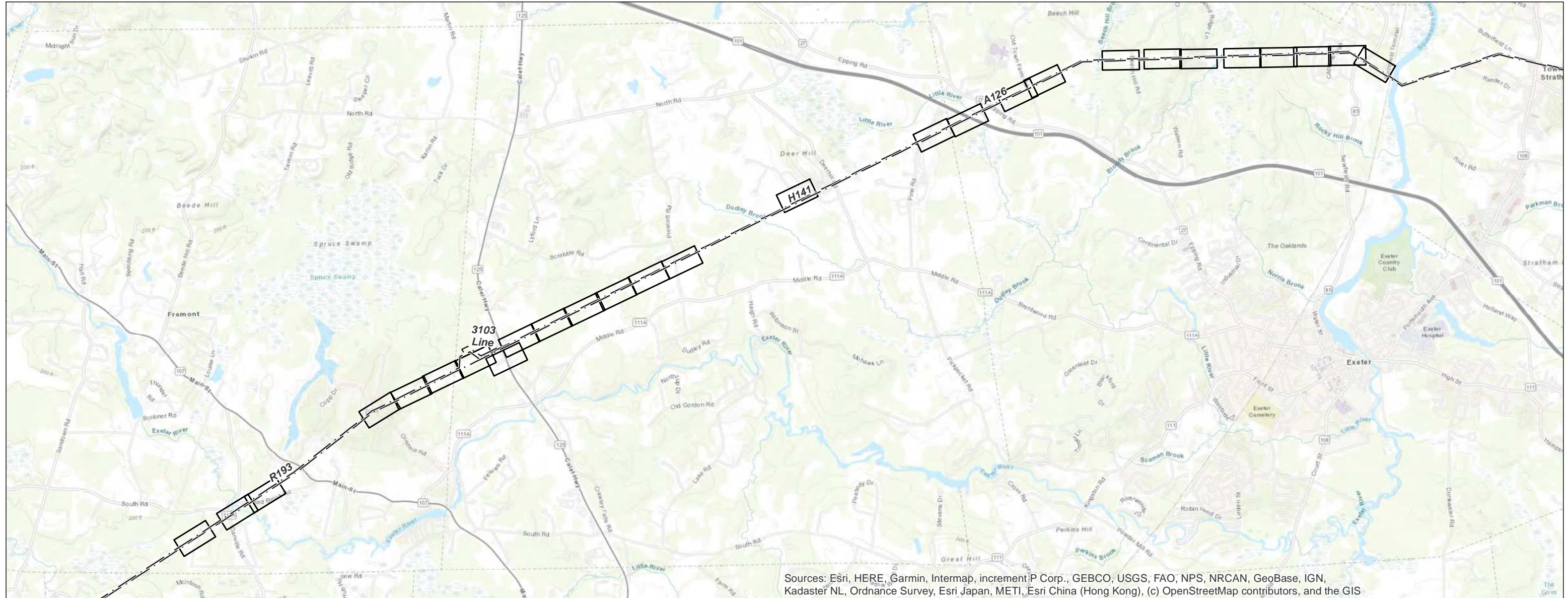


6.3 Figure 3. Alteration of Terrain Permitting Plans

RASH - Structure Replacement Project

BRENTWOOD, EXETER AND
FREMONT, NEW HAMPSHIRE
Alteration of Terrain Plans

Date: May 05, 2023



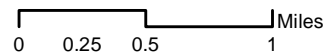
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PREPARED FOR:
EVERSOURCE

107 Selden Street
Berlin, CT 06037



--- Transmission Lines



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NO.	DATE	REVISIONS

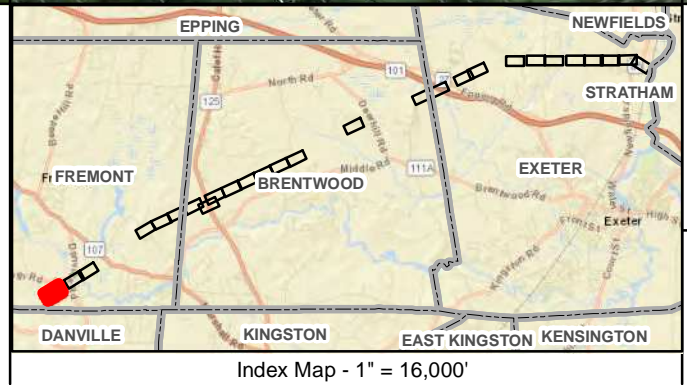
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NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS



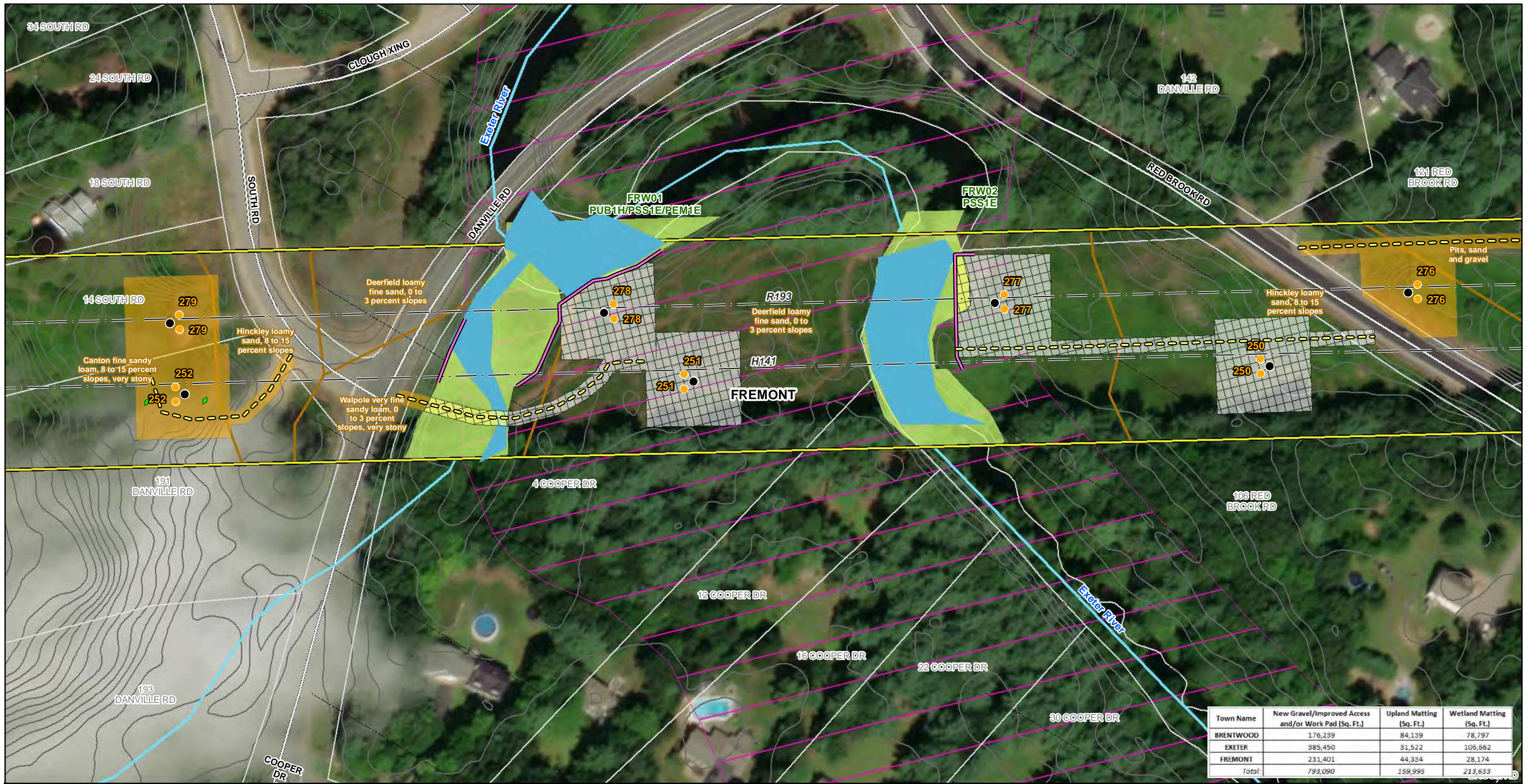
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- Erosion Control
- Transmission Lines
- NHD Streams
- 2 Foot Contours
- Vernal Pool Buffer (50')
- Stream/River
- Existing Access/Improved Surface
- AoT Disturbance Area
- Upland Matting
- Wetland Impact
- Delineated Vernal Pool
- Right of Way
- Delineated Wetland
- Delineated Prime Wetland
- Prime Wetlands 100-ft Buffer
- NRCS Soils
- Municipal Boundary
- Parcel Boundaries (Provided by Eversource)
- FEMA Flood Zone
- Conservation Land

* Existing Structures have two poles, like Replacement Structure; Replacements are in-kind

Municipality: Fremont



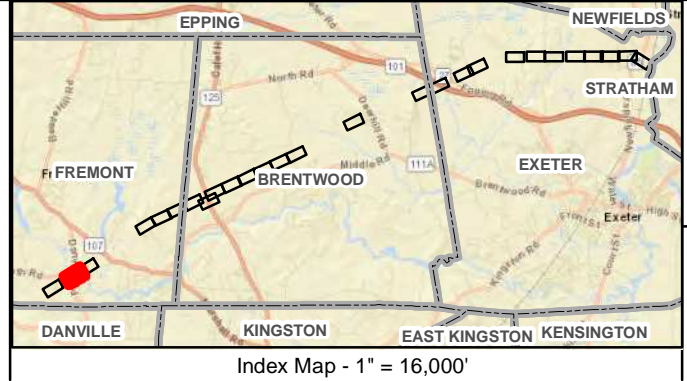
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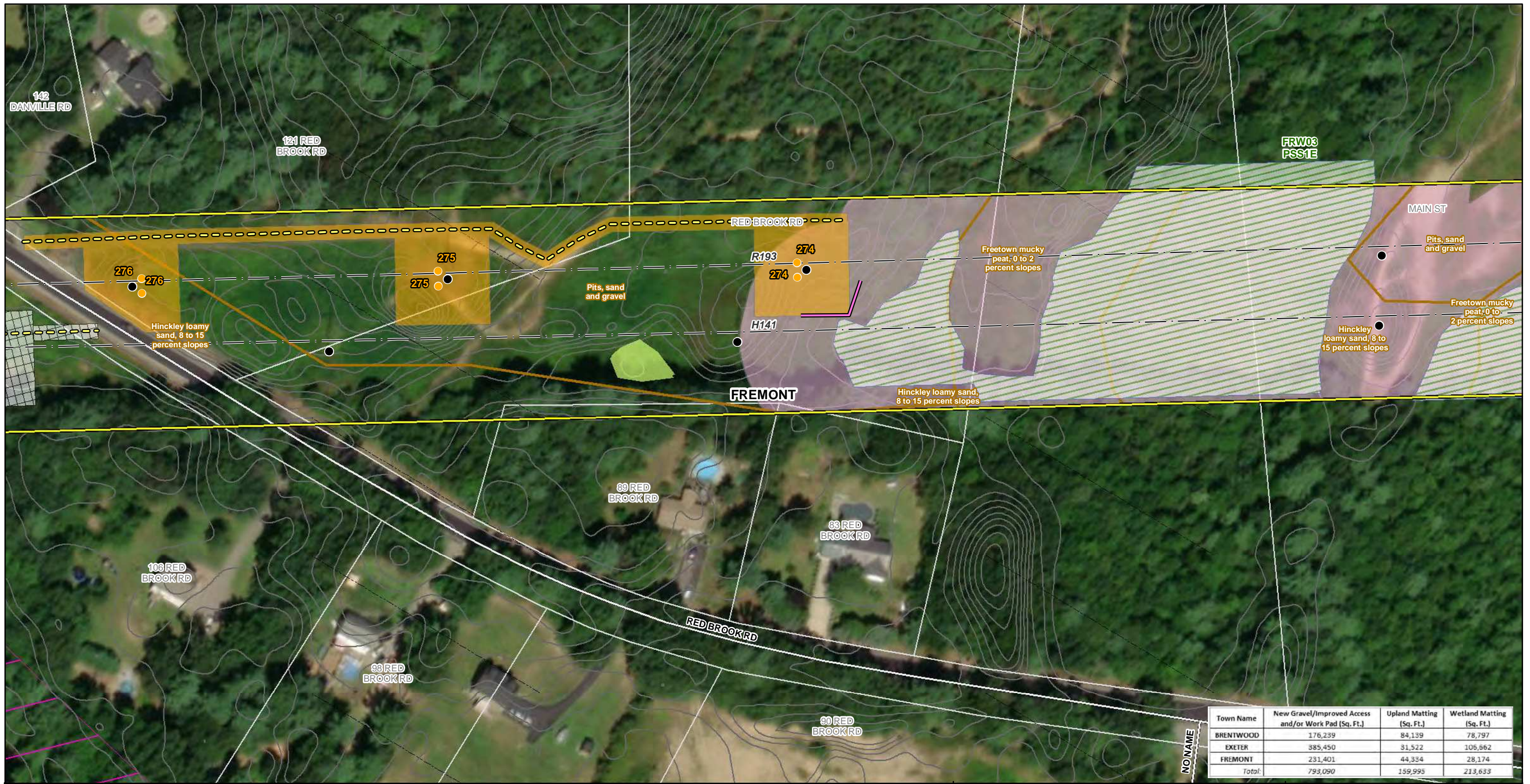
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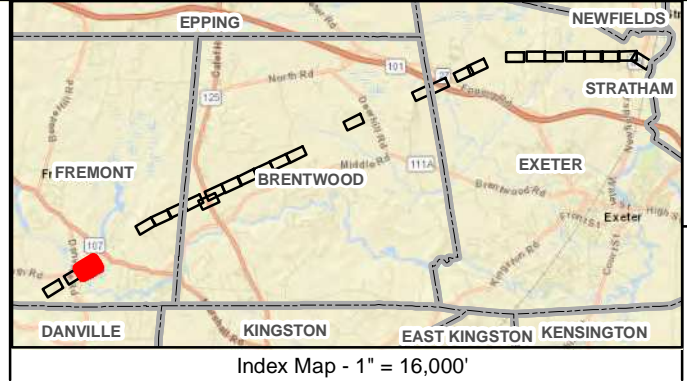
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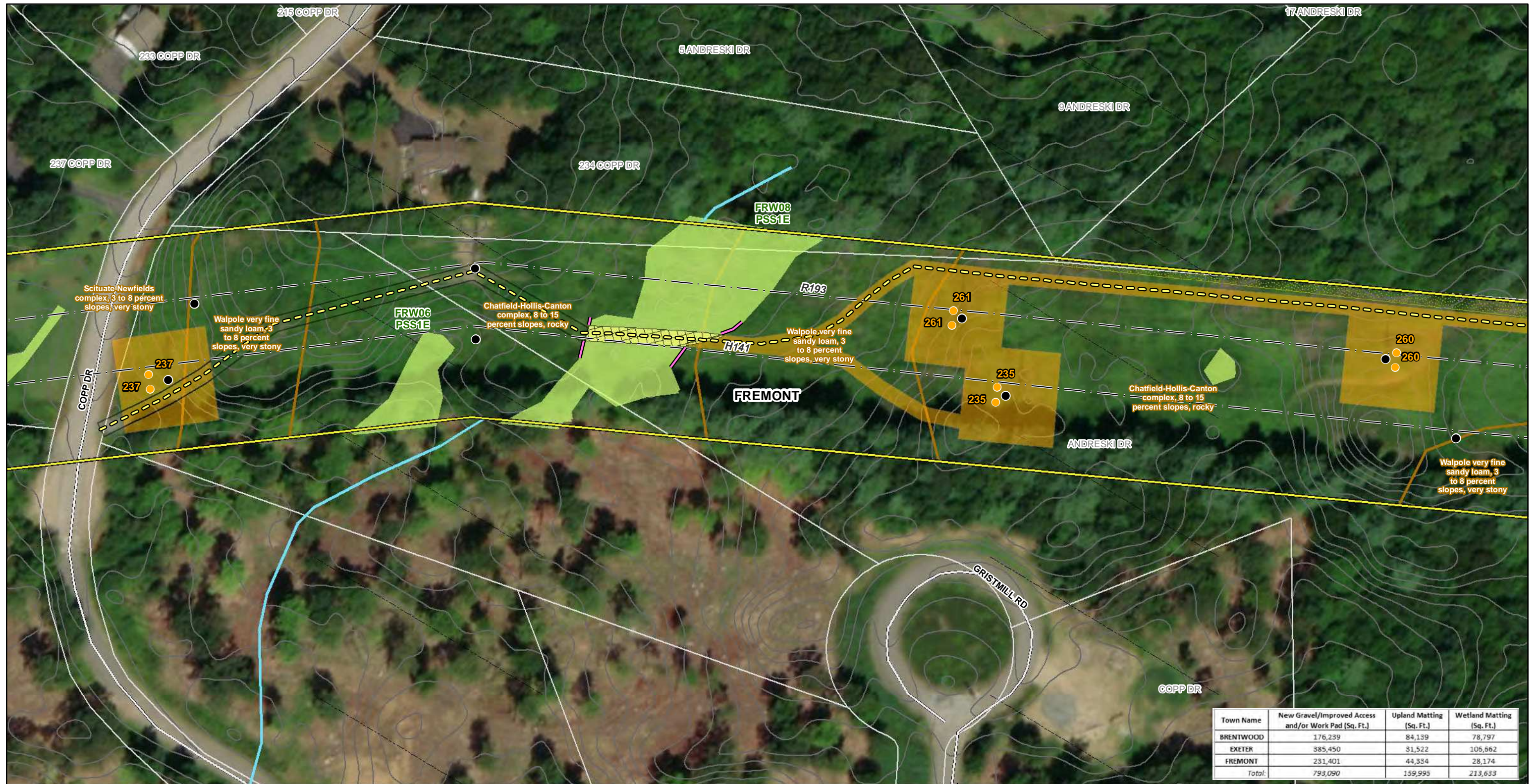
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 Delineated Stream Upland Matting Municipal Boundary
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Municipality: Fremont



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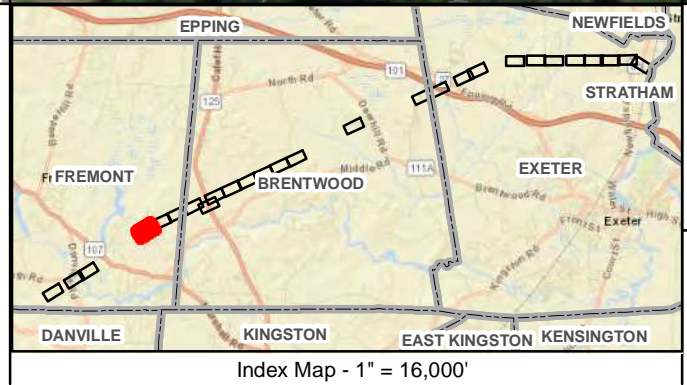


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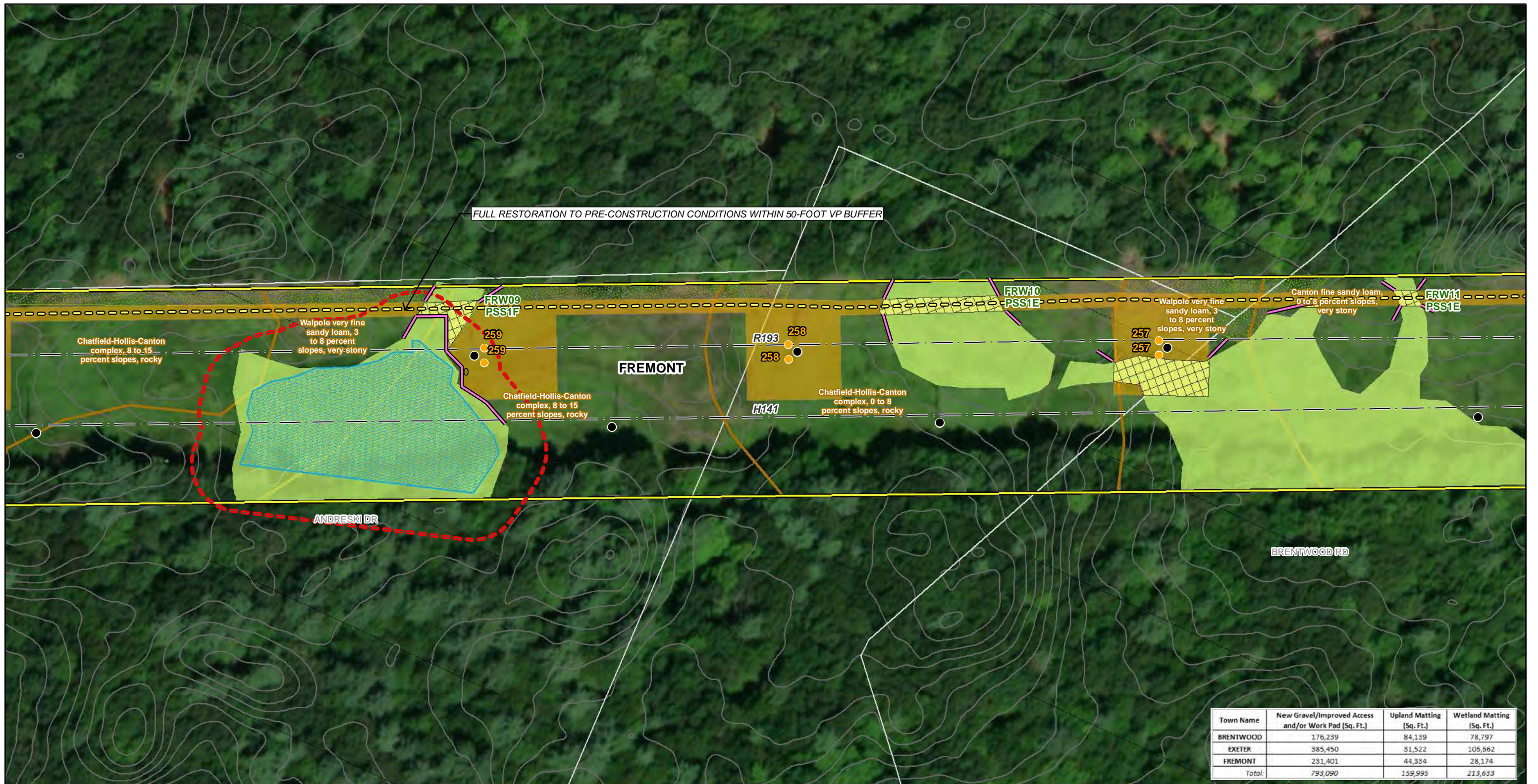
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Municipality: Fremont



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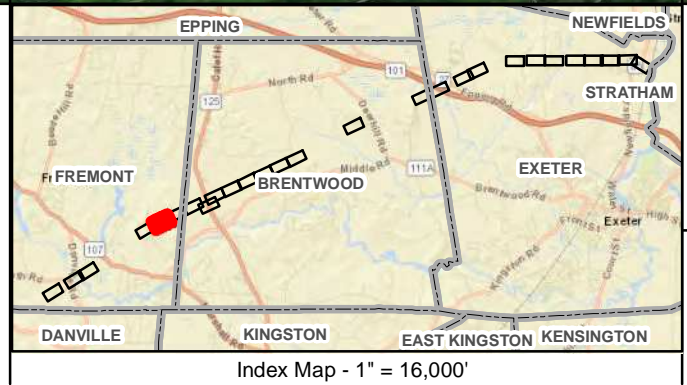


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BRENTWOOD	176,239	84,139	78,797
EXETER	385,450	31,522	106,862
FREMONT	231,401	44,354	28,174
Total:	793,090	159,995	213,633

- Replacement Structure
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- Delineated Stream
- Erosion Control
- Transmission Lines
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Municipality: Fremont



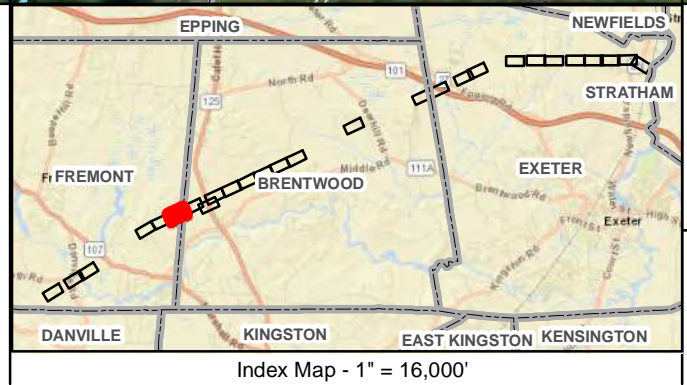
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Municipality: Fremont/Brentwood



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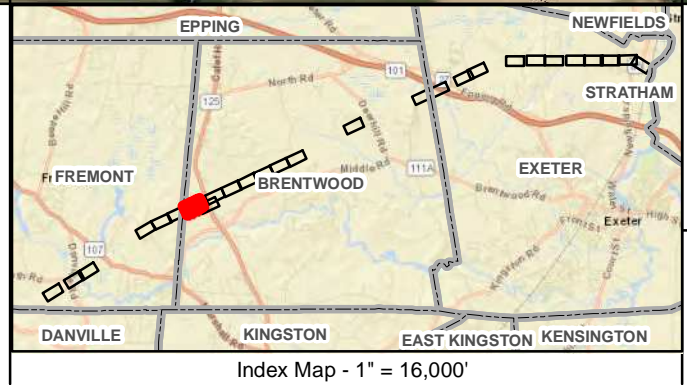


Town Name	New Gravel/Improved Access and/or Work Pad (Sq. Ft.)	Upland Matting (Sq. Ft.)	Wetland Matting (Sq. Ft.)
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Municipality: Brentwood



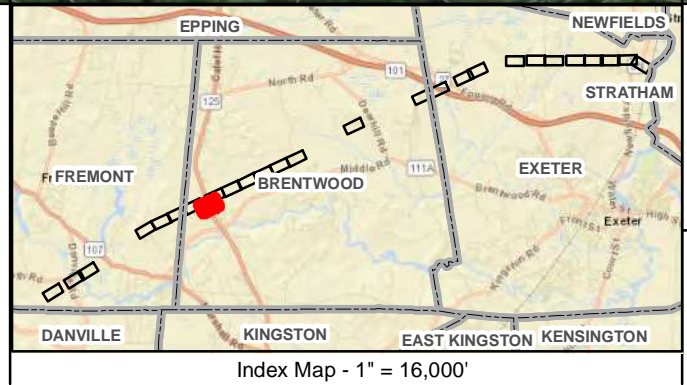
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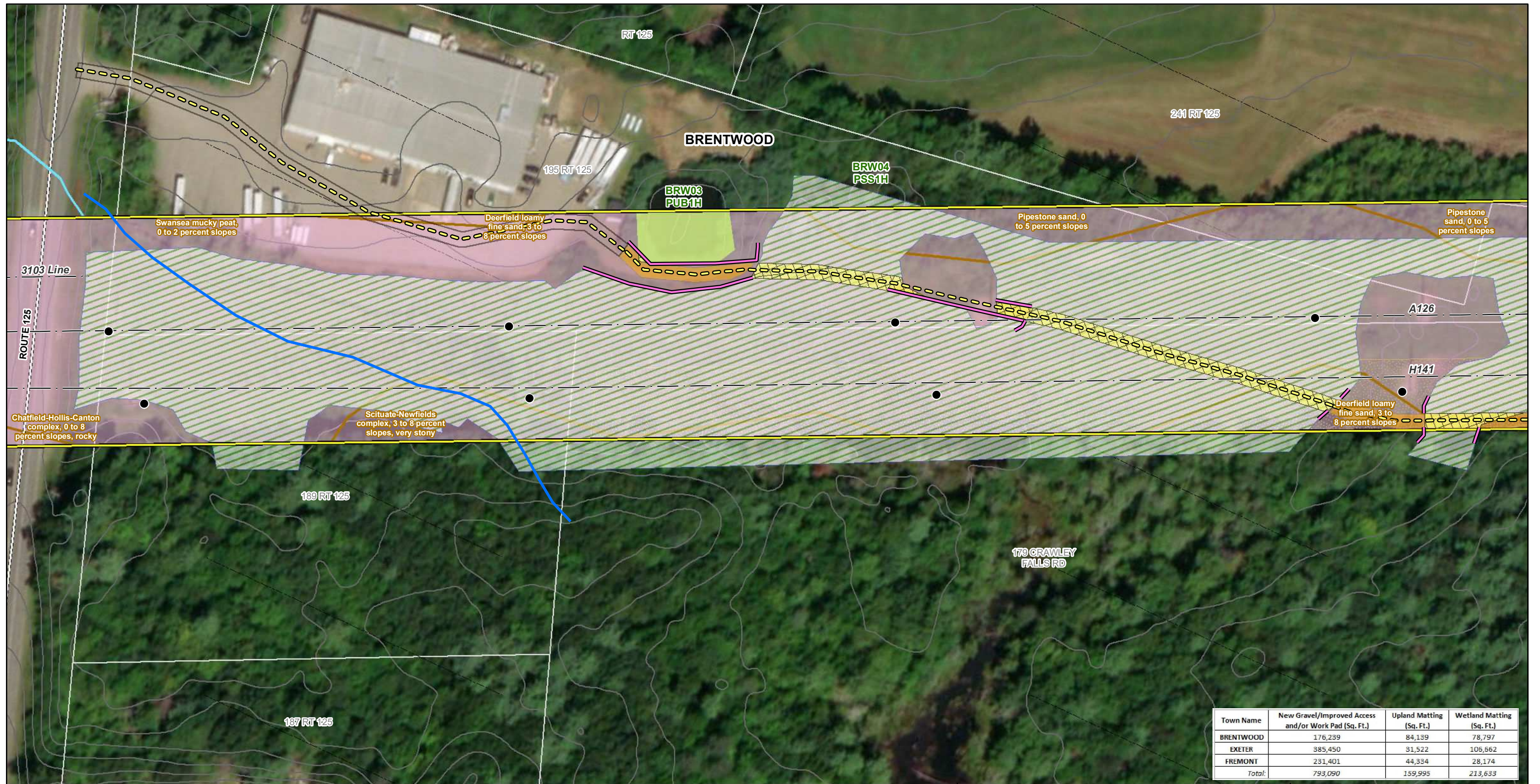
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Municipality: Brentwood



Eversource - RASH
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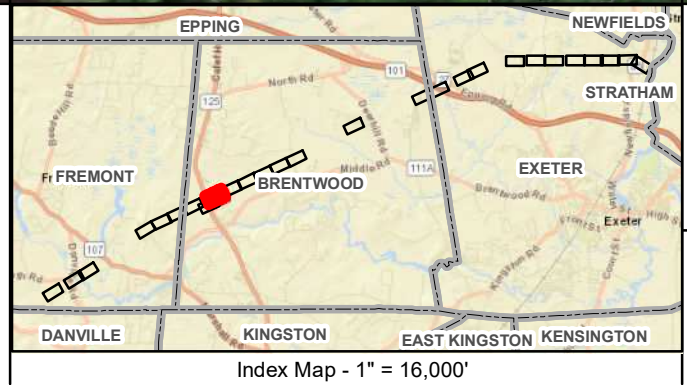


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▭ 2 Foot Contours		

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Municipality: Brentwood



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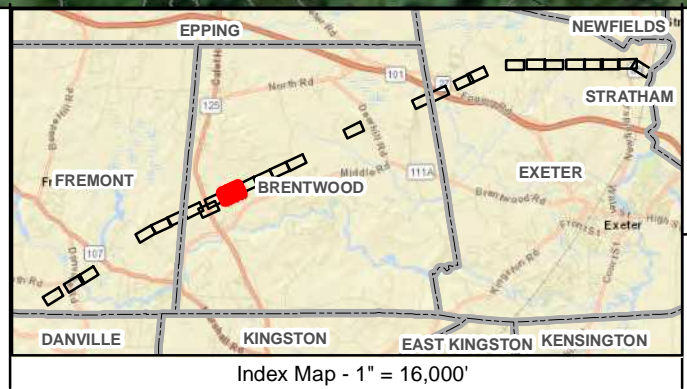


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- Upland Matting
- Wetland Impact
- Delineated Vernal Pool
- Right of Way
- Delineated Wetland
- Delineated Prime Wetland
- Prime Wetlands 100-ft Buffer
- NRCS Soils
- Municipal Boundary
- Parcel Boundaries (Provided by Eversource)
- FEMA Flood Zone
- Conservation Land

* Existing Structures have two poles, like Replacement Structure; Replacements are in-kind

Municipality: Brentwood



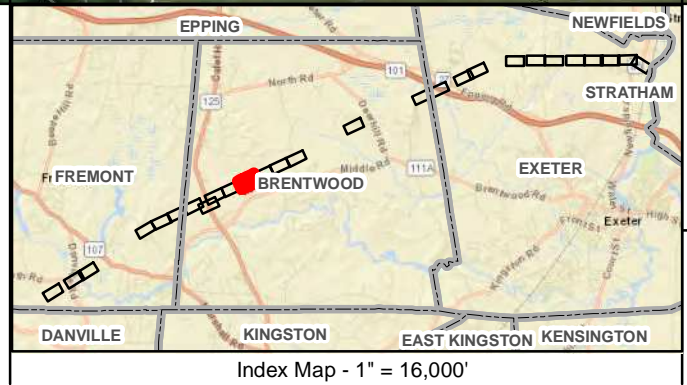
Eversource - RASH
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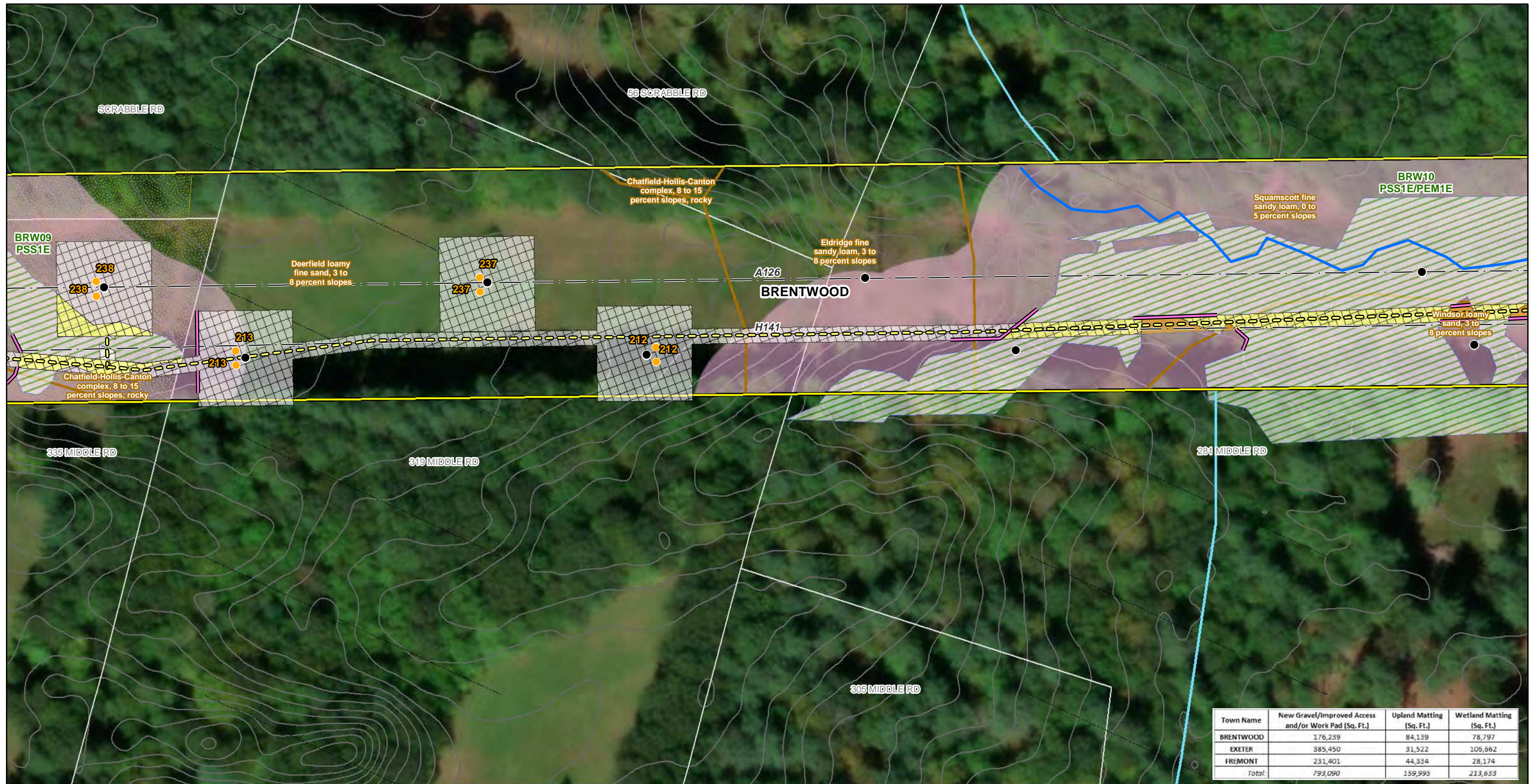
- Replacement Structure
- ◆ Guy Wire
- Existing Structure *
- Proposed Access Road
- Delineated Stream
- Erosion Control
- Transmission Lines
- NHD Streams
- 2 Foot Contours
- Vernal Pool Buffer (50')
- Stream/River
- Existing Access/Improved Surface
- AoT Disturbance Area
- Upland Matting
- Wetland Impact
- Delineated Vernal Pool
- Right of Way
- Delineated Wetland
- Delineated Prime Wetland
- Prime Wetlands 100-ft Buffer
- NRCS Soils
- Municipal Boundary
- Parcel Boundaries (Provided by Eversource)
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Municipality: Brentwood



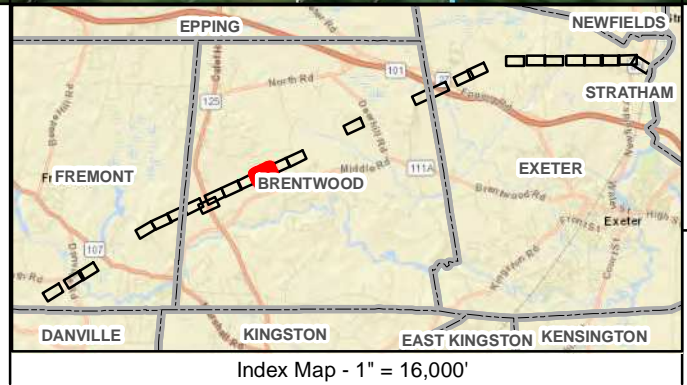
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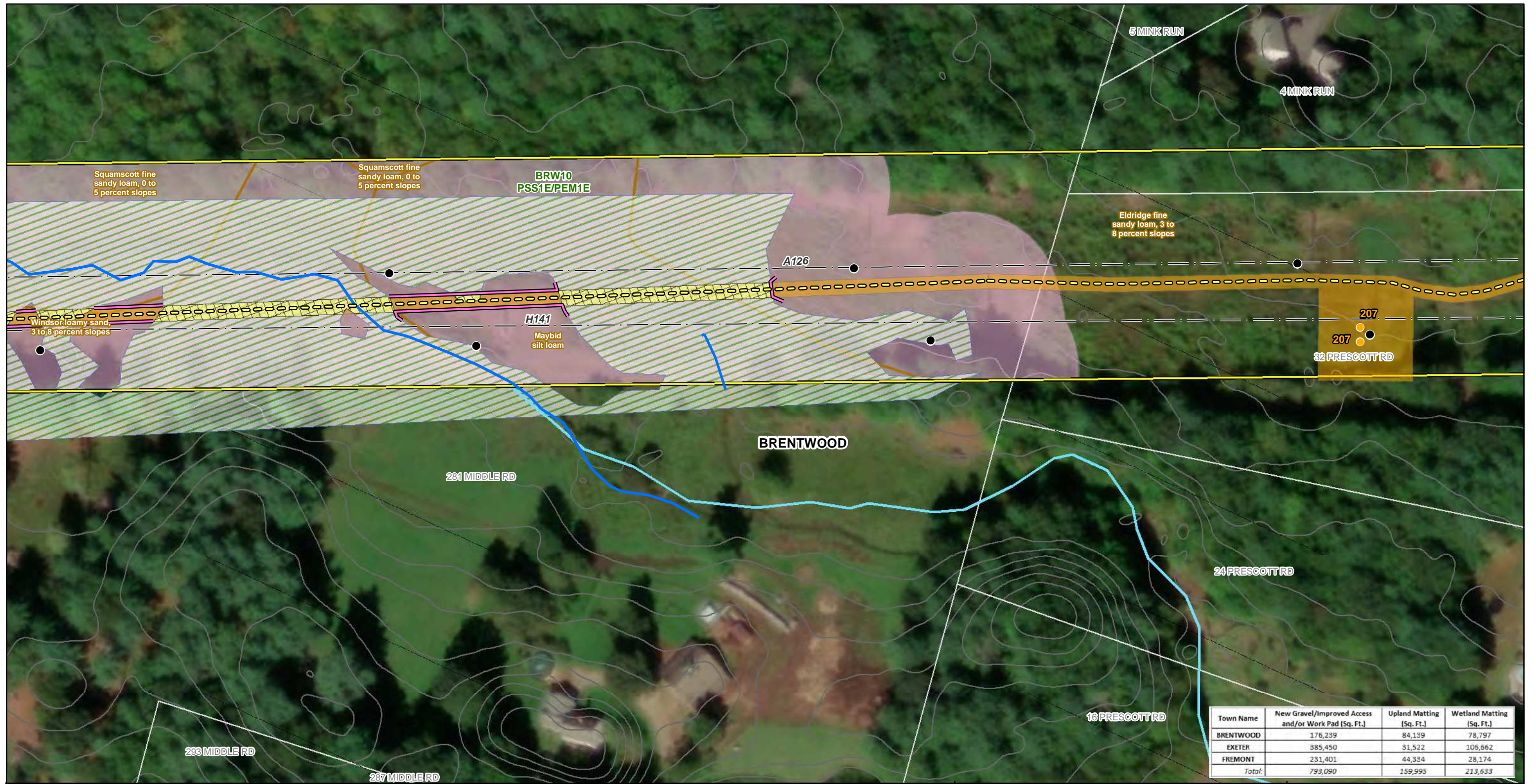
- Replacement Structure
- ◆ Guy Wire
- Existing Structure *
- Proposed Access Road
- Delineated Stream
- Erosion Control
- Transmission Lines
- NHD Streams
- 2 Foot Contours
- Vernal Pool Buffer (50')
- Stream/River
- Existing Access/Improved Surface
- AoT Disturbance Area
- Upland Matting
- Wetland Impact
- Delineated Vernal Pool
- Right of Way
- Delineated Wetland
- Delineated Prime Wetland
- Prime Wetlands 100-ft Buffer
- NRCS Soils
- Municipal Boundary
- Parcel Boundaries (Provided by Eversource)
- FEMA Flood Zone
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Municipality: Brentwood



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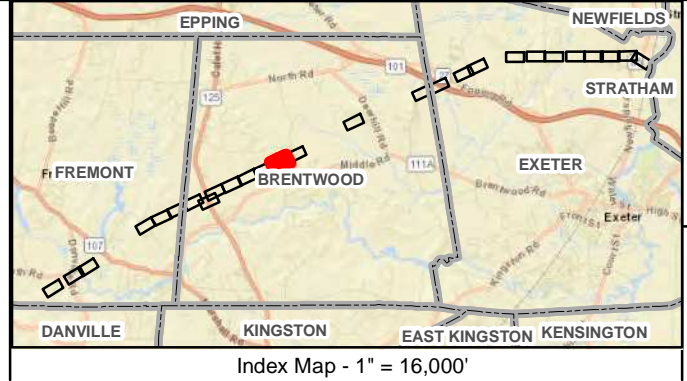
Town Name	New Gravel/Improved Access and/or Work Pad (Sq. Ft.)	Upland Matting (Sq. Ft.)	Wetland Matting (Sq. Ft.)
BRENTWOOD	176,239	84,139	78,797
EXETER	385,450	31,522	106,862
FREMONT	231,401	44,354	28,174
Total:	793,090	159,995	213,633

Legend

- Replacement Structure (Orange circle)
- Guy Wire (Green diamond)
- Existing Structure * (Black dot)
- Proposed Access Road (Dashed orange line)
- Delineated Stream (Blue line)
- Erosion Control (Pink line)
- Transmission Lines (Dashed black line)
- NHD Streams (Cyan line)
- 2 Foot Contours (Thin grey line)
- Vernal Pool Buffer (50') (Red dashed box)
- Stream/River (Blue line)
- Existing Access/Improved Surface (White box)
- AoT Disturbance Area (Orange box)
- Upland Matting (White box with diagonal lines)
- Wetland Impact (Yellow box with diagonal lines)
- Delineated Vernal Pool (Blue box with diagonal lines)
- Right of Way (Yellow box)
- Delineated Wetland (Light green box)
- Delineated Prime Wetland (Light blue box)
- Prime Wetlands 100-ft Buffer (Pink box)
- NRCS Soils (Orange box)
- Municipal Boundary (Grey dashed line)
- Parcel Boundaries (Provided by Eversource) (Thin grey line)
- FEMA Flood Zone (Pink box with diagonal lines)
- Conservation Land (Yellow box with dots)

* Existing Structures have two poles, like Replacement Structure; Replacements are in-kind

Municipality: Brentwood



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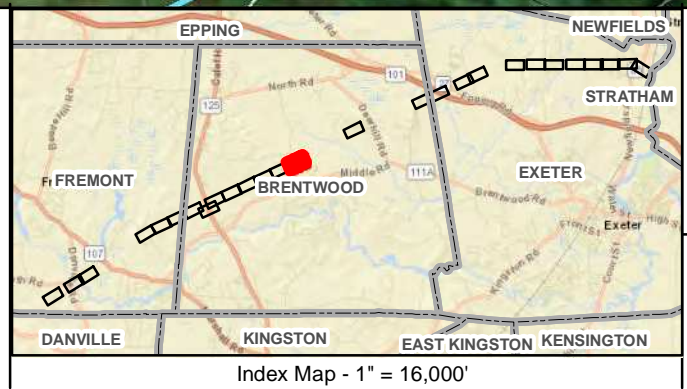


Legend

- Replacement Structure
- Guy Wire
- Existing Structure *
- Proposed Access Road
- Delineated Stream
- Erosion Control
- Transmission Lines
- NHD Streams
- 2 Foot Contours
- Vernal Pool Buffer (50')
- Stream/River
- Existing Access/Improved Surface
- AoT Disturbance Area
- Upland Matting
- Wetland Impact
- Delineated Vernal Pool
- Right of Way
- Delineated Wetland
- Delineated Prime Wetland
- Prime Wetlands 100-ft Buffer
- NRCS Soils
- Municipal Boundary
- Parcel Boundaries (Provided by Eversource)
- FEMA Flood Zone
- Conservation Land

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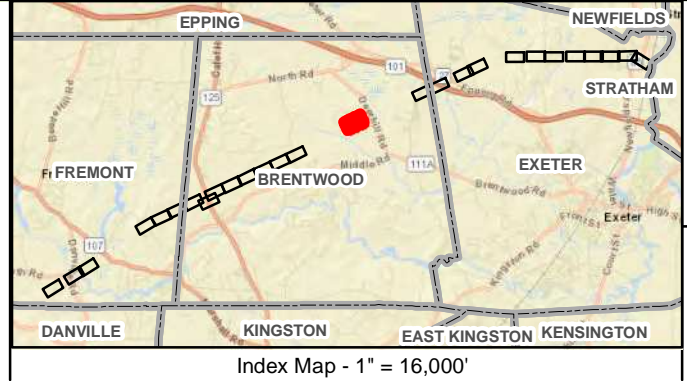
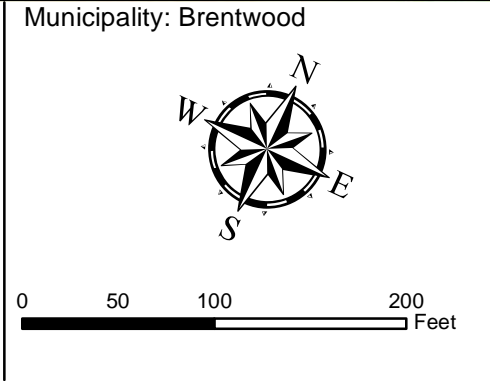
Municipality: Brentwood



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- Replacement Structure
 - ◆ Guy Wire
 - Existing Structure *
 - Proposed Access Road
 - Delineated Stream
 - Erosion Control
 - Transmission Lines
 - NHD Streams
 - 2 Foot Contours
 - Vernal Pool Buffer (50')
 - Stream/River
 - Existing Access/Improved Surface
 - AoT Disturbance Area
 - Upland Matting
 - Wetland Impact
 - Delineated Vernal Pool
 - Right of Way
 - Delineated Wetland
 - Delineated Prime Wetland
 - Prime Wetlands 100-ft Buffer
 - NRCS Soils
 - Municipal Boundary
 - Parcel Boundaries (Provided by Eversource)
 - FEMA Flood Zone
 - Conservation Land
- * Existing Structures have two poles, like Replacement Structure; Replacements are in-kind



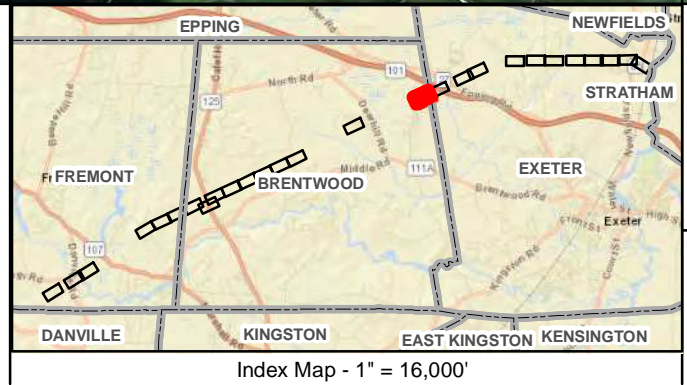
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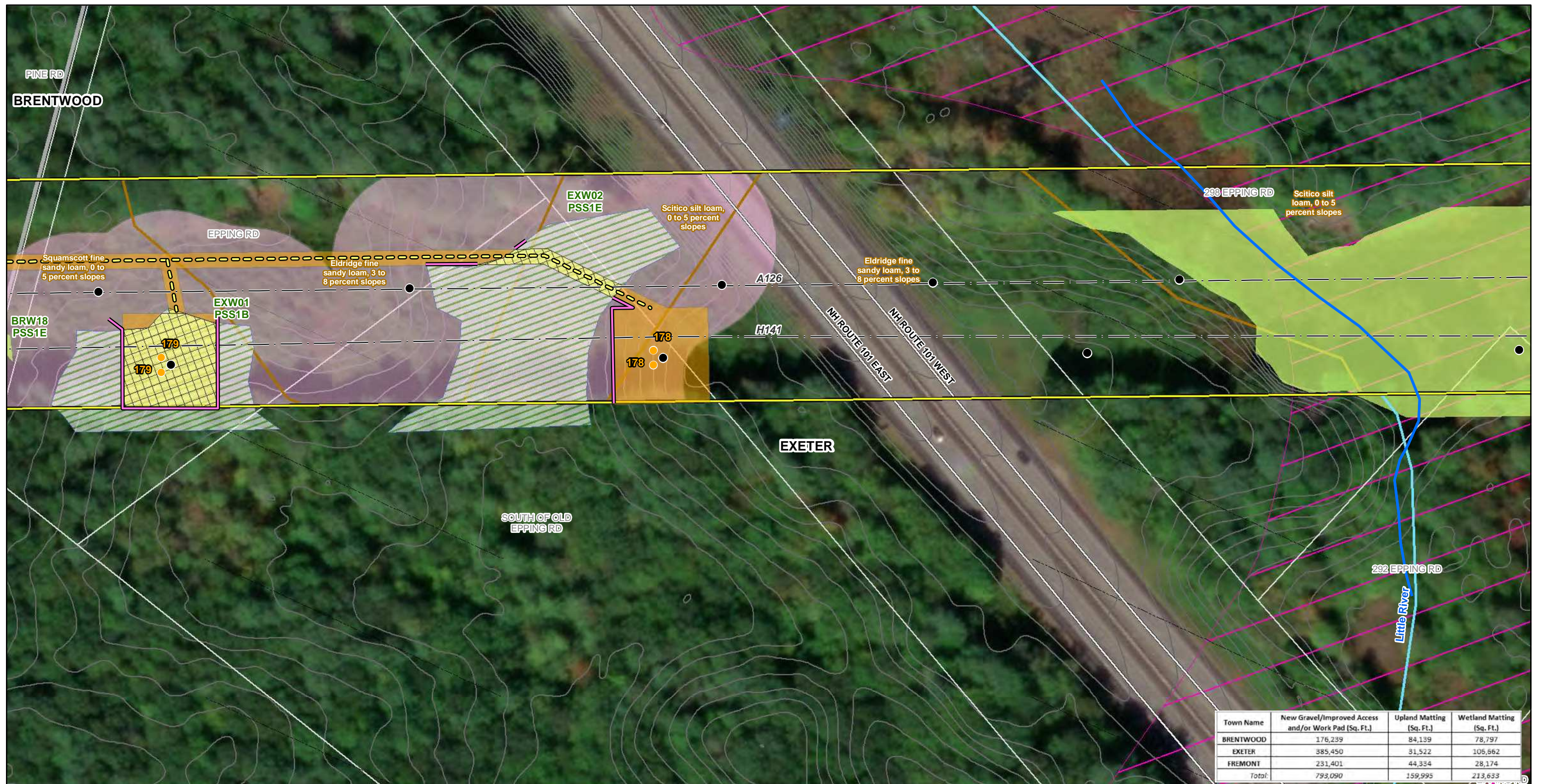
● Replacement Structure Vernal Pool Buffer (50') Delineated Wetland
◆ Guy Wire Stream/River Delineated Prime Wetland
● Existing Structure * Existing Access/Improved Surface Prime Wetlands 100-ft Buffer
 Proposed Access Road AoT Disturbance Area NRCS Soils
— Delineated Stream Upland Matting Municipal Boundary
 Erosion Control Wetland Impact Parcel Boundaries (Provided by Eversource)
 Transmission Lines Delineated Vernal Pool FEMA Flood Zone
— NHD Streams Right of Way Conservation Land
 2 Foot Contours

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Municipality: Brentwood



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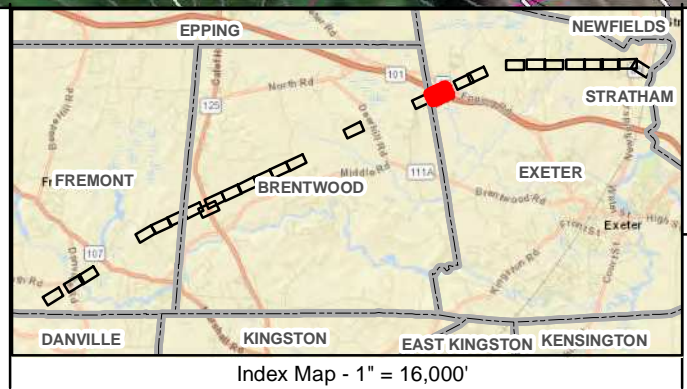


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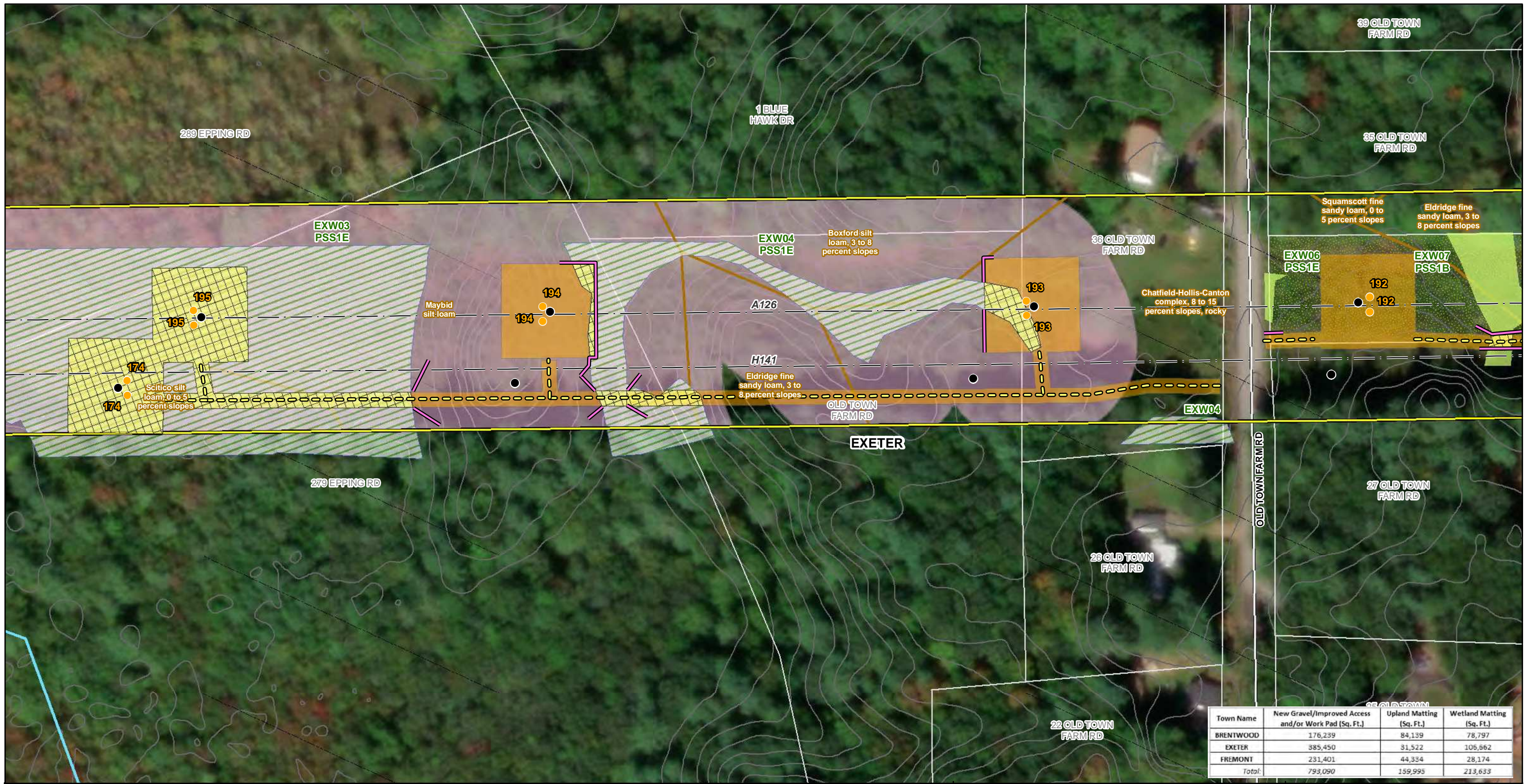
- Replacement Structure
- ◆ Guy Wire
- Existing Structure *
- Proposed Access Road
- Delineated Stream
- Erosion Control
- Transmission Lines
- NHD Streams
- 2 Foot Contours
- Vernal Pool Buffer (50')
- Stream/River
- Existing Access/Improved Surface
- AoT Disturbance Area
- Upland Matting
- Wetland Impact
- Right of Way
- Delineated Wetland
- Delineated Prime Wetland
- Prime Wetlands 100-ft Buffer
- NRCS Soils
- Municipal Boundary
- Parcel Boundaries (Provided by Eversource)
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- Conservation Land

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Municipality: Exeter



Eversource - RASH
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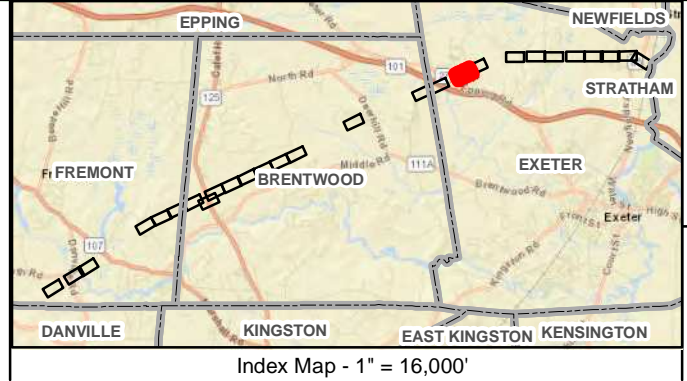


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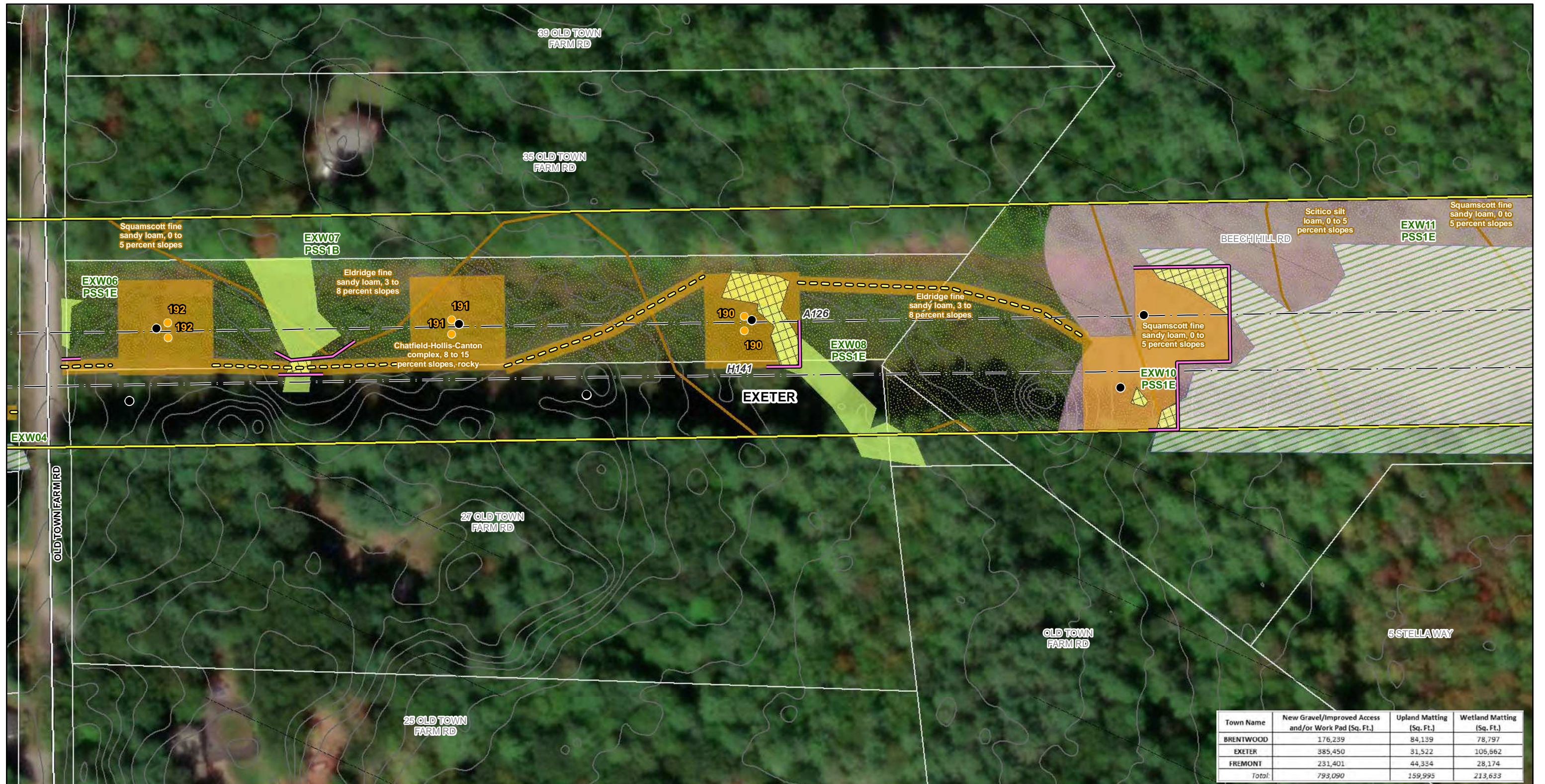
- Replacement Structure
- Guy Wire
- Existing Structure *
- Proposed Access Road
- Delineated Stream
- Erosion Control
- Transmission Lines
- NHD Streams
- 2 Foot Contours
- Vernal Pool Buffer (50')
- Stream/River
- Existing Access/Improved Surface
- AoT Disturbance Area
- Upland Matting
- Wetland Impact
- Delineated Vernal Pool
- Right of Way
- Delineated Wetland
- Delineated Prime Wetland
- Prime Wetlands 100-ft Buffer
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Municipality: Exeter



Eversource - RASH
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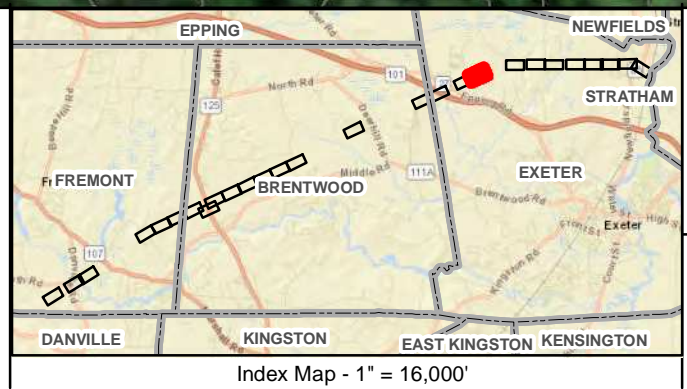


Legend

- Replacement Structure (Orange circle)
- Guy Wire (Green diamond)
- Existing Structure * (Black circle)
- Proposed Access Road (Dashed orange line)
- Delineated Stream (Blue line)
- Erosion Control (Purple line)
- Transmission Lines (Black dashed line)
- NHD Streams (Light blue line)
- 2 Foot Contours (Grey line)
- Vernal Pool Buffer (50') (Red dashed box)
- Stream/River (Blue area)
- Existing Access/Improved Surface (White area)
- AoT Disturbance Area (Orange area)
- Upland Matting (Cross-hatched area)
- Wetland Impact (Yellow hatched area)
- Delineated Vernal Pool (Blue hatched area)
- Right of Way (Yellow box)
- Delineated Wetland (Light green area)
- Delineated Prime Wetland (Green hatched area)
- Prime Wetlands 100-ft Buffer (Pink area)
- NRCS Soils (Brown area)
- Municipal Boundary (Grey dashed line)
- Parcel Boundaries (Provided by Eversource) (Thin grey lines)
- FEMA Flood Zone (Pink hatched area)
- Conservation Land (Yellow dotted area)

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Municipality: Exeter



Eversource - RASH
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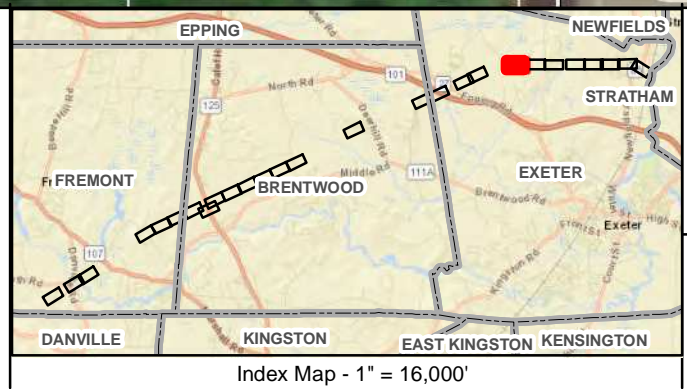


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- Replacement Structure
- ◆ Guy Wire
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- Proposed Access Road
- Delineated Stream
- Erosion Control
- Transmission Lines
- NHD Streams
- 2 Foot Contours
- Vernal Pool Buffer (50')
- Stream/River
- Existing Access/Improved Surface
- AoT Disturbance Area
- Upland Matting
- Wetland Impact
- Right of Way
- Delineated Wetland
- Delineated Prime Wetland
- Prime Wetlands 100-ft Buffer
- NRCS Soils
- Municipal Boundary
- Parcel Boundaries (Provided by Eversource)
- FEMA Flood Zone
- Conservation Land

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Municipality: Exeter



Eversource - RASH
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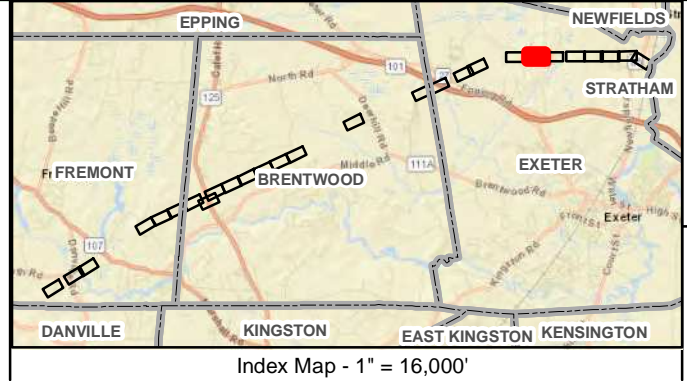


Legend

- Replacement Structure
- ◆ Guy Wire
- Existing Structure *
- Proposed Access Road
- Delineated Stream
- Erosion Control
- Transmission Lines
- NHD Streams
- 2 Foot Contours
- Vernal Pool Buffer (50')
- Stream/River
- Existing Access/Improved Surface
- AoT Disturbance Area
- Upland Matting
- Wetland Impact
- Delineated Vernal Pool
- Right of Way
- Delineated Wetland
- Delineated Prime Wetland
- Prime Wetlands 100-ft Buffer
- NRCS Soils
- Municipal Boundary
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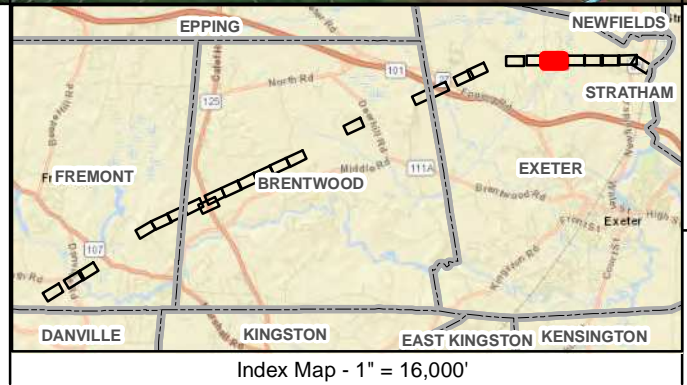


Legend

- Replacement Structure (Orange circle)
- Guy Wire (Green diamond)
- Existing Structure * (Black circle)
- Proposed Access Road (Dashed orange line)
- Delineated Stream (Blue line)
- Erosion Control (Pink line)
- Transmission Lines (Dashed black line)
- NHD Streams (Light blue line)
- 2 Foot Contours (Thin grey line)
- Vernal Pool Buffer (50') (Red dashed line)
- Stream/River (Blue line)
- Existing Access/Improved Surface (White line)
- AoT Disturbance Area (Orange shaded area)
- Upland Matting (Cross-hatched area)
- Wetland Impact (Yellow hatched area)
- Delineated Vernal Pool (Blue hatched area)
- Right of Way (Yellow outline)
- Delineated Wetland (Light green shaded area)
- Delineated Prime Wetland (Light blue hatched area)
- Prime Wetlands 100-ft Buffer (Pink shaded area)
- NRCS Soils (Orange shaded area)
- Municipal Boundary (Grey outline)
- Parcel Boundaries (Provided by Eversource) (Thin grey outline)
- FEMA Flood Zone (Pink shaded area)
- Conservation Land (Yellow shaded area)

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Municipality: Exeter



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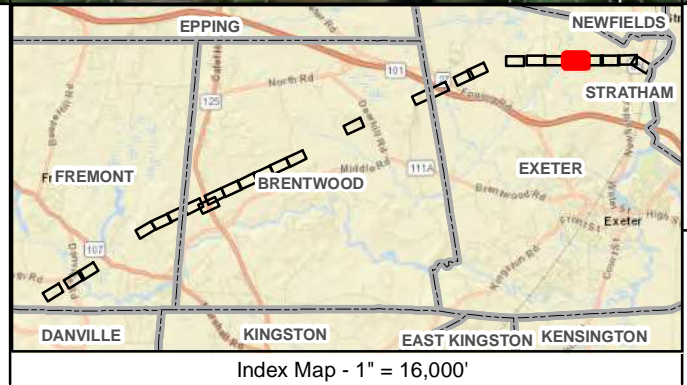


Town Name	New Gravel/Improved Access and/or Work Pad (Sq. Ft.)	Upland Matting (Sq. Ft.)	Wetland Matting (Sq. Ft.)
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- Transmission Lines
- NHD Streams
- 2 Foot Contours
- Vernal Pool Buffer (50')
- Stream/River
- Existing Access/Improved Surface
- AoT Disturbance Area
- Upland Matting
- Wetland Impact
- Delineated Vernal Pool
- Right of Way
- Delineated Wetland
- Delineated Prime Wetland
- Prime Wetlands 100-ft Buffer
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- Municipal Boundary
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- FEMA Flood Zone
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Municipality: Exeter



Eversource - RASH
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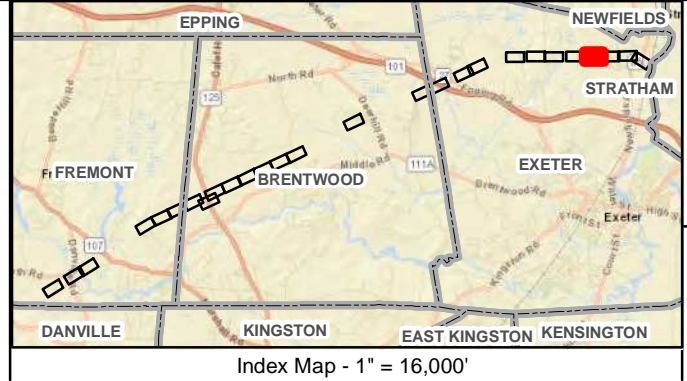


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- Transmission Lines
- NHD Streams
- 2 Foot Contours
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- Stream/River
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- Wetland Impact
- Delineated Vernal Pool
- Right of Way
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- Delineated Prime Wetland
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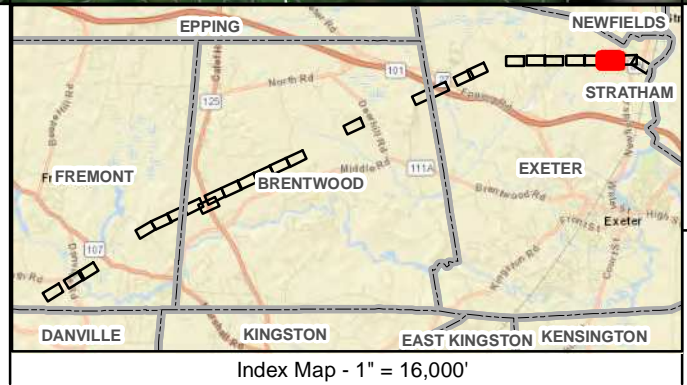
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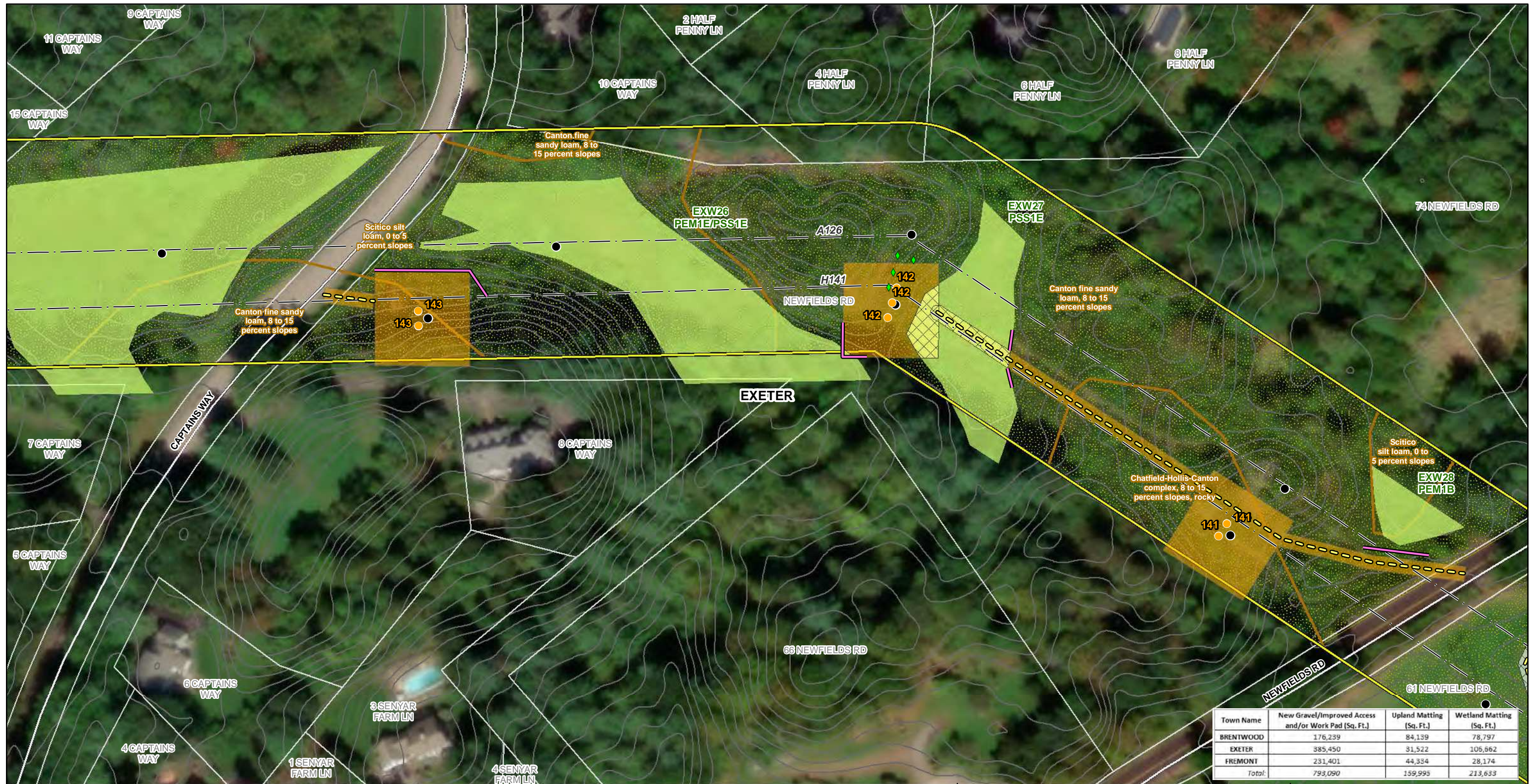
- Replacement Structure
- ◆ Guy Wire
- Existing Structure *
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- Transmission Lines
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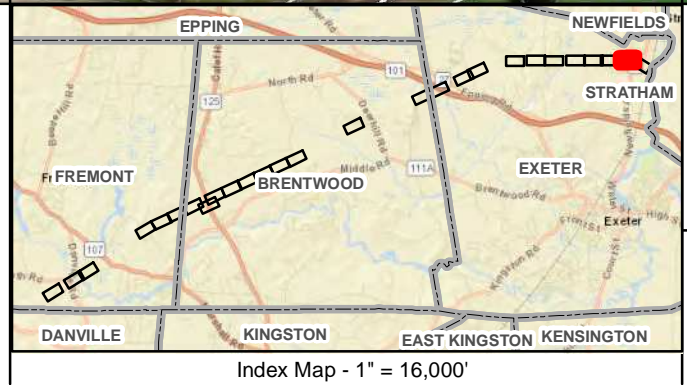


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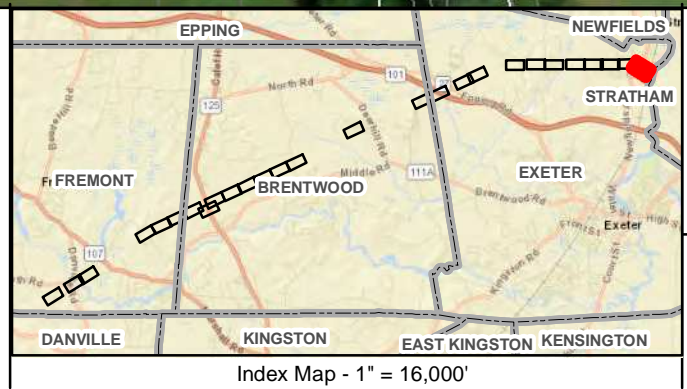


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 Date: 5/5/2023

Transmission Line RASH Structure Replacement (2023)

Rev. May 4, 2023

Construction Sequence:

1. Wetland boundaries to be clearly marked prior to the start of construction; Wetlands were reviewed/delineated by Normandeau Associates, Inc. April/May 2023. The wetland delineations were completed in accordance with the criteria described in the U.S. Army Corps of Engineers Wetland Delineation Manual Technical Report Y-87-1 (January,1987) and the Regional Supplement for the Northcentral and Northeast Region (January, 2012) and meet the criteria for wetland delineation in accordance with the NH DES administrative rules Env-W t 301.01.
2. MODIFICATIONS IN ACCESS ROUTES, WORK PAD LOCATIONS OR OTHER WETLANDS IMPACT AREAS MUST BE APPROVED BY EVERSOURCE AND IN COMPLIANCE WITH NHDES WETLANDS RULES FOR MINIMUM IMPACT:
ENV-WT 307 - GENERAL REQUIREMENTS
ENV-WT 313.03 - AVOIDANCE AND MINIMIZATION
ENV-WT 521 - UTILITY PROJECT SPECIFIC CONDITIONS
3. Sediment and erosion control measures shall be installed in accordance with the plans and detail provided, as necessary.
4. Wetland impacts associated with wetland crossings are required for access between structures within the right of way. Construction activities shall occur during periods of low flow.
5. 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.
6. Remove completely all contamination from any spillage of chemicals or petroleum product with complete rehabilitation of the affected area.
7. 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.
8. Impact to vegetation within wetlands will be limited to the extent necessary to place the timber mats where required.
9. 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.
10. Timber mats will be used along access routes within and adjacent to wetland areas. These mats are constructed of heavy timbers or composite material, bolted together, and are placed end-to-end in the wetland to support heavy equipment. All timber mats shall be placed and removed so as not to cause any ruts, channels or depressions, or otherwise cause any undue disturbance to wetlands.
11. 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.
12. 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.
13. No material shall be taken from the wetlands area except that which must necessarily be removed for the structure or foundation placement or stabilization. All excess material taken from the wetland will be removed from the site.
14. 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; sooner if heavy rains forecasted.

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. Removal of the old pole will occur once the cable has been installed on the new structure. The old structures will be removed from the site. Poles will be cut at the ground surface. Footings will be abandoned in place to minimize impacts.
18. All swamp mats, material, and debris will be removed from the work area upon the completion of construction.
19. 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.
20. 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.
21. Sediment and erosion control measures will be evaluated and removed if necessary upon the completion of construction.

Winter Construction Notes:

1. Proposed vegetated areas which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized. Stabilization methods shall include seeding and mulch, and installation of erosion control blankets on slopes greater than 3:1, and seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting, elsewhere. The installation of erosion control blankets or mulch and netting shall not occur over accumulated snow or frozen ground and shall be completed in advance of thaw or spring melt events.
2. Ditches or swales which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be temporarily stabilized with stone or erosion control blankets appropriate for the design flow conditions.
3. After November 15th, incomplete road or parking surfaces, where work has stopped for the winter season, shall be protected with a minimum of 3 inches of crushed gravel (NH DOT 304.3).

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.
2. All areas shall be stabilized within 45 days of initial disturbance
3. An area shall be considered stable if one of the following has occurred: 1) Base course gravels have been installed in areas to be paved, 2) A minimum of 85 percent vegetated growth has been established, 3) A minimum of 3 inches of non-erosive material such stone or riprap has been installed, or 4) erosion control blankets have been properly installed
4. Note that all cut and fill slopes shall be seeded/loamed within 72 hours of achieving finished grade
5. As required, construct temporary berms, siltation fences, sediment traps, etc. to prevent erosion & sedimentation of wetlands.
6. 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.
7. Any stripped topsoil shall be stockpiled, without compaction, and stabilized with BMPs.

Construction Notes

8. 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.
9. Erosion controls shall be inspected weekly with the timing of weekly visits adjusted if heavy rains/snow melt are forecasted or have occurred.
10. Timber mats must be removed after one growing season.
11. Any erosion control matting used shall be wildlife friendly. No welded plastic webbing, netting, or other similar form shall be used in erosion/siltation controls to avoid entrapment of snakes and other wildlife within the project area.
12. Unless otherwise authorized by NHDES, the Applicant shall keep a sufficient quantity of erosion control supplies on the site at all times during construction to facilitate an expeditious (i.e., within 24 hour) response to any construction related erosion issues on the site.
13. Discharge from dewatering of work areas shall be to sediment basins that are: a) located in uplands; b) lined with hay bales or other acceptable sediment trapping liners; and c) set back as far as possible from wetlands and surface waters.
14. Mulch used within any wetland/stream bank restoration areas shall be natural straw or equivalent non-toxic, non-seed-bearing organic material.
15. When using an erosion control mix berm, the berm must be a minimum of 12" high, as measured on the uphill side of the barrier, and a minimum of two feet wide at the base.

Plant Protection – General Avoidance and Minimization Measures

1. Limit removal of vegetation to that necessary for construction of the project. Limit tree clearing to the minimum required width to meet safety clearances, leave root systems in place, except over underground installations or where other earthwork must be conducted. Leave herbaceous and shrub vegetation intact wherever practicable.
2. Precautions shall be taken to prevent import or transport of soil or seed stock containing nuisance or invasive species such as Purple Loosestrife, Knotweed, or *Phragmites*. The contractor responsible for work shall appropriately address invasive species in accordance with the NH DOT "Best Management Practices for Roadside Invasive Plants (2008)".
3. To prevent the introduction of invasive plant species to the site, the Applicant's contractor(s) shall clean all soils and vegetation from construction equipment and matting before such equipment is moved to the site.

Wildlife Protection – General Avoidance and Minimization Measures

1. Limit the removal of vegetation to that necessary for construction of the project; this will leave associated wildlife habitat as intact as possible.
2. *All erosion control materials used will be wildlife-friendly.* No welded plastic webbing, netting, or other similar form with openings greater than 1/8-inch shall be used in erosion/siltation controls to avoid entrapment of snakes and other wildlife within the project area.
3. Timber matting will be used in all wetland areas and will remain in place for the shortest duration possible; if possible, passageways will remain open at the wetland crossing to allow for reptiles to cross under the mat-bridge/pathway; matting will remain up to several weeks
4. Timber matting will be used in upland areas at the far eastern portion of the work area near the best habitat for the listed turtles and where NHB22-1136 indicates the most observations of these species; this will limit ground disturbance
5. Daily sweeps by contractors for all turtle and snake species will be performed when work will occur;

6. Any observations of listed species will be reported and no wildlife will be harmed; contact numbers and fliers will be included on the environmental plans
7. Wildlife friendly erosion controls will be used; no welded plastic netting will be used;
8. Erosion controls will be installed, monitored and maintained to protect adjacent upland and wetland areas from sedimentation and degradation; disturbed areas will be temporarily and permanently stabilized and seeded with a native seed mix; the applicable utility maintenance BMPs will be followed

SPECIFIC WILDLIFE BMPS

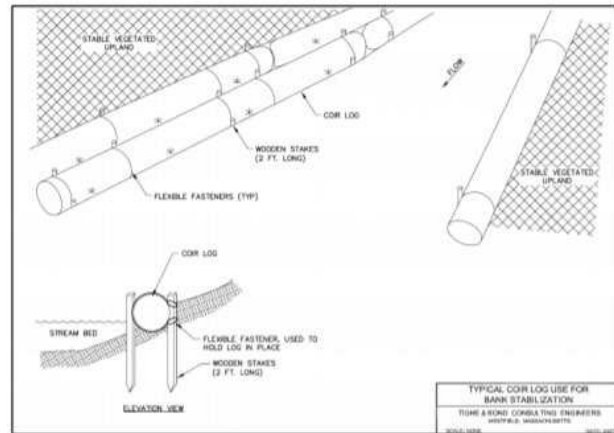
New Hampshire Fish and Game AoT Permit Conditions in Accordance with Env-Wq 1504.18 – Wildlife Protection Notes

NOTE – FINAL RECOMMENDATIONS FROM NHFG WILL BE PROVIDED WHEN CONSULTATION AND COORDINATION ARE COMPLETE – THEY ARE ONGOING AT THIS TIME

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Best Management Practice 4: Coir Logs



Description:

Coir logs, straw wattles, fiber rolls, or SiltSoxx™ consist of compressed weed-free straw fiber or other natural material, placed within a photodegradable mesh cylindrical sock.

Applications:

- Streambank, wetland, and slope protection
 - Check dam applications
 - Perimeter and stockpile containment
 - Slope stabilization by shortening slope length, reducing runoff velocity, and trapping mobile soil particles
 - Provides substrate for plant growth upon decay of fiber roll and protects new vegetation growth

Installation:

- For slope stabilization, it is critical that coir logs are installed perpendicular to soil movement and parallel to the slope contour.
- If additional length is needed for application, ends should be overlapping at least 6 inches.
- If used in slope stabilization, construct trenches half the diameter of the log in which to place the roll. Lay the coir log along the trench, snugly fitting it against the soil. Ensure no gaps exist between the soil and the fiber roll.
- Install stakes at least every three feet apart along the length of the roll. Additional stakes may be driven on the downslope side of the trenches on highly erosive or very steep slopes.

Best Management Practice 5: Silt Fence



Description:

Silt fence is a temporary sediment barrier consisting of filter fabric attached to supporting posts and entrenched into the soil. This barrier is installed across or at the toe of a slope to intercept and retain small amounts of sediment from disturbed or unprotected areas.

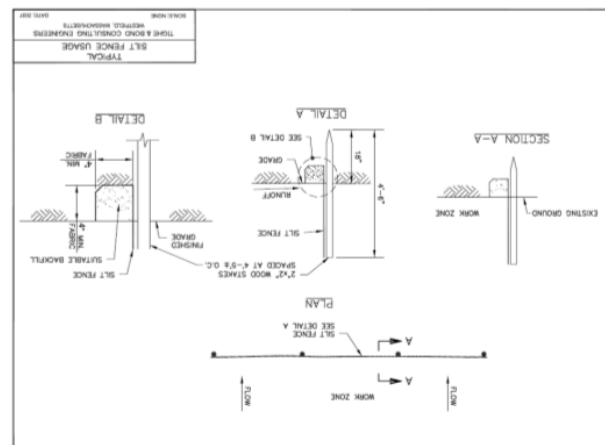
Applications:

- Consider using silt fence barriers where:
- Flow to the silt fence from a distributed area occurs as overland sheet flow
 - Sedimentation can pollute or degrade adjacent wetlands or watercourses
 - Sedimentation will reduce the capacity of storm drainage systems or adversely affect adjacent areas.
 - **Silt fence should not be used in areas of**

concentrated flows or across streams, channels, swales, ditches or other drainage ways.

Installation:

- Install silt fence following the contour of the land as closely as possible.
- The height of the barrier shall not exceed 36 inches.
- 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).
- 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
- The filter fabric will extend a minimum of 8 inches into the trench which shall be backfilled and the soil compacted over the filter fabric.
- Fabric barriers shall be removed after the upslope area has been permanently stabilized.
- 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.
- Sediment deposits should be removed when they reach approximately one-half the height of the barrier.



Best Management Practice 16: Temporary or Permanent Mulch



Description:

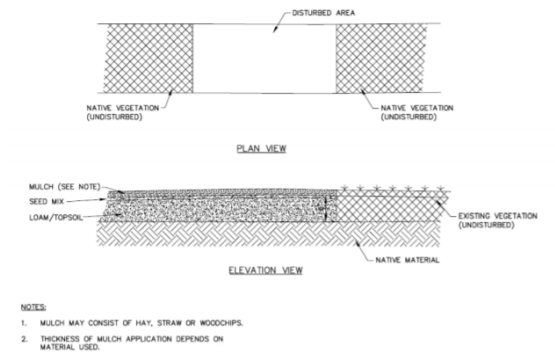
Temporary mulching is the application of plant residues or other suitable materials to the soil surface. Permanent mulching consists of the application of long-term surface cover such as bark, woodchips or erosion control mix. Permanent mulch can be used as a permanent ground cover, an overwinter stabilization mulch or left to naturalize.

Mulching reduces erosion

potential by protecting the exposed soil surface from direct impact by rainfall.

Considerations:

- Apply temporary mulch within 100 feet of streams, wetlands and in lake watersheds within seven days of exposing soil or prior to any storm event.
- Immediately mulch areas that have been temporarily or permanently seeded, following seeding.
- For areas that cannot be seeded within the growing season, mulch for over-winter protection. Seed the area at the beginning of the next growing season.
- Mulch anchoring should be used on slopes with gradients greater than 5% in fall (past September 15), and over-winter (October 15 – May 1).



Installation:

Hay or Straw Mulches:

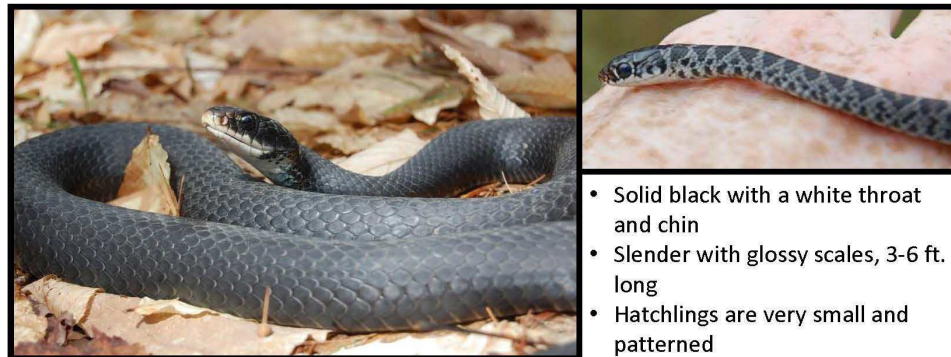
- Use air-dried organic mulches including weed-free hay and straw free of undesirable seeds and coarse materials.
- Application rate should be two bales (70-90 pounds) per 1,000 square feet or 1.5-2 tons (90-100 bales) per acre to cover 75-90% of the ground surface.
- Anchor hay or straw mulch to prevent displacement by wind or flowing water using jute or biodegradable plastic netting or in some cases, organic tackifier.
- When mulch is applied to provide protection over winter (past the growing season), apply it to a depth of four inches (150-200 pounds of hay or straw per 1,000 square feet, or double standard application rate). Seeding cannot generally be expected to grow up through this depth of mulch and will be smothered. If vegetation is desired, remove mulch in the springtime and seed and re-mulch the area.

Northern Black Racer

(New Hampshire state threatened species)

Emerge from hibernacula in April, Basking April - August,

Hatchlings emerge August - September, Return to hibernacula mid-September - mid-October



- Solid black with a white throat and chin
- Slender with glossy scales, 3-6 ft. long
- Hatchlings are very small and patterned



Immediately report sightings to NH Fish and Game

Melissa Winters (603-479-1129) or

Brendan Clifford (603-944-0885)

Please report promptly, noting specific location and date

Photographs strongly encouraged



Fis 1401.03 (a) No person shall take or possess a black racer (*Coluber constrictor*)...or any egg or part thereof.



PLEASE REPORT RARE TURTLES

The NH Fish & Game Department is requesting observations of three turtle species that could be encountered onsite.

Report sightings immediately to NHFG Wildlife Division at 603-271-2461 (M-F 8-4) or to NHFG Wildlife Biologist Melissa Winters 603-479-1129 (cell) anytime.

Please report promptly, noting specific location and date -- Photographs strongly encouraged



Blanding's turtle (state endangered)

- Large, dark/black domed shell with lighter speckles
- Distinct yellow throat/chin
- Aquatic but often moves on land



Wood turtle (special concern)

- Sculpted, pyramidal brownish shell
- Orange around neck and limbs
- River/stream turtle spending many months on land



Spotted turtle (state threatened)

- Small, mostly aquatic with black or dark brown with yellow spots.
- Fairly flat shell compared to Blanding's turtle



REPORT OBSERVATIONS

EASTERN BOX TURTLE (state endangered)

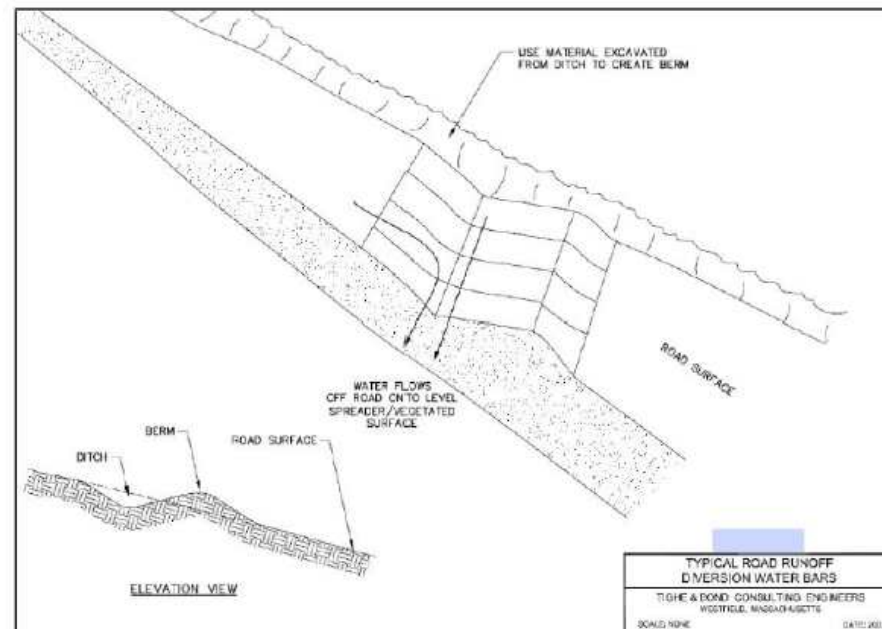
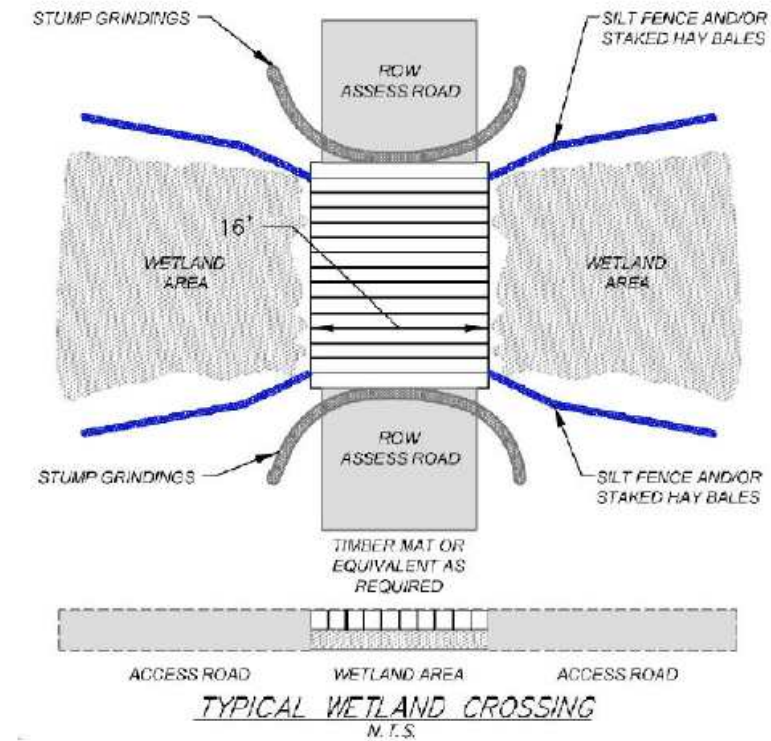
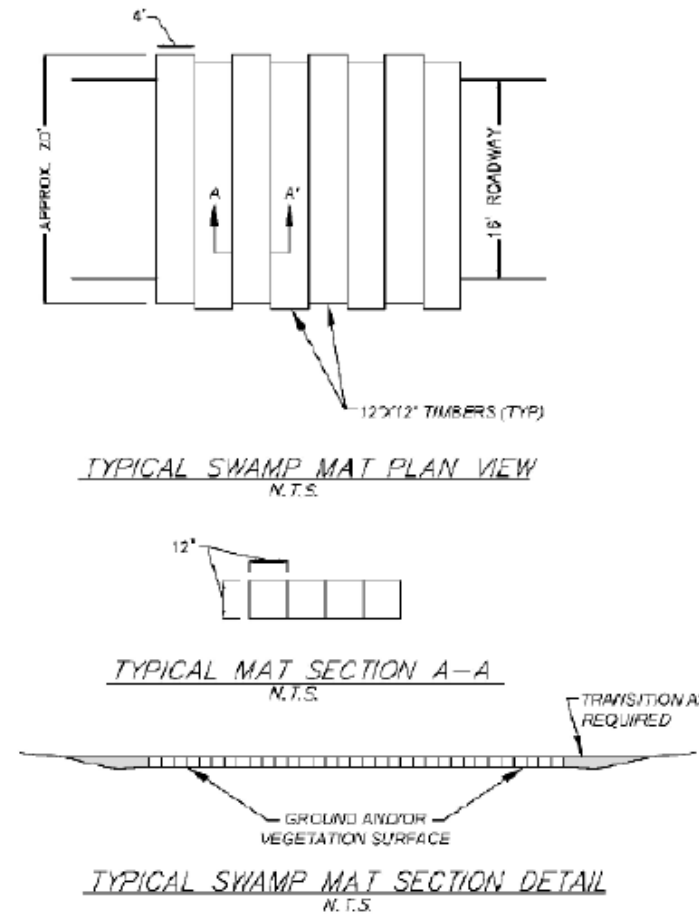
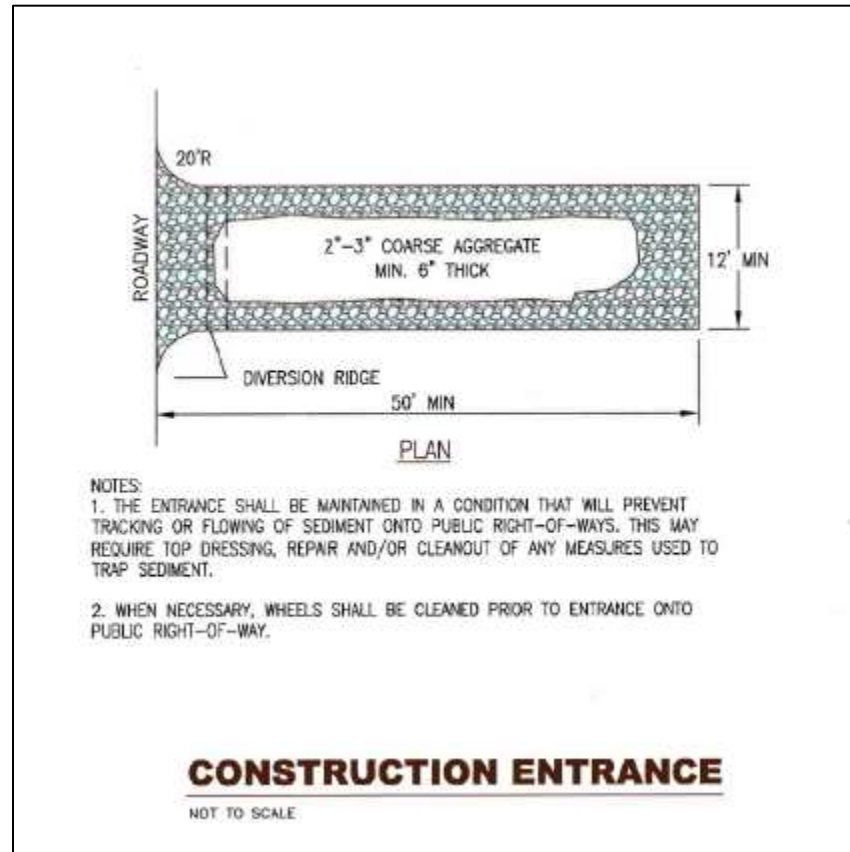
Report sightings immediately to NHFG Wildlife Division to New Hampshire Fish and Game:

Wildlife Biologist Melissa Winters 603-479-1129 (call or text) anytime
Wildlife Biologist Josh Megyesy at 978-578-0802 (call or text), or
If you are unable to reach a biologist you may also contact the Wildlife Administrator at: 603-271-2461 (M-F 8-4)

*Please report promptly, noting specific location and date –
Photographs strongly encouraged*

- Smaller turtle about 4.5-7 inches long (adult ones).
- Highly domed shell with variable patterning.
- Shell color patterns vary greatly from irregular yellow or orange markings with dark brown or black base.
- Skin is uniformly dark with yellow or orange markings.
- During warm months (May – June) nests in loose, sandy or loamy soil
- Eastern box turtles nests are protected under state law.





Best Management Practices (BMP's) for Straw wattles

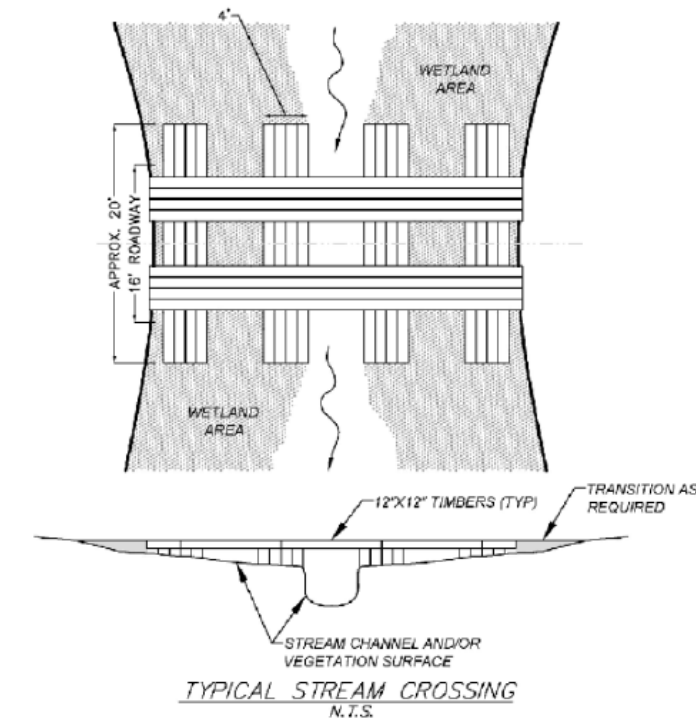
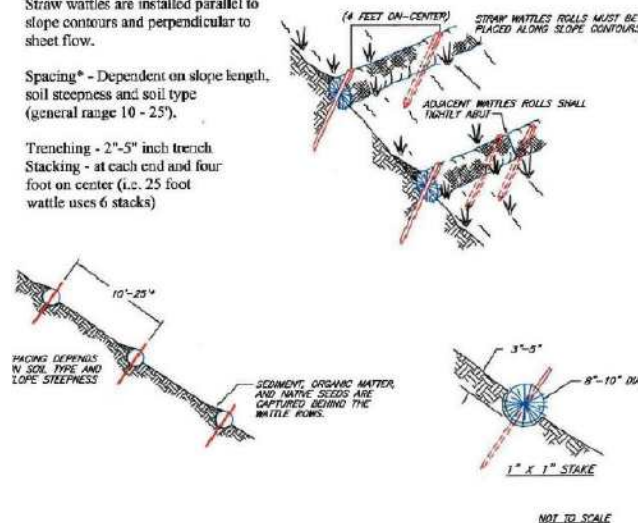
Definition and purpose:
Straw wattles are burlap rolls filled with straw that trap sediment and interrupt water flow by reducing slope lengths.

- 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.

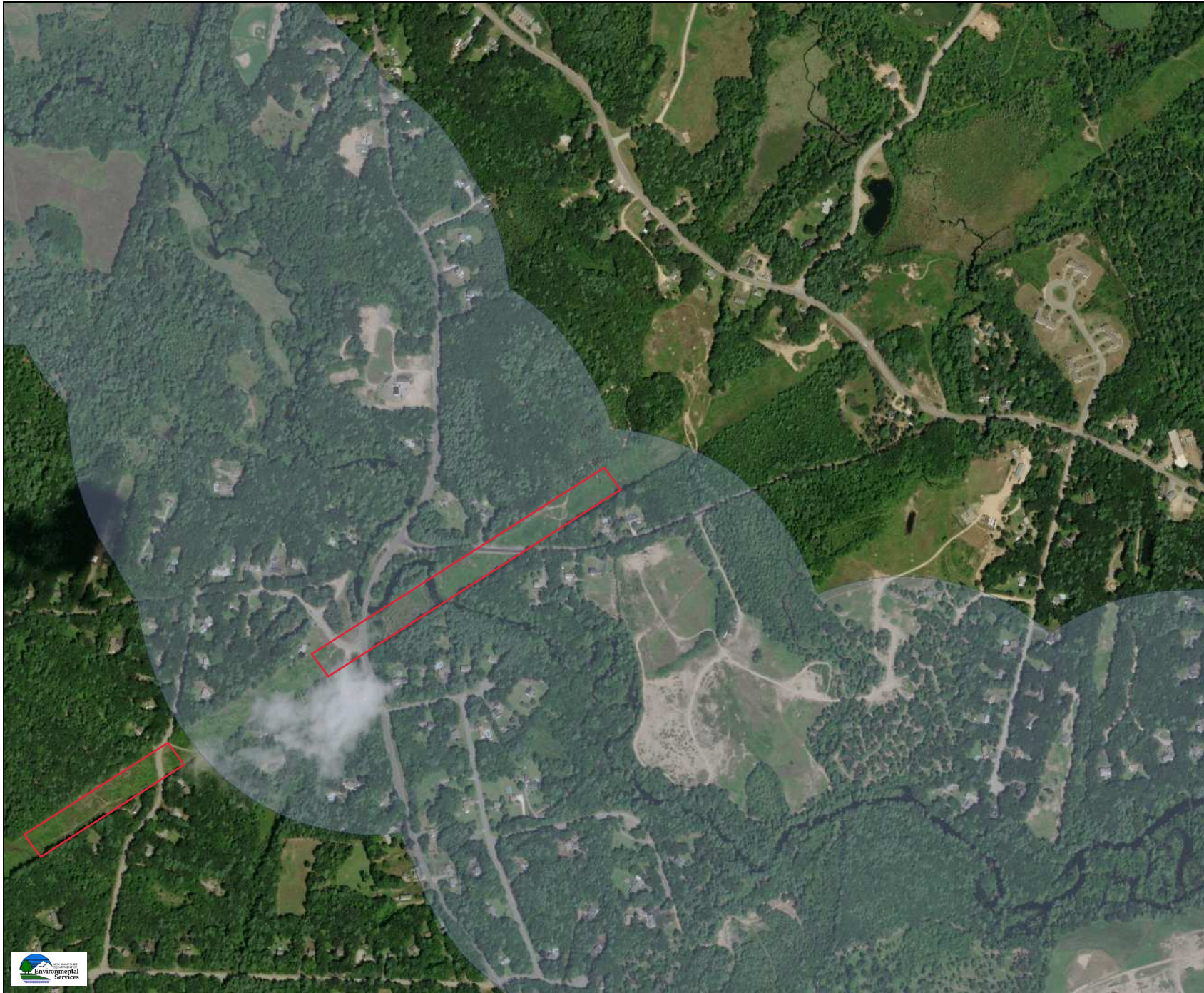
Spacing* - Dependent on slope length, soil steepness and soil type (general range 10 - 25').

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





6.4 Figure 4. OneStop Maps

RASH - Fremont, Brentwood, and Exeter
Designated River Quarter Mile Buffer



Legend

-  Designated Rivers Quartermile Buffer
-  Project Area(s)

Map Scale
1: 10,000

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Map Generated: 3/24/2023



Notes

Area 1 of 7







R193: Strs. 274-279, 282-284
H141: Strs. 250-252

RASH - Fremont, Brentwood, and Exeter

Groundwater Classification Areas, Source Water Protection Areas, and Outstanding Resource Water Watersheds



Legend

-  Groundwater Classification Areas GAA
-  Source Water Protection Areas
-  Groundwater Classification Areas GA1
-  Groundwater Classification Areas GA2
-  Outstanding Resource Water Watersheds
-  Project Area(s)

Map Scale

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Map Generated: 3/24/2023



Notes

Area 1 of 7

R193: Strs. 274-279, 282-284





H141: Strs. 250-252

RASH - Fremont, Brentwood, and Exeter

Impaired Surface Waters with Quarter Mile Buffer, Wellhead Protection Areas, and Water Supply Intake Protection Areas



Legend

-  Surface Waters with Impairments with Quarter Mile Buffer *
-  Wellhead Protection Areas
-  Water Supply Intake Protection Areas
-  Project Area(s)

*Surface Waters with Impairments with Quarter Mile Buffer layer available on OneStop under NHDES Environmental Data.

Map Scale

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Map Generated: 3/24/2023



Notes

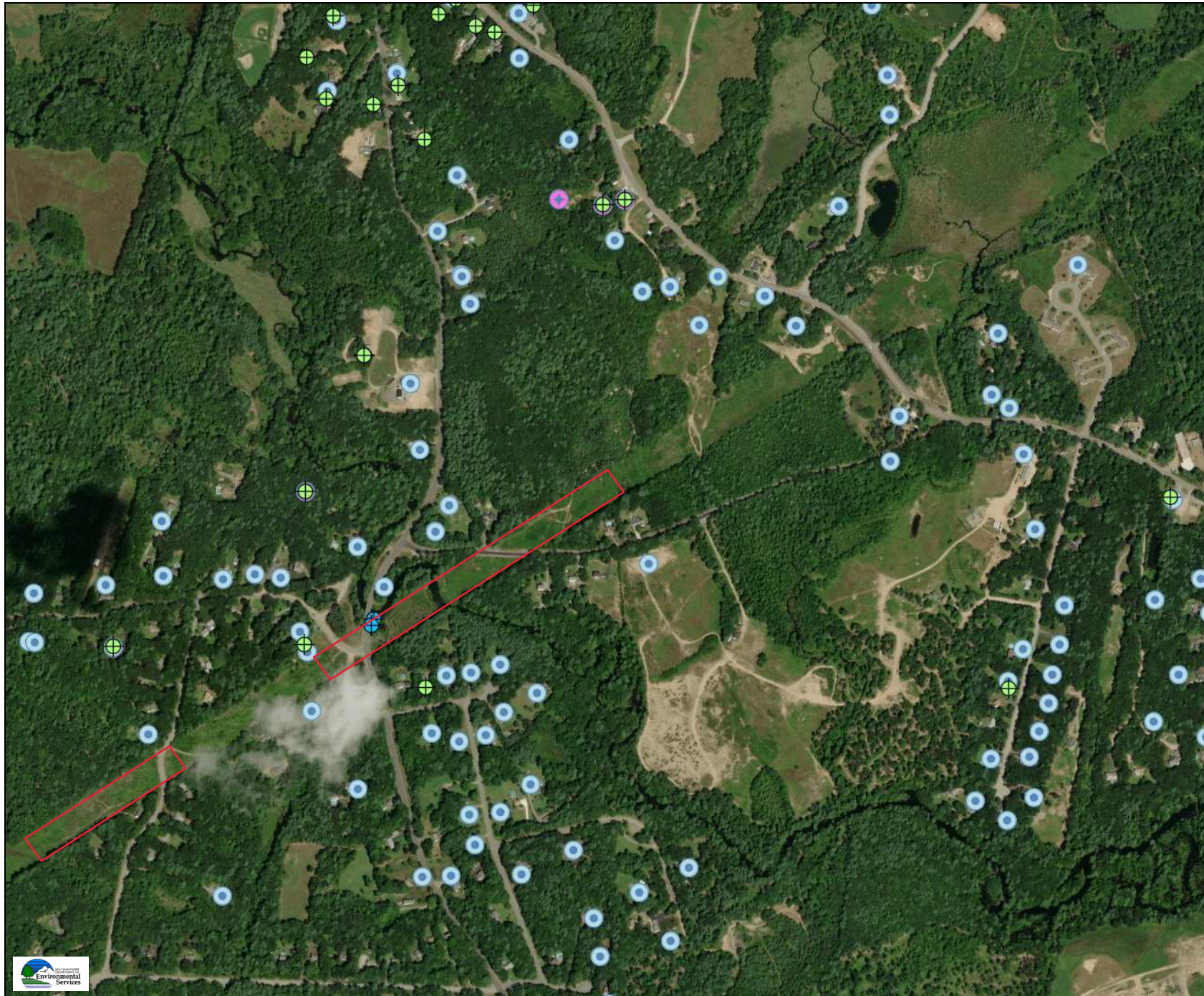
Area 1 of 7

R193: Strs. 274-279, 282-284

H141: Strs. 250-252

RASH - Fremont, Brentwood, and Exeter

Environmental Monitoring Sites, Water Supply Locations, and Potential Contamination Sources



Legend

- Public Water Supply Entities
- Environmental Monitoring Sites Secure
- Public Water Supply Wells
- Registered Water Users
- Water Well Inventory
- Environmental Monitoring Sites Nonsecure
- Local Potential Contamination Sources
- Project Area(s)

Map Scale
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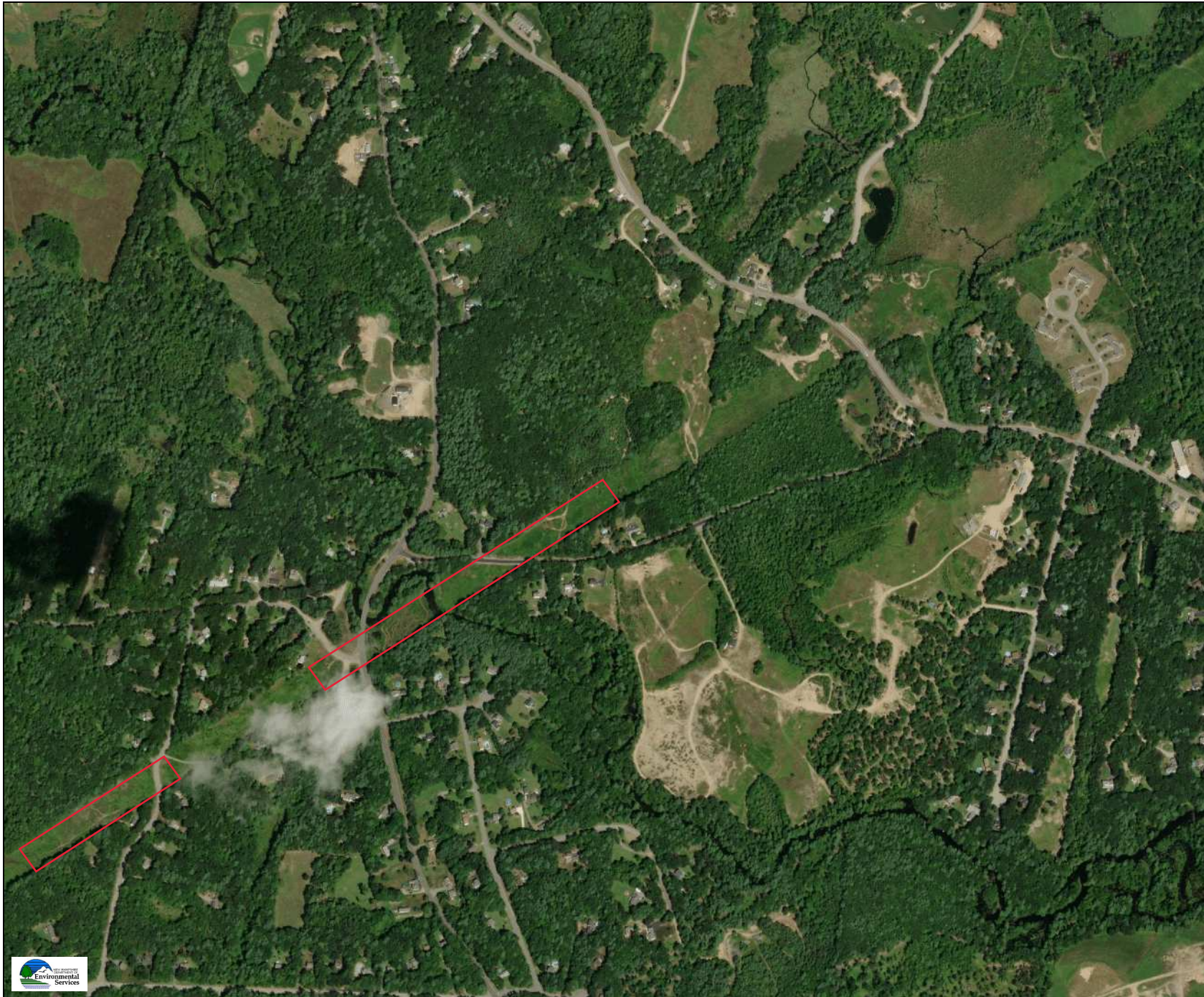
Notes

Area 1 of 7





R193: Strs. 274-279, 282-284
H141: Strs. 250-252

RASH - Fremont, Brentwood, and Exeter

Surface Waters with Impairments 2022 with Quarter Mile Buffer and Class A Surface Waters (RSA 485 A:9)



Legend

-  Surface Waters with Impairments 2022 with Quarter Mile Buffer
-  Class A Lakes with a Quarter Mile Buffer
-  Class A - All Features
-  Project Area(s)

*Surface Waters with Impairments with Quarter Mile Buffer layer available on OneStop under Alteration of Terrain Permit Screening Layers

Map Scale

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Map Generated: 3/28/2023



Notes

Area 1 of 7

R193: Strs. 274-279, 282-284

H141: Strs. 250-252

RASH - Fremont, Brentwood, and Exeter
Designated River Quarter Mile Buffer



Legend

- Designated Rivers Quartermile Buffer
- Project Area(s)

Map Scale
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Map Generated: 3/24/2023



Notes

Area 2 of 7







R193: Strs. 254-261
H141: Strs. 235 and 237

RASH - Fremont, Brentwood, and Exeter

Groundwater Classification Areas, Source Water Protection Areas, and Outstanding Resource Water Watersheds



Legend

-  Groundwater Classification Areas GAA
-  Source Water Protection Areas
-  Groundwater Classification Areas GA1
-  Groundwater Classification Areas GA2
-  Outstanding Resource Water Watersheds
-  Project Area(s)

Map Scale

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Notes

Area 2 of 7

R193: Strs. 254-261





H141: Strs. 235 and 237

RASH - Fremont, Brentwood, and Exeter

Impaired Surface Waters with Quarter Mile Buffer, Wellhead Protection Areas, and Water Supply Intake Protection Areas



Legend

-  Surface Waters with Impairments with Quarter Mile Buffer *
-  Wellhead Protection Areas
-  Water Supply Intake Protection Areas
-  Project Area(s)

*Surface Waters with Impairments with Quarter Mile Buffer layer available on OneStop under NHDES Environmental Data.

Map Scale

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Map Generated: 3/24/2023



Notes

Area 2 of 7

R193: Strs. 254-261

H141: Strs. 235 and 237

RASH - Fremont, Brentwood, and Exeter

Environmental Monitoring Sites, Water Supply Locations, and Potential Contamination Sources



Legend

- Public Water Supply Entities
- ⊕ Environmental Monitoring Sites Secure
- ⊕ Environmental Monitoring Sites Nonsecure
- Registered Water Users
- Water Well Inventory
- ◆ Environmental Monitoring Sites Nonsecure
- ▲ Local Potential Contamination Sources
- Project Area(s)

Map Scale
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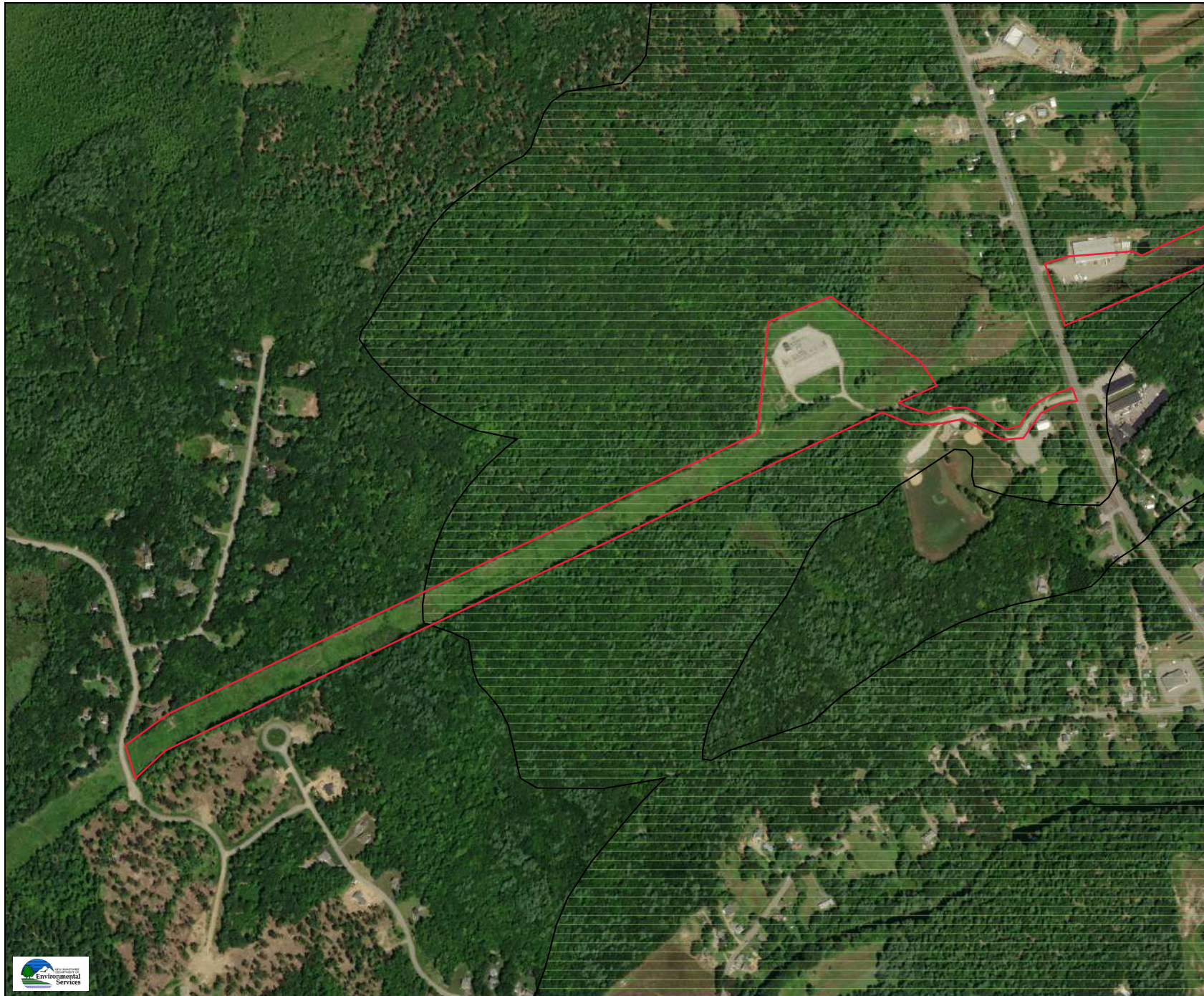
Notes

Area 2 of 7





R193: Strs. 254-261
H141: Strs. 235 and 237

RASH - Fremont, Brentwood, and Exeter

Surface Waters with Impairments 2022 with Quarter Mile Buffer and Class A Surface Waters (RSA 485 A:9)



Legend

-  Surface Waters with Impairments 2022 with Quarter Mile Buffer
-  Class A Lakes with a Quarter Mile Buffer
-  Class A - All Features
-  Project Area(s)

*Surface Waters with Impairments with Quarter Mile Buffer layer available on OneStop under Alteration of Terrain Permit Screening Layers

Map Scale

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Map Generated: 3/28/2023



Notes

Area 2 of 7

R193: Strs. 254-261

H141: Strs. 235 and 237

RASH - Fremont, Brentwood, and Exeter
Designated River Quarter Mile Buffer



Legend

- Designated Rivers Quartermile Buffer
- Project Area(s)

Map Scale
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Map Generated: 3/24/2023



Notes

Area 3 of 7







A126: Strs. 237-240
H141: Strs. 204, 205, 207, 212-217, 219

RASH - Fremont, Brentwood, and Exeter

Groundwater Classification Areas, Source Water Protection Areas, and Outstanding Resource Water Watersheds



Legend

-  Groundwater Classification Areas GAA
-  Source Water Protection Areas
-  Groundwater Classification Areas GA1
-  Groundwater Classification Areas GA2
-  Outstanding Resource Water Watersheds
-  Project Area(s)

Map Scale

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Notes

Area 3 of 7

A126: Strs. 237-240





H141: Strs. 204, 205, 207, 212-217, 219

RASH - Fremont, Brentwood, and Exeter

Impaired Surface Waters with Quarter Mile Buffer, Wellhead Protection Areas, and Water Supply Intake Protection Areas



Legend

-  Surface Waters with Impairments with Quarter Mile Buffer *
-  Wellhead Protection Areas
-  Water Supply Intake Protection Areas
-  Project Area(s)

*Surface Waters with Impairments with Quarter Mile Buffer layer available on OneStop under NHDES Environmental Data.

Map Scale

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Notes

Area 3 of 7

A126: Strs. 237-240

H141: Strs. 204, 205, 207, 212-217, 219

RASH - Fremont, Brentwood, and Exeter

Environmental Monitoring Sites, Water Supply Locations, and Potential Contamination Sources



Legend

- Public Water Supply Entities
- ⊕ Environmental Monitoring Sites Secure
- Public Water Supply Wells
- ◆ Registered Water Users
- Water Well Inventory
- ⊕ Environmental Monitoring Sites Nonsecure
- ▲ Local Potential Contamination Sources
- Project Area(s)

Map Scale
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Map Generated: 3/24/2023

Notes

Area 3 of 7

A126: Strs. 237-240
H141: Strs. 204, 205, 207, 212-217, 219

RASH - Fremont, Brentwood, and Exeter

Surface Waters with Impairments 2022 with Quarter Mile Buffer and Class A Surface Waters (RSA 485 A:9)



Legend

- Surface Waters with Impairments 2022 with Quarter Mile Buffer
- Class A Lakes with a Quarter Mile Buffer
- Class A - All Features
- Project Area(s)

*Surface Waters with Impairments with Quarter Mile Buffer layer available on OneStop under Alteration of Terrain Permit Screening Layers

Map Scale

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Notes

Area 3 of 7

A126: Strs. 237-240

H141: Strs. 204, 205, 207, 212-217, 219

RASH - Fremont, Brentwood, and Exeter
Designated River Quarter Mile Buffer



Legend

- Designated Rivers Quartermile Buffer
- Project Area(s)

Map Scale
1: 10,000

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Map Generated: 3/24/2023



Notes

Area 4 of 7







A126: Str. 217
H141: Str. 194

RASH - Fremont, Brentwood, and Exeter

Groundwater Classification Areas, Source Water Protection Areas, and Outstanding Resource Water Watersheds



Legend

-  Groundwater Classification Areas GAA
-  Source Water Protection Areas
-  Groundwater Classification Areas GA1
-  Groundwater Classification Areas GA2
-  Outstanding Resource Water Watersheds
-  Project Area(s)

Map Scale

1: 10,000

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Map Generated: 3/24/2023



Notes

Area 4 of 7

A126: Str. 217





H141: Str. 194

RASH - Fremont, Brentwood, and Exeter

Impaired Surface Waters with Quarter Mile Buffer, Wellhead Protection Areas, and Water Supply Intake Protection Areas



Legend

-  Surface Waters with Impairments with Quarter Mile Buffer *
-  Wellhead Protection Areas
-  Water Supply Intake Protection Areas
-  Project Area(s)

*Surface Waters with Impairments with Quarter Mile Buffer layer available on OneStop under NHDES Environmental Data.

Map Scale

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Notes

Area 4 of 7

A126: Str. 127

H141: Str. 194

RASH - Fremont, Brentwood, and Exeter
Environmental Monitoring Sites, Water Supply Locations, and Potential Contamination Sources



Legend

- Public Water Supply Entities
- ⊕ Environmental Monitoring Sites Secure
- Public Water Supply Wells
- ▲ Registered Water Users
- Water Well Inventory
- ⊕ Environmental Monitoring Sites Nonsecure
- ▲ Local Potential Contamination Sources
- Project Area(s)

Map Scale
 1: 10,000



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Notes

Area 4 of 7





A126: Str. 217
H141: Str. 194

RASH - Fremont, Brentwood, and Exeter

Surface Waters with Impairments 2022 with Quarter Mile Buffer and Class A Surface Waters (RSA 485 A:9)



Legend

-  Surface Waters with Impairments 2022 with Quarter Mile Buffer
-  Class A Lakes with a Quarter Mile Buffer
-  Class A - All Features
-  Project Area(s)

*Surface Waters with Impairments with Quarter Mile Buffer layer available on OneStop under Alteration of Terrain Permit Screening Layers

Map Scale

1: 10,000

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Notes

Area 4 of 7

A126: Str. 217

H141: Str. 194

RASH - Fremont, Brentwood, and Exeter
Designated River Quarter Mile Buffer



Legend

- Designated Rivers Quartermile Buffer
- Project Area(s)

Map Scale
1: 10,000

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Notes

Area 5 of 7







A126: Str. 190-195
H141: Str. 174, 178-181

RASH - Fremont, Brentwood, and Exeter

Groundwater Classification Areas, Source Water Protection Areas, and Outstanding Resource Water Watersheds



Legend

-  Groundwater Classification Areas GAA
-  Source Water Protection Areas
-  Groundwater Classification Areas GA1
-  Groundwater Classification Areas GA2
-  Outstanding Resource Water Watersheds
-  Project Area(s)

Map Scale

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Notes

Area 5 of 7

A126: Str. 190-195





H141: Str. 174, 178-181

RASH - Fremont, Brentwood, and Exeter

Impaired Surface Waters with Quarter Mile Buffer, Wellhead Protection Areas, and Water Supply Intake Protection Areas



Legend

-  Surface Waters with Impairments with Quarter Mile Buffer *
-  Wellhead Protection Areas
-  Water Supply Intake Protection Areas
-  Project Area(s)

*Surface Waters with Impairments with Quarter Mile Buffer layer available on OneStop under NHDES Environmental Data.

Map Scale

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Map Generated: 3/24/2023



Notes

Area 5 of 7

A126: Str. 190-195

H141: Str. 174, 178-181

RASH - Fremont, Brentwood, and Exeter
Environmental Monitoring Sites, Water Supply Locations, and Potential Contamination Sources



Legend

- Public Water Supply Entities
- ⊕ Environmental Monitoring Sites Secure
- Public Water Supply Wells
- ▲ Registered Water Users
- Water Well Inventory
- ⊕ Environmental Monitoring Sites Nonsecure
- ▲ Local Potential Contamination Sources
- Project Area(s)

Map Scale
 1: 10,000



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Notes

Area 5 of 7





A126: Str. 190-195
H141: Str. 174, 178-181

RASH - Fremont, Brentwood, and Exeter

Surface Waters with Impairments 2022 with Quarter Mile Buffer and Class A Surface Waters (RSA 485 A:9)



Legend

-  Surface Waters with Impairments 2022 with Quarter Mile Buffer
-  Class A Lakes with a Quarter Mile Buffer
-  Class A - All Features
-  Project Area(s)

*Surface Waters with Impairments with Quarter Mile Buffer layer available on OneStop under Alteration of Terrain Permit Screening Layers

Map Scale

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Map Generated: 3/28/2023



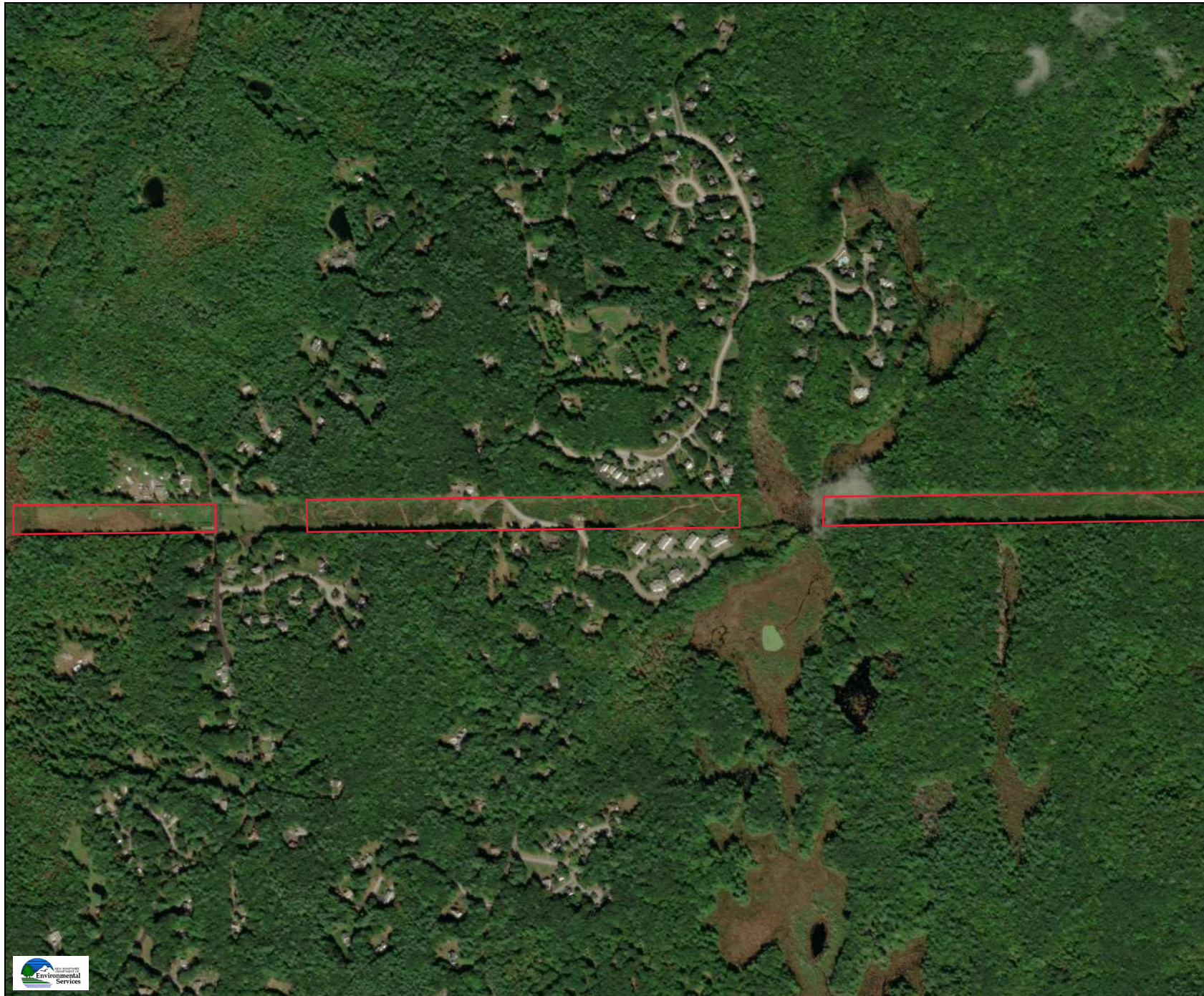
Notes

Area 5 of 7

A126: Str. 190-195

H141: Str. 174, 178-181

RASH - Fremont, Brentwood, and Exeter
Designated River Quarter Mile Buffer



Legend

- Designated Rivers Quartermile Buffer
- Project Area(s)

Map Scale
1: 10,000



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Map Generated: 3/24/2023

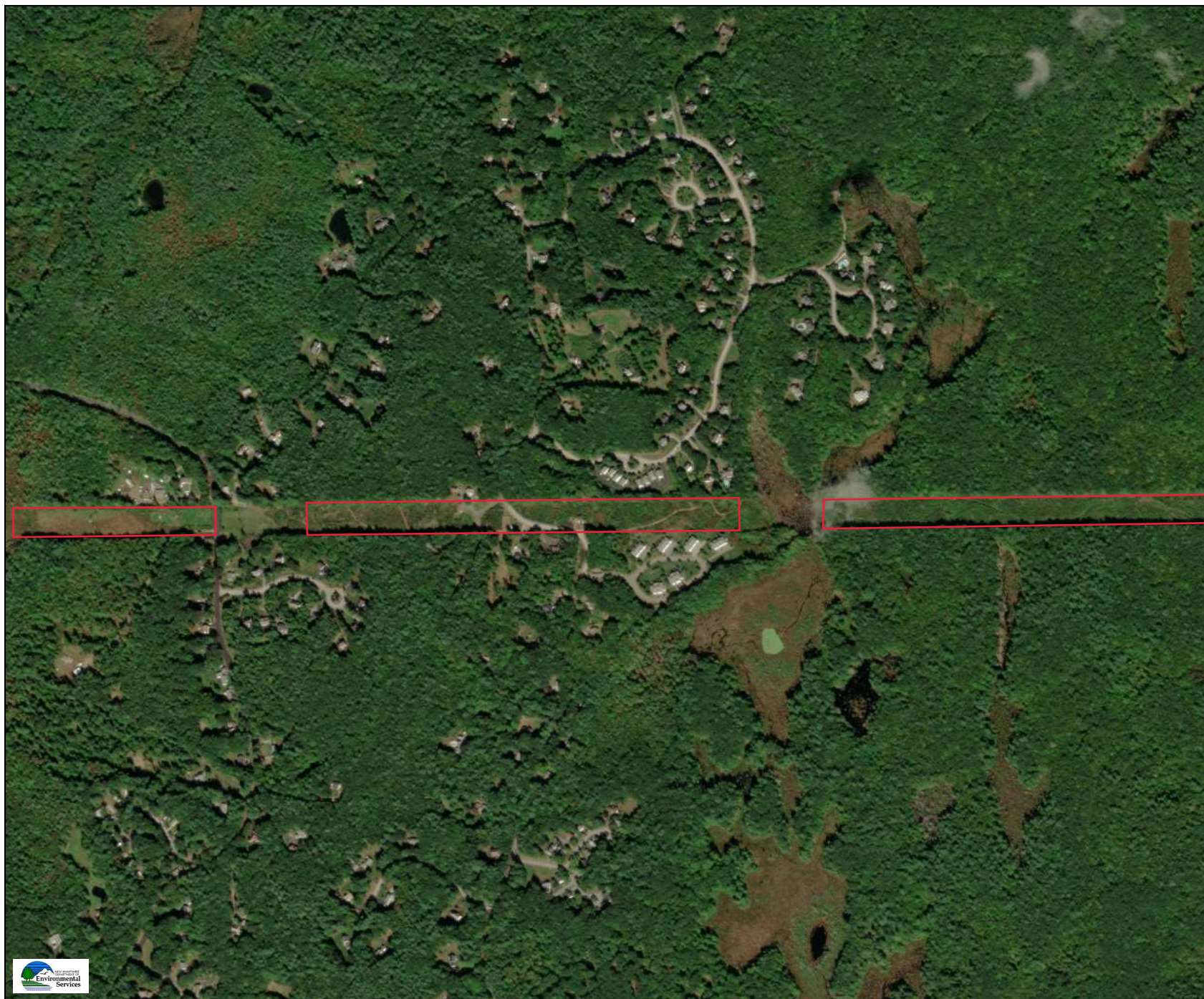
Notes

Area 6 of 7







- A126:** Str. 183-184
- H141:** Str. 148-160, 163-164

RASH - Fremont, Brentwood, and Exeter

Groundwater Classification Areas, Source Water Protection Areas, and Outstanding Resource Water Watersheds



Legend

-  Groundwater Classification Areas GAA
-  Source Water Protection Areas
-  Groundwater Classification Areas GA1
-  Groundwater Classification Areas GA2
-  Outstanding Resource Water Watersheds
-  Project Area(s)

Map Scale

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Notes

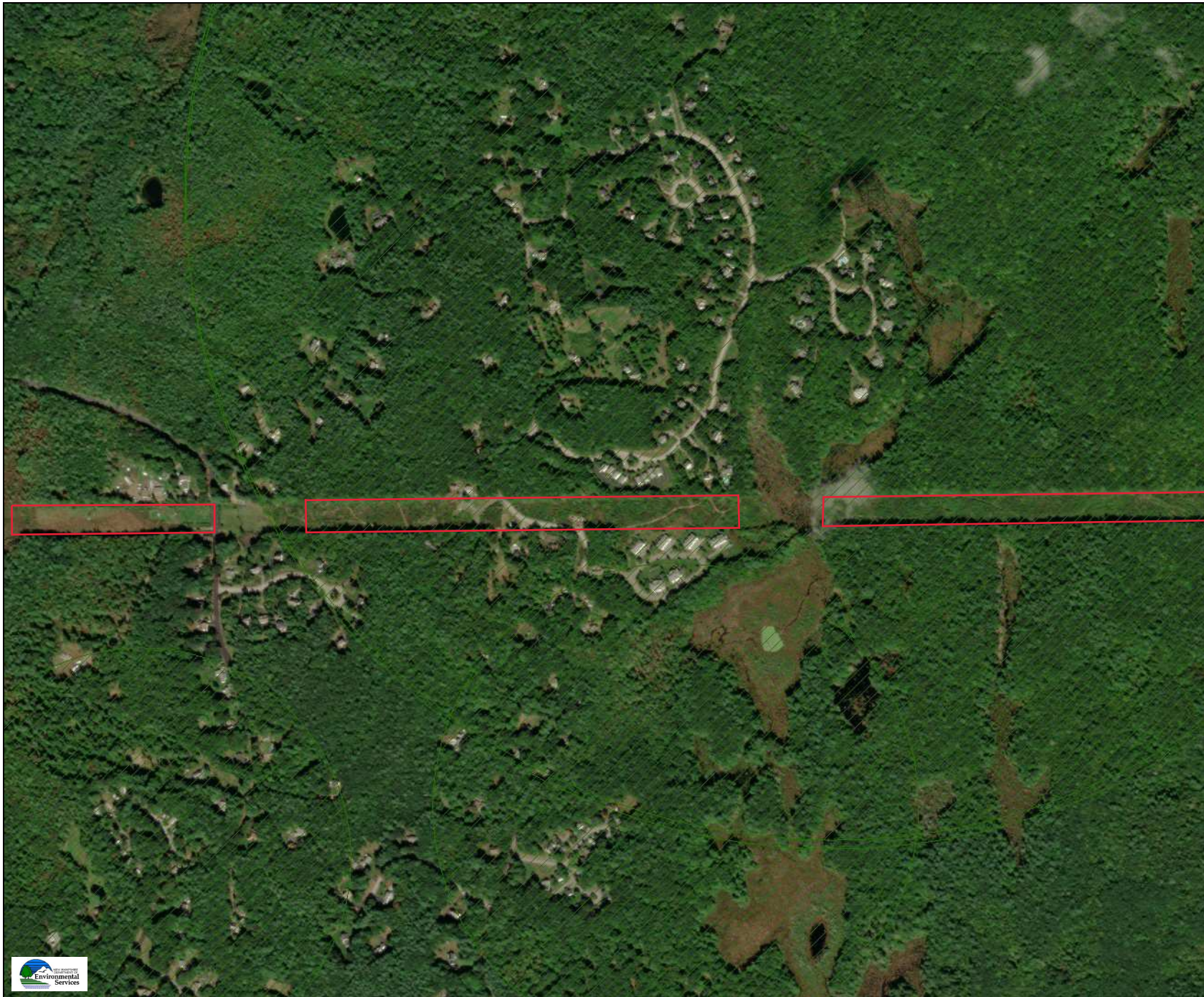
Area 6 of 7

A126: Str. 183-184





H141: Str. 148-160, 163-164

RASH - Fremont, Brentwood, and Exeter

Impaired Surface Waters with Quarter Mile Buffer, Wellhead Protection Areas, and Water Supply Intake Protection Areas



Legend

-  Surface Waters with Impairments with Quarter Mile Buffer *
-  Wellhead Protection Areas
-  Water Supply Intake Protection Areas
-  Project Area(s)

*Surface Waters with Impairments with Quarter Mile Buffer layer available on OneStop under NHDES Environmental Data.

Map Scale

1: 10,000

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Map Generated: 3/24/2023



Notes

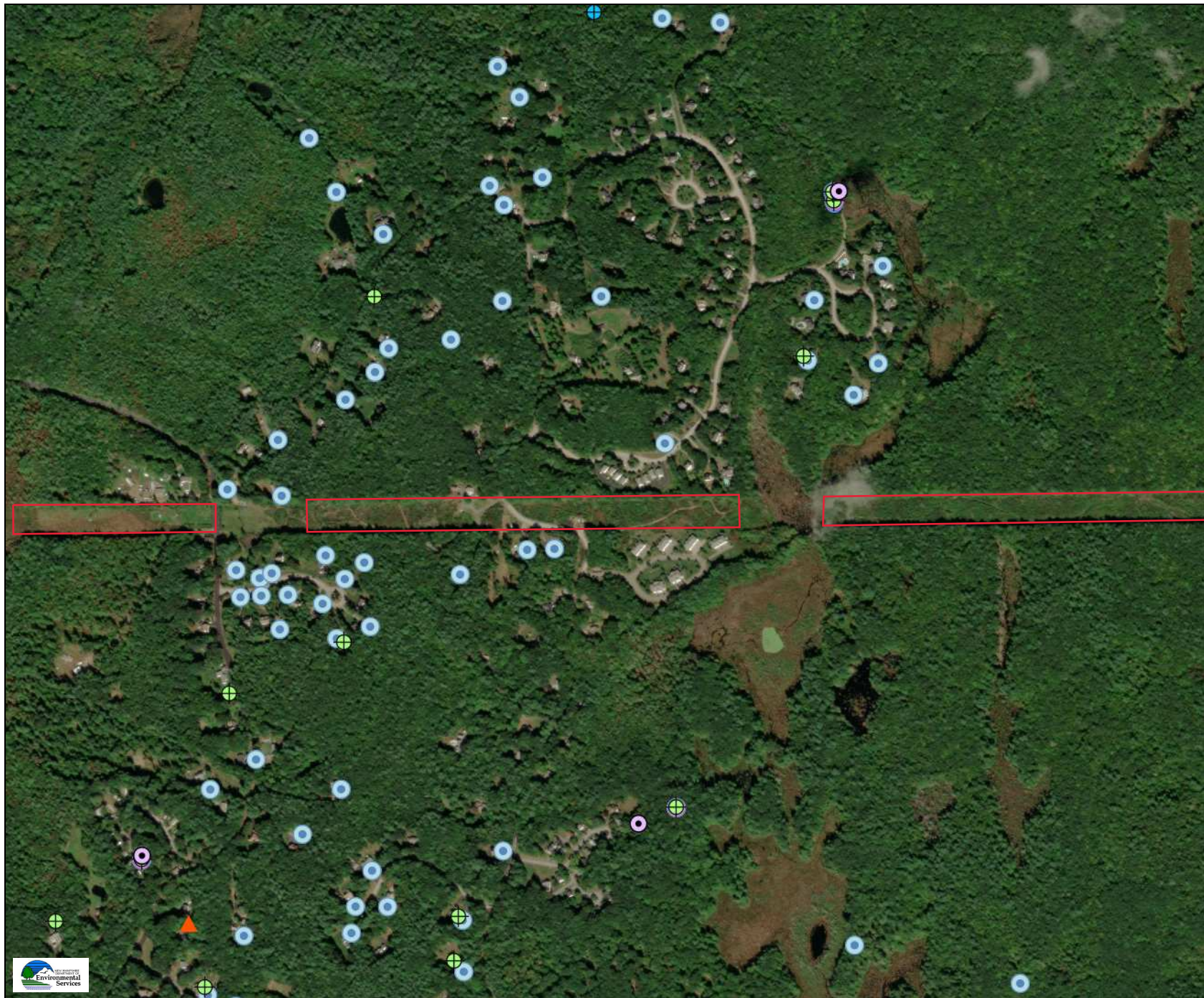
Area 6 of 7

A126: Str. 183-184

H141: Str. 148-160, 163-164

RASH - Fremont, Brentwood, and Exeter

Environmental Monitoring Sites, Water Supply Locations, and Potential Contamination Sources



Legend

- Public Water Supply Entities
- ⊕ Environmental Monitoring Sites Secure
- Public Water Supply Wells
- ◆ Registered Water Users
- Water Well Inventory
- ◆ Environmental Monitoring Sites Nonsecure
- ▲ Local Potential Contamination Sources
- Project Area(s)

Map Scale

1: 10,000

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Map Generated: 3/24/2023



Notes

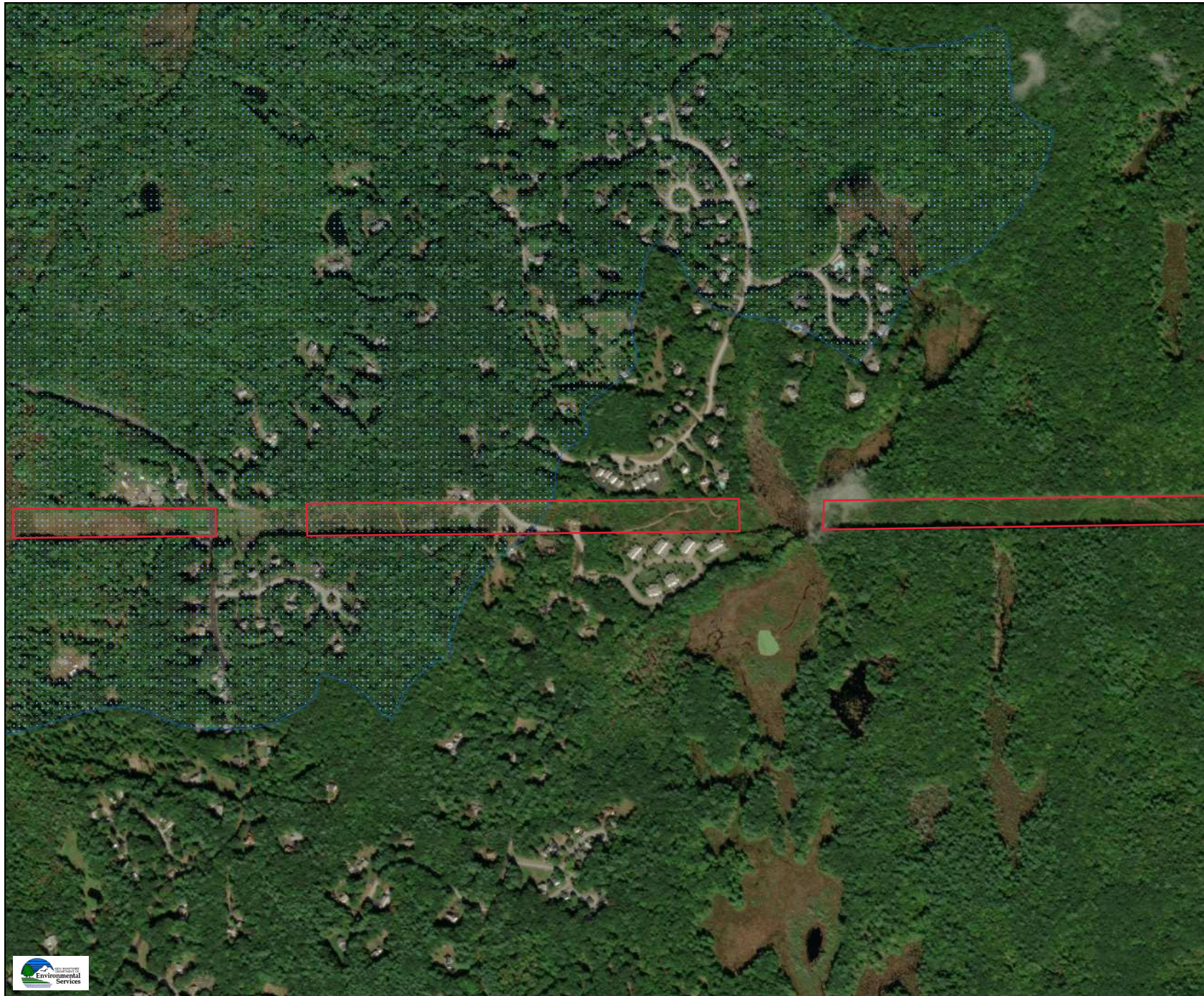
Area 6 of 7

A126: Str. 183-184

H141: Str. 148-160, 163-164

RASH - Fremont, Brentwood, and Exeter

Surface Waters with Impairments 2022 with Quarter Mile Buffer and Class A Surface Waters (RSA 485 A:9)



Legend

- Surface Waters with Impairments 2022 with Quarter Mile Buffer
- Class A Lakes with a Quarter Mile Buffer
- Class A - All Features
- Project Area(s)

*Surface Waters with Impairments with Quarter Mile Buffer layer available on OneStop under Alteration of Terrain Permit Screening Layers

Map Scale

1: 10,000

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Map Generated: 3/28/2023



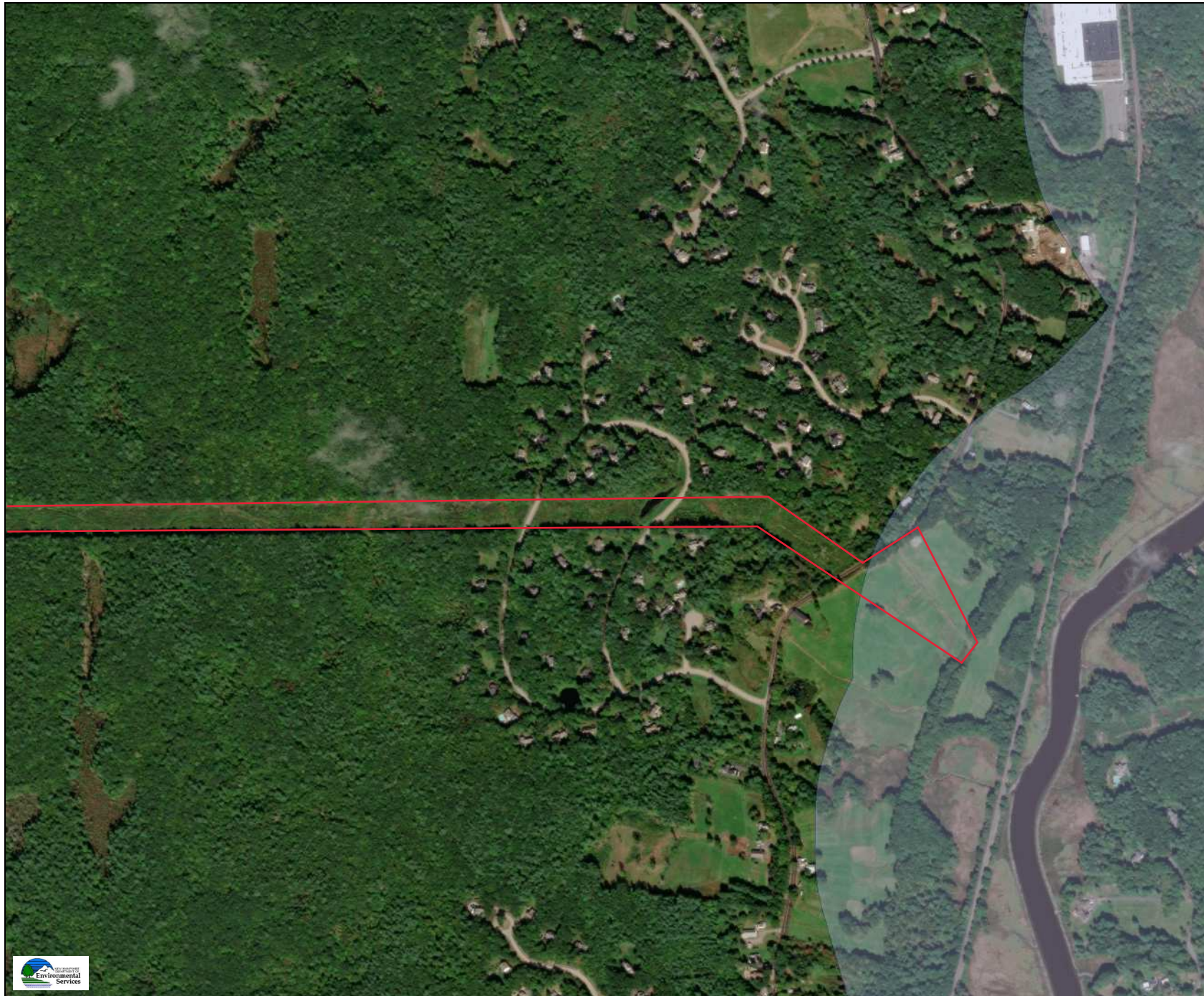
Notes

Area 6 of 7

A126: Str. 183-184

H141: Str. 148-160, 163-164

RASH - Fremont, Brentwood, and Exeter
Designated River Quarter Mile Buffer



Legend

- Designated Rivers Quartermile Buffer
- Project Area(s)

Map Scale
1: 10,000

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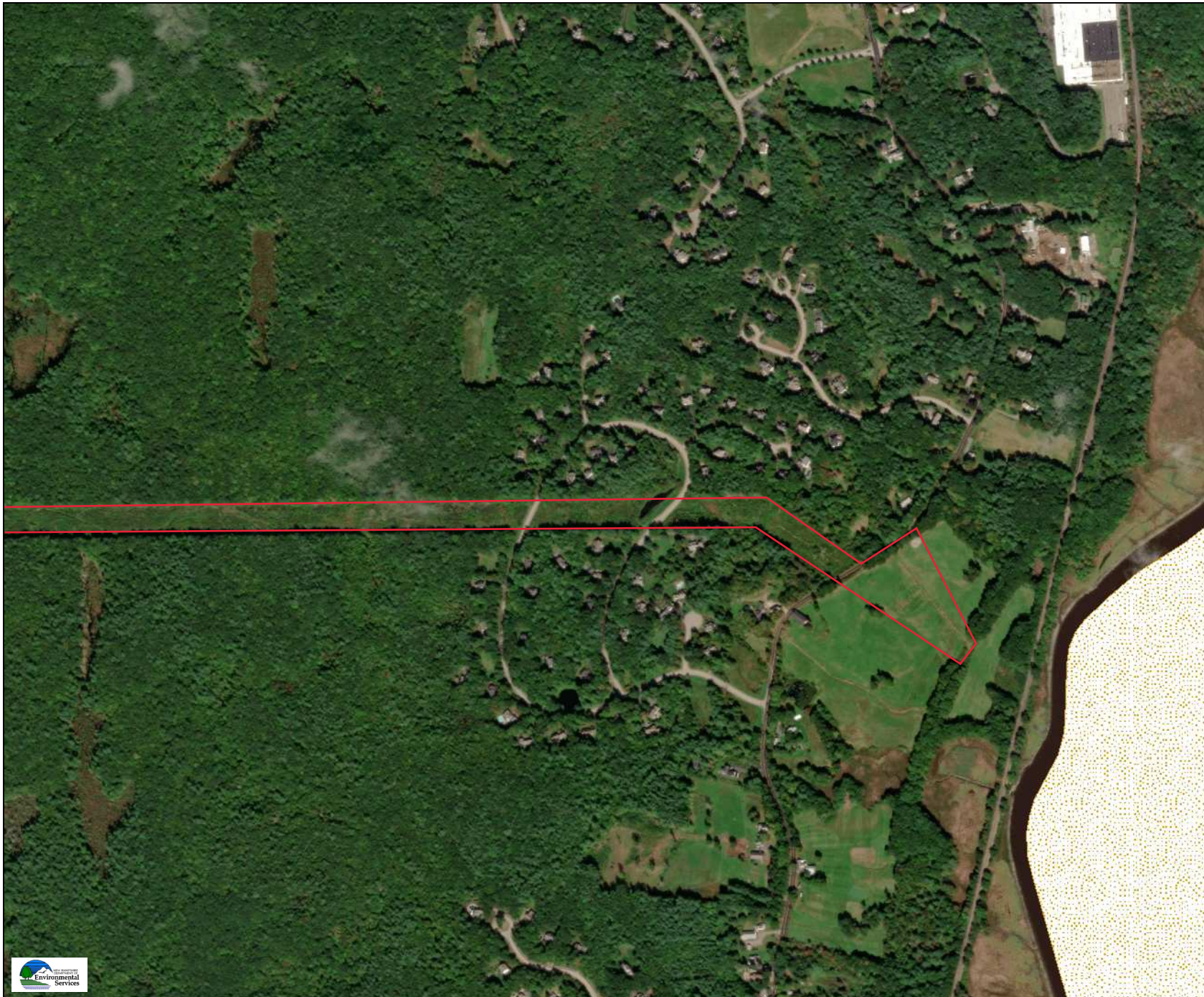
Notes

Area 7 of 7







H141: Str. 139, 141-151

RASH - Fremont, Brentwood, and Exeter

Groundwater Classification Areas, Source Water Protection Areas, and Outstanding Resource Water Watersheds



Legend

-  Groundwater Classification Areas GAA
-  Source Water Protection Areas
-  Groundwater Classification Areas GA1
-  Groundwater Classification Areas GA2
-  Outstanding Resource Water Watersheds
-  Project Area(s)

Map Scale

1: 10,000

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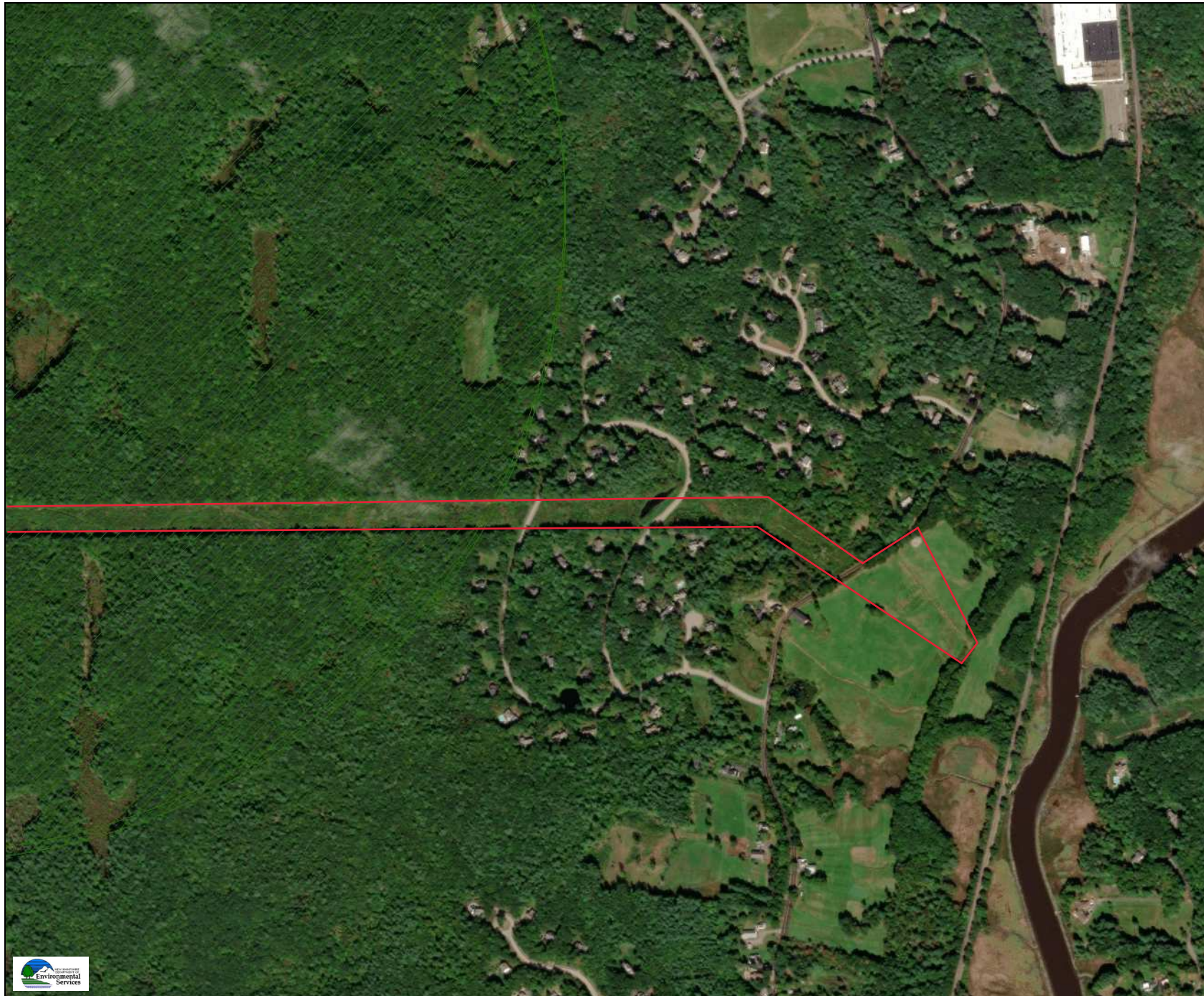
Notes

Area 7 of 7





H141: Str. 139, 141-151

RASH - Fremont, Brentwood, and Exeter

Impaired Surface Waters with Quarter Mile Buffer, Wellhead Protection Areas, and Water Supply Intake Protection Areas



Legend

-  Surface Waters with Impairments with Quarter Mile Buffer *
-  Wellhead Protection Areas
-  Water Supply Intake Protection Areas
-  Project Area(s)

*Surface Waters with Impairments with Quarter Mile Buffer layer available on OneStop under NHDES Environmental Data.

Map Scale

1: 10,000

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Map Generated: 3/24/2023



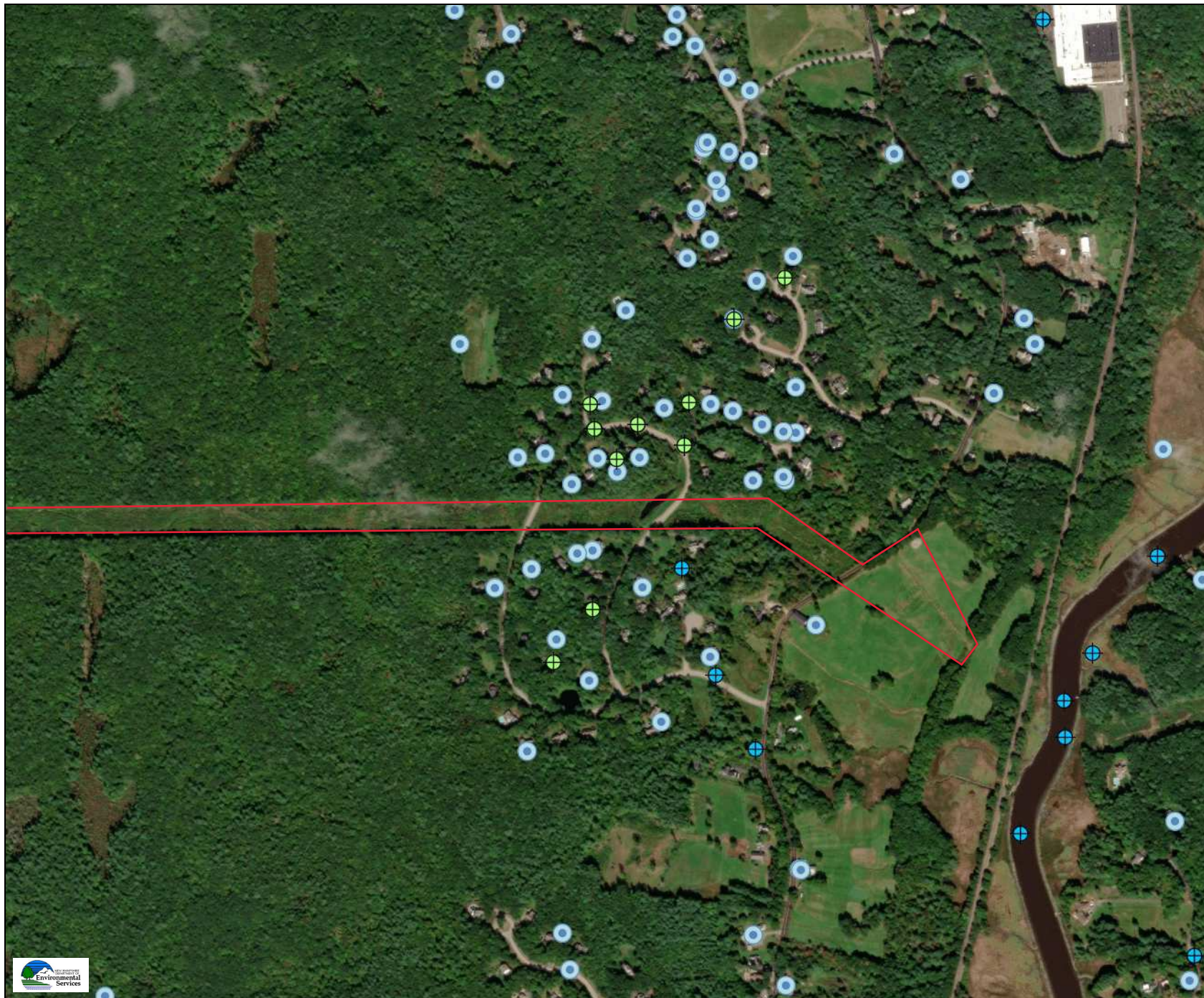
Notes

Area 7 of 7

H141: Str. 139, 141-151

RASH - Fremont, Brentwood, and Exeter

Environmental Monitoring Sites, Water Supply Locations, and Potential Contamination Sources



Legend

- Public Water Supply Entities
- ⊕ Environmental Monitoring Sites Secure
- Public Water Supply Wells
- ▲ Registered Water Users
- Water Well Inventory
- ⊕ Environmental Monitoring Sites Nonsecure
- ▲ Local Potential Contamination Sources
- Project Area(s)

Map Scale
1: 10,000



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Map Generated: 3/24/2023

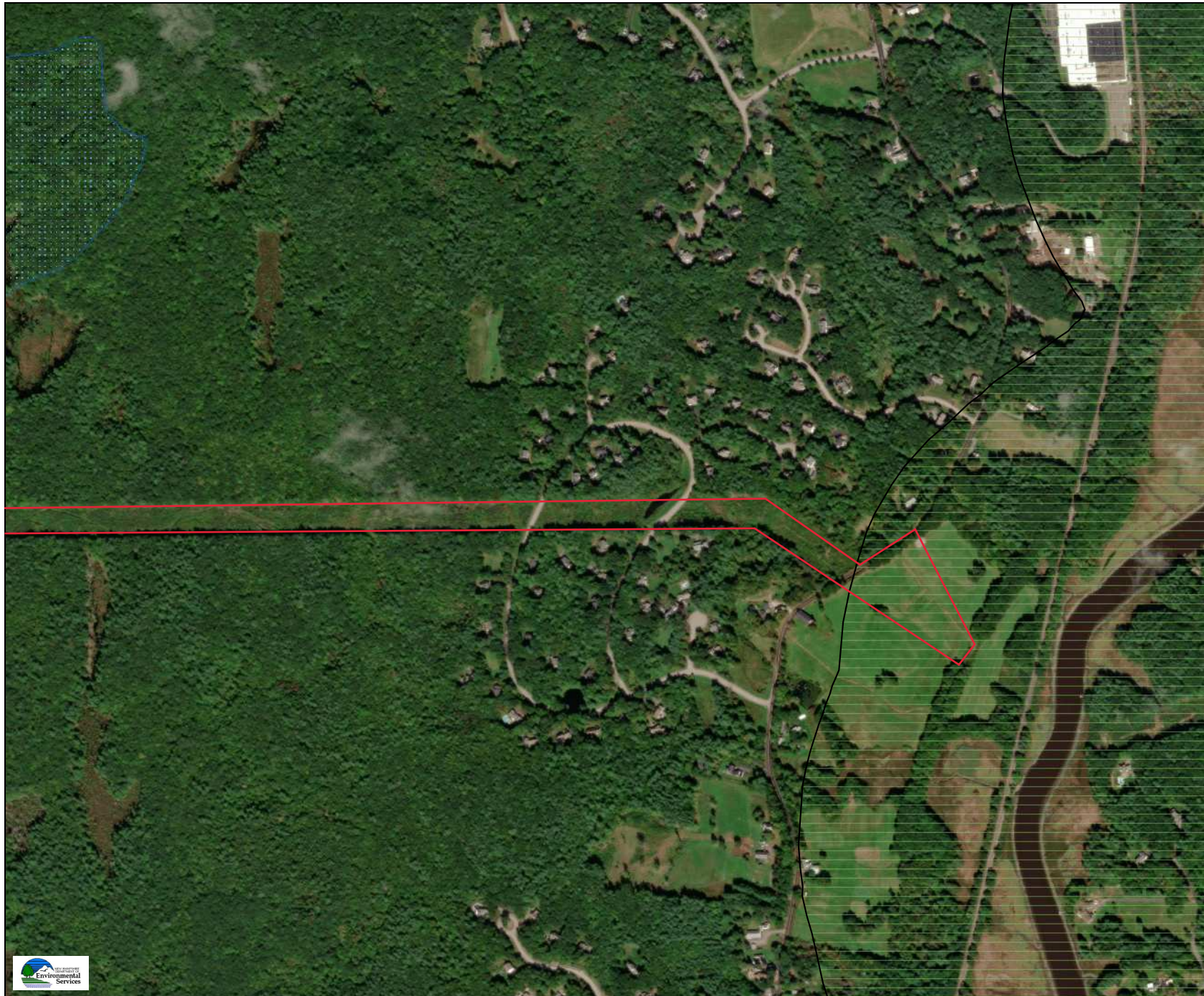
Notes

Area 7 of 7





H141: Str. 139, 141-151

RASH - Fremont, Brentwood, and Exeter

Surface Waters with Impairments 2022 with Quarter Mile Buffer and Class A Surface Waters (RSA 485 A:9)



Legend

-  Surface Waters with Impairments 2022 with Quarter Mile Buffer
-  Class A Lakes with a Quarter Mile Buffer
-  Class A - All Features
-  Project Area(s)

*Surface Waters with Impairments with Quarter Mile Buffer layer available on OneStop under Alteration of Terrain Permit Screening Layers

Map Scale

1: 10,000

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Map Generated: 3/28/2023

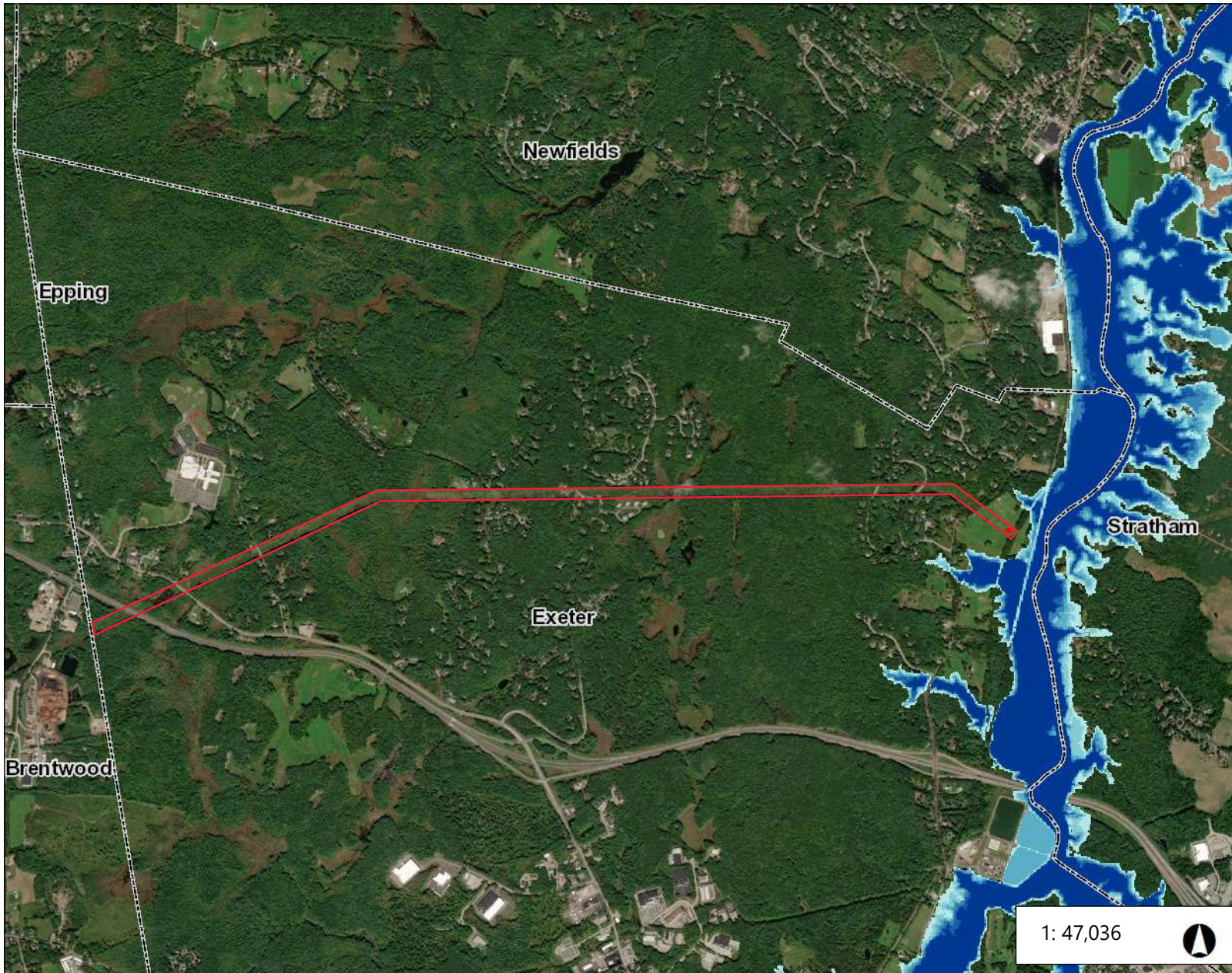


Notes

Area 7 of 7

H141: Str. 139, 141-151

RASH - Fremont, Brentwood, and Exeter
Mean High High Water Line + 1% Flood and 8-ft Sea Level Rise



Legend

- ☐ City/Town
- MHHW + 1% Flood + 8-ft SLR
 - 0 - 2
 - 2 - 4
 - 4 - 6
 - 6 - 8
 - 8 - 10
 - 10 +
- ☐ A126/H141 transmission line ROW in Exeter, NH containing the project footprint
- Approx. location of Str. 139 on the H141 Line

1: 47,036



1.5 0 0.74 1.5 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere
 © Latitude Geographics Group Ltd.

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THIS MAP IS NOT TO BE USED FOR NAVIGATION

Notes

7 Appendices

7.1 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: Public Service Company of NH [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: <input type="checkbox"/>			
Business Name: Normandeau Associates, Inc.		Contact Name: William McCloy	
Email: wmccloy@normandeau.com		Daytime Telephone: 802-861-7038	
Address: PO Box 205			
Town/City: Rutland		State: VT	Zip Code: 05701
3. PROPERTY OWNER INFORMATION (IF DIFFERENT FROM APPLICANT)			
Applicant Name: Eversource via ROW Easement/Ownership		Contact Name:	
Email:		Daytime Telephone:	
Mailing Address:			
Town/City:		State:	Zip Code:
4. PROPERTY OWNER'S AGENT INFORMATION If none, check here: <input checked="" type="checkbox"/>			
Business Name:		Contact Name:	
Email:		Daytime Telephone:	
Address:			
Town/City:		State:	Zip Code:
5. CONSULTANT INFORMATION If none, check here: <input type="checkbox"/>			
Engineering Firm: Normandeau Associates, Inc.		Contact Name: William McCloy	
Email: wmccloy@normandeau.com		Daytime Telephone: 802-861-7038	
Address: PO Box 205			
Town/City: Rutland		State: NH	Zip Code: 05701

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: RASH Structure Replacement Project - Fremont, Brentwood, and Exeter			
Street/Road Address: Existing Utility ROW			
Town/City: Fremont, Brentwood, and Exeter		County: Rockingham	
Tax Map: Multiple	Block:	Lot Number:	Unit:
Location Coordinates: Multiple		<input type="checkbox"/> Latitude/Longitude	<input type="checkbox"/> UTM <input 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 checked="" type="checkbox"/> No	<input type="checkbox"/> Withdrawal	<input type="checkbox"/> Discharge
2. Man-made pond created by impounding a stream or wetland Purpose:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Withdrawal	<input type="checkbox"/> Discharge
3. Unlined pond dug into the water table Purpose:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Withdrawal	<input type="checkbox"/> Discharge
Post-development, will the proposed project discharge to:			
• A surface water impaired for phosphorus and/or nitrogen? <input 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 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 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 checked="" type="checkbox"/> Yes	<input 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>0 (temp mats)</u> cubic feet within the 100-year floodplain			
Fill volume: <u>0 (temp matting only)</u> cubic feet within the 100-year floodplain			
<input checked="" type="checkbox"/> Project IS within ¼ mile of a designated river		Name of River: Exeter; Squamscott	
<input type="checkbox"/> Project is NOT within ¼ mile of a designated river			
<input checked="" type="checkbox"/> Project IS within a Coastal/Great Bay Region community - include info required by Env-Wq 1503.08(l) if applicable			
<input 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 76 existing transmission line structures and will exceed AoT thresholds associated with access road and work pad improvements along the existing R193, A126, and H141 Transmission Lines ROW in Fremont, Brentwood, and Exeter, New Hampshire.			
9. IF APPLICABLE, DESCRIBE ANY WORK STARTED PRIOR TO RECEIVING PERMIT			
No work has started as part of this project.			

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: / / .
(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: / / .
(Attach proof of delivery)

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

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

E. Total area of disturbance: 793,090 square feet

F. Additional impervious cover as a result of the project: 0 square feet (use the “-” symbol to indicate a net reduction in impervious coverage).
 Total final impervious cover: 0 square feet

G. Total undisturbed cover: 0 square feet

H. Number of lots proposed: 0

I. Total length of roadway: 0 linear feet

J. Name(s) of receiving water(s): 0

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.

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

L. List all species identified by the Natural Heritage Bureau as threatened or endangered or of concern: Multiple, See Appendix C for detailed information/datachecks and Fis 1004 consultation documentation

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.” SEE Section 3.1.1 in Narrative

N. Did the applicant/applicant’s agent have a pre-application meeting with AOT staff? Yes No
 If yes, name of staff member: _____

O. Will blasting of bedrock be required? Yes 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: 5/5/23

Name (print or type): Jeremy Fennell Title: _____

License 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" x 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.

7.2 Appendix B. Project Parcel List

Fremont Parcels in Project Area	Brentwood Parcels in Project Area	Exeter Parcels in Project Area
2-21, 2-22-10, 2-22-11, 2-22-30, 2-22-30, 2-22-42, 2-22-9, 2-22-39, 2-77-2-1, 2-73-1, 2-73-2 , 2-77-1-1, 2-156-1-23, 2-156-2, 2-156-2-1 , 2-156-2-3, 2-174, 2-175	216-30, 216-31, 216-32 , 215-32-1*, 216-42, 216-52, 209-58, 215-5, 215-4, 215-6, 215-12, 210-5, 210-53, 210-77, 206-8, 206-29, 205-13, 205-15 , 205-18	30-8, 30-9, 29-31, 29-32, 28-3, 28-6, 28-13 , 28-18, 18-3, 19-3, 19-2, 19-1, 19-16 , 19-16-1, 24-1, 25-1, 20-8 , 24-3, 24-30
*Owned by Eversource Owned by local municipality (Town) <i>Owned by the State of New Hampshire</i>		

7.3 Appendix C. NHHB Report and Correspondence

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: 11/3/2022 (valid until 11/03/2023)

Re: Review by NH Natural Heritage Bureau

Permits: MUNICIPAL POR - Fremont, NHDES - Alteration of Terrain Permit, NHDES - Utility activities in rights-of-way Permit by Notification (PBN), NHDES - Utility Statutory Permit by Notification (SPN)

NHB ID: NHB22-3449

Town: Fremont

Location: Eversource Right-of-way

Description: Eversource is proposing to replace select utility structures within the existing and maintained H141 and R193 right-of-ways.

cc: NHFG Review

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: Please refer to NHFG consultation requirements below. Please coordinate with Kat Wadiak and provide project timing.

Vertebrate species	State ¹	Federal	Notes
Blanding's Turtle (<i>Emydoidea blandingii</i>)	E	--	Contact the NH Fish & Game Dept (see below).
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 been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

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

Disclaimer: 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,

Memo

NH Natural Heritage Bureau NHB DataCheck Results Letter

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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.

IMPORTANT: NHFG Consultation

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

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

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

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

CONFIDENTIAL DNCR

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: NHB Review, NH Natural Heritage Bureau

Date: 11/3/2022 (valid until 11/03/2023)

Re: Review by NH Natural Heritage Bureau

Permits: MUNICIPAL POR - Exeter, NHDES - Alteration of Terrain Permit, NHDES - Utility activities in rights-of-way Permit by Notification (PBN),
NHDES - Utility Statutory Permit by Notification (SPN)

NHB ID: NHB22-3450

Town: Exeter

Location: Eversource Right-of-way

Description: Eversource is proposing to replace select utility structures within the existing and maintained H141 and R193 right-of-ways.

cc: NHFG Review

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: Please refer to NHFG consultation requirements below. Please coordinate with Kat Wadiak and provide project timing.

Vertebrate species	State ¹	Federal	Notes
Blanding's Turtle (<i>Emydoidea blandingii</i>)	E	--	Contact the NH Fish & Game Dept (see below).
Eastern Box Turtle (<i>Terrapene carolina</i>)	E	--	Contact the NH Fish & Game Dept (see below).
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 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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Disclaimer: 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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To: Lindsey White, GZA GeoEnvironmental
5 Commerce Park North
Suite 201
Bedford, NH 03110

From: NHB Review, NH Natural Heritage Bureau

Date: 11/3/2022 (valid until 11/03/2023)

Re: Review by NH Natural Heritage Bureau

Permits: MUNICIPAL POR - Brentwood, NHDES - Alteration of Terrain Permit, NHDES - Utility activities in rights-of-way Permit by Notification (PBN), NHDES - Utility Statutory Permit by Notification (SPN)

NHB ID: NHB22-3453

Town: Brentwood

Location: Eversource Right-of-way

Description: Eversource is proposing to replace select utility structures within the existing and maintained H141 and R193 right-of-ways.

cc: NHFG Review

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: Please refer to NHFG consultation requirements below. Please coordinate with Kat Wadiak and provide project timing.

Vertebrate species	State ¹	Federal	Notes
Blanding's Turtle (<i>Emydoidea blandingii</i>)	E	--	Contact the NH Fish & Game Dept (see below).
Northern Black Racer (<i>Coluber constrictor constrictor</i>)	T	--	Contact the NH Fish & Game Dept (see below).
Pied-billed Grebe (<i>Podilymbus podiceps</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 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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NH Natural Heritage Bureau NHB DataCheck Results Letter

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

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

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7.4 Appendix D. USDA Web Soil Survey Map/Report



United States
Department of
Agriculture

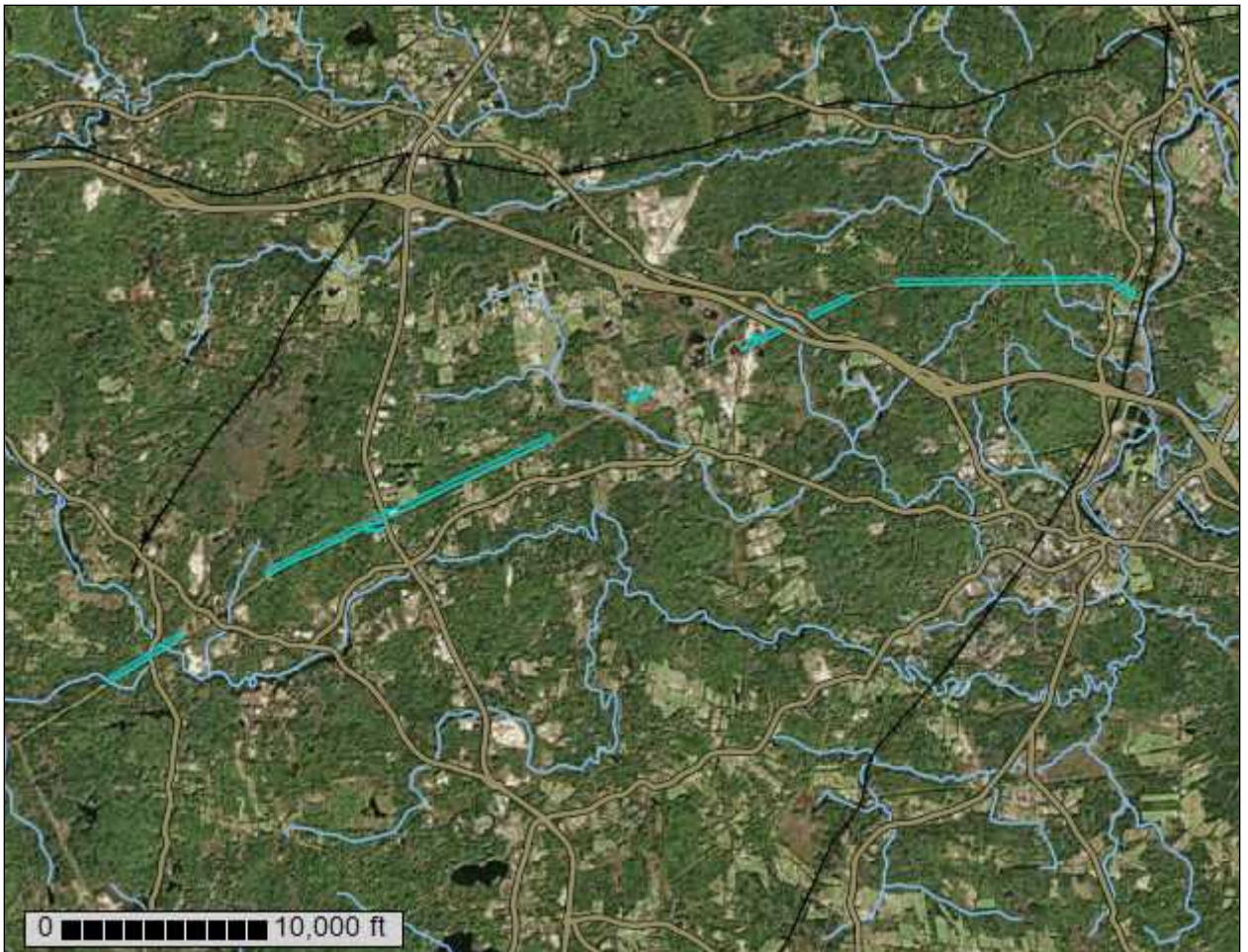
NRCS

Natural
Resources
Conservation
Service

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

Custom Soil Resource Report for Rockingham County, New Hampshire

RASH Structure Replacement Project - Fremont, Brentwood, and Exeter



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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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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

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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

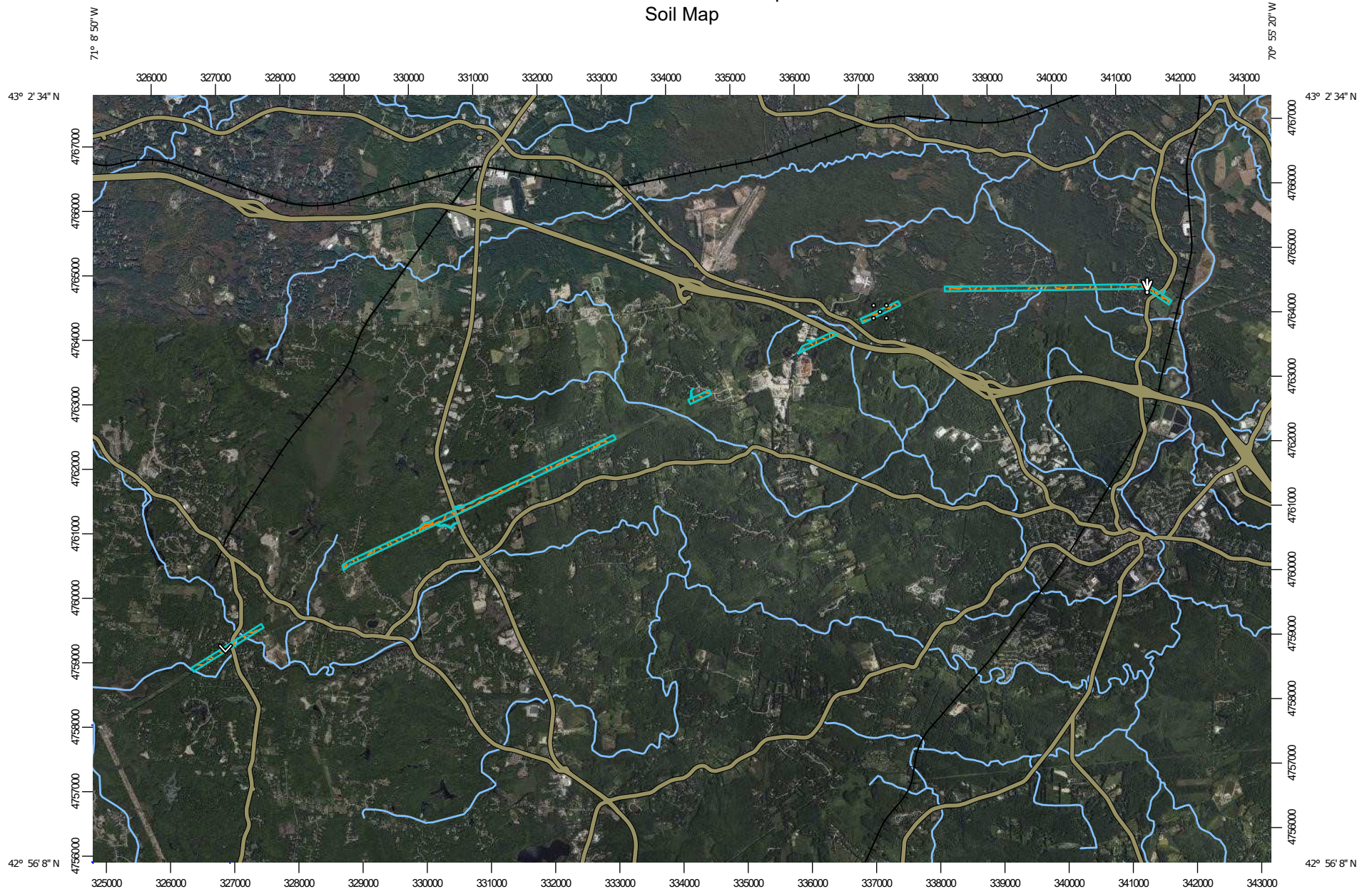
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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

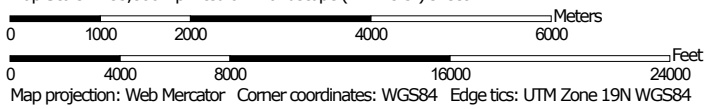
Soil Map

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: 1:83,800 if printed on A landscape (11" x 8.5") sheet.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






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

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


Water Features

 Streams and Canals

Transportation

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

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

Soil Survey Area: Rockingham County, New Hampshire
 Survey Area Data: Version 25, Sep 12, 2022

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

Date(s) aerial images were photographed: Jun 19, 2020—Jun 5, 2022

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
12C	Hinckley loamy sand, 8 to 15 percent slopes	3.2	1.6%
26B	Windsor loamy sand, 3 to 8 percent slopes	12.4	6.1%
32B	Boxford silt loam, 3 to 8 percent slopes	4.3	2.1%
33A	Scitico silt loam, 0 to 5 percent slopes	12.8	6.3%
38B	Eldridge fine sandy loam, 3 to 8 percent slopes	15.3	7.5%
42B	Canton fine sandy loam, 3 to 8 percent slopes	0.0	0.0%
42C	Canton fine sandy loam, 8 to 15 percent slopes	6.3	3.1%
43B	Canton fine sandy loam, 0 to 8 percent slopes, very stony	14.0	6.9%
43C	Canton fine sandy loam, 8 to 15 percent slopes, very stony	3.9	1.9%
115	Scarboro muck, coastal lowland, 0 to 3 percent slopes	1.8	0.9%
134	Maybid silt loam	5.1	2.5%
140B	Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky	16.1	7.9%
140C	Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, rocky	41.9	20.7%
140D	Chatfield-Hollis-Canton complex, 15 to 35 percent slopes, rocky	1.4	0.7%
295	Freetown mucky peat, 0 to 2 percent slopes	2.4	1.2%
298	Pits, sand and gravel	6.6	3.3%
313A	Deerfield loamy fine sand, 0 to 3 percent slopes	4.4	2.2%
313B	Deerfield loamy fine sand, 3 to 8 percent slopes	8.3	4.1%
314A	Pipestone sand, 0 to 5 percent slopes	5.0	2.5%
343C	Canton gravelly fine sandy loam, 8 to 15 percent slopes, extremely bouldery	2.0	1.0%
395	Swansea mucky peat, 0 to 2 percent slopes	15.8	7.8%

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Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
447B	Scituate-Newfields complex, 3 to 8 percent slopes, very stony	1.0	0.5%
510A	Hoosic gravelly fine sandy loam, 0 to 3 percent slopes	0.7	0.3%
510B	Hoosic gravelly fine sandy loam, 3 to 8 percent slopes	0.2	0.1%
538A	Squamscott fine sandy loam, 0 to 5 percent slopes	8.3	4.1%
547A	Walpole very fine sandy loam, 0 to 3 percent slopes, very stony	2.8	1.4%
547B	Walpole very fine sandy loam, 3 to 8 percent slopes, very stony	6.4	3.2%
Totals for Area of Interest		202.3	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 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.

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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.

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.

Rockingham County, New Hampshire

12C—Hinckley loamy sand, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2svm9

Elevation: 0 to 1,480 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

Hinckley and similar soils: 85 percent

Minor components: 15 percent

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

Description of Hinckley

Setting

Landform: Outwash deltas, outwash terraces, moraines, kames, outwash plains, kame terraces, eskers

Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope

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

Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave

Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 8 inches: loamy sand

Bw1 - 8 to 11 inches: gravelly loamy sand

Bw2 - 11 to 16 inches: gravelly loamy sand

BC - 16 to 19 inches: very gravelly loamy sand

C - 19 to 65 inches: very gravelly 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): 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 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: A

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Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Sudbury

Percent of map unit: 5 percent
Landform: Outwash deltas, outwash terraces, moraines, outwash plains, kame terraces
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Windsor

Percent of map unit: 5 percent
Landform: Outwash deltas, outwash terraces, moraines, kames, outwash plains, kame terraces, eskers
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Merrimac

Percent of map unit: 5 percent
Landform: Kames, outwash terraces, moraines, outwash plains, eskers
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Convex
Across-slope shape: 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, outwash plains, dunes, deltas

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: Kames, outwash plains, eskers, 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: Convex, linear

Hydric soil rating: No

Deerfield, loamy sand

Percent of map unit: 5 percent

Landform: Terraces, outwash plains, deltas

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread, tal

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

32B—Boxford silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9cn4

Elevation: 0 to 1,000 feet

Mean annual precipitation: 30 to 55 inches

Mean annual air temperature: 45 to 54 degrees F

Frost-free period: 120 to 180 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Boxford and similar soils: 80 percent

Minor components: 20 percent

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

Description of Boxford

Setting

Parent material: Glaciomarine

Typical profile

H1 - 0 to 2 inches: silt loam

H2 - 2 to 13 inches: silt loam

H3 - 13 to 23 inches: silty clay loam

H4 - 23 to 60 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)

Depth to water table: About 12 to 36 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: D

Ecological site: F144AY018NY - Moist Lake Plain

Hydric soil rating: No

Minor Components

Eldridge

Percent of map unit: 10 percent

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Hydric soil rating: No

Scitico

Percent of map unit: 10 percent

Landform: Marine terraces

Hydric soil rating: Yes

33A—Scitico silt loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 9cn6

Elevation: 0 to 180 feet

Mean annual precipitation: 47 to 49 inches

Mean annual air temperature: 48 degrees F

Frost-free period: 155 to 165 days

Farmland classification: Farmland of local importance

Map Unit Composition

Scitico and similar soils: 85 percent

Minor components: 15 percent

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

Description of Scitico

Setting

Landform: Marine terraces

Typical profile

H1 - 0 to 6 inches: silt loam

H2 - 6 to 12 inches: silty clay loam

H3 - 12 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: C/D

Ecological site: F144AY019NH - Wet Lake Plain

Hydric soil rating: Yes

Minor Components

Squamscott

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

Boxford

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

Maybid

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

38B—Eldridge fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9cnb
Elevation: 90 to 1,000 feet
Mean annual precipitation: 30 to 55 inches
Mean annual air temperature: 45 to 54 degrees F
Frost-free period: 120 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Eldridge

Setting

Parent material: Outwash over glaciolacustrine

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 23 inches: loamy fine sand
H3 - 23 to 62 inches: loamy very fine sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None

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Available water supply, 0 to 60 inches: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C/D

Ecological site: F144AY027MA - Moist Sandy Outwash

Hydric soil rating: No

Minor Components

Well drained inclusion

Percent of map unit: 5 percent

Hydric soil rating: No

Boxford

Percent of map unit: 5 percent

Hydric soil rating: No

Scitico

Percent of map unit: 5 percent

Landform: Marine terraces

Hydric soil rating: Yes

Squamscott

Percent of map unit: 5 percent

Landform: Marine terraces

Hydric soil rating: Yes

42B—Canton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w81b

Elevation: 0 to 1,180 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

Canton and similar soils: 80 percent

Minor components: 20 percent

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

Description of Canton

Setting

Landform: Ridges, moraines, hills

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

Landform position (three-dimensional): Nose slope, side slope, crest

Down-slope shape: Convex, linear

Across-slope shape: Convex

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Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: gravelly fine sandy loam
2C - 26 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: 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
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): 2s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Scituate

Percent of map unit: 10 percent
Landform: Hills, ground moraines, drumlins
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Montauk

Percent of map unit: 5 percent
Landform: Ground moraines, drumlins, moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Charlton

Percent of map unit: 4 percent
Landform: Ridges, hills, ground moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Swansea

Percent of map unit: 1 percent
Landform: Swamps, marshes, kettles, depressions, bogs
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

42C—Canton fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w817
Elevation: 0 to 1,330 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

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

Description of Canton

Setting

Landform: Ridges, moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: gravelly fine sandy loam
2C - 26 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: 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

Custom Soil Resource Report

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): 3e

Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands

Hydric soil rating: No

Minor Components

Montauk

Percent of map unit: 6 percent

Landform: Moraines, hills, ground moraines, drumlins

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex, linear

Across-slope shape: Convex

Hydric soil rating: No

Scituate

Percent of map unit: 6 percent

Landform: Hills, ground moraines, drumlins

Landform position (two-dimensional): Backslope, footslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex, linear

Across-slope shape: Convex

Hydric soil rating: No

Charlton

Percent of map unit: 4 percent

Landform: Ridges, hills, ground moraines

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex, linear

Across-slope shape: Convex

Hydric soil rating: No

Newfields

Percent of map unit: 4 percent

Landform: Moraines, hills, ground moraines

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Concave

Hydric soil rating: No

43B—Canton fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w81l

Custom Soil Resource Report

Elevation: 0 to 1,180 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

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

Description of Canton, Very Stony

Setting

Landform: Hills, ridges, moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

O_i - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
Bw₁ - 5 to 16 inches: fine sandy loam
Bw₂ - 16 to 22 inches: gravelly fine sandy loam
2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (K_{sat}): 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): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Scituate, very stony

Percent of map unit: 9 percent
Landform: Hills, ground moraines, drumlins
Landform position (two-dimensional): Summit, backslope, footslope

Custom Soil Resource Report

Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Montauk, very stony

Percent of map unit: 5 percent
Landform: Recessional moraines, hills, ground moraines, drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Gloucester, very stony

Percent of map unit: 4 percent
Landform: Ridges, moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Swansea

Percent of map unit: 2 percent
Landform: Bogs, swamps, marshes, kettles, depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

43C—Canton fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w814
Elevation: 0 to 1,160 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

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

Description of Canton, Very Stony

Setting

Landform: Ridges, moraines, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope

Custom Soil Resource Report

Down-slope shape: Convex, linear

Across-slope shape: Convex

Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

O_i - 0 to 2 inches: slightly decomposed plant material

A - 2 to 5 inches: fine sandy loam

Bw₁ - 5 to 16 inches: fine sandy loam

Bw₂ - 16 to 22 inches: gravelly fine sandy loam

2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent

Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (K_{sat}): 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): 6s

Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands

Hydric soil rating: No

Minor Components

Montauk, very stony

Percent of map unit: 6 percent

Landform: Recessionial moraines, hills, ground moraines, drumlins

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex, linear

Across-slope shape: Convex

Hydric soil rating: No

Scituate, very stony

Percent of map unit: 5 percent

Landform: Hills, ground moraines, drumlins

Landform position (two-dimensional): Backslope, footslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex, linear

Across-slope shape: Convex

Hydric soil rating: No

Chatfield, very stony

Percent of map unit: 3 percent

Landform: Ridges, hills

Custom Soil Resource Report

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

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Swansea

Percent of map unit: 1 percent

Landform: Swamps, marshes, kettles, depressions, bogs

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

115—Scarboro muck, coastal lowland, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svkw

Elevation: 0 to 650 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

Scarboro, coastal lowland, and similar soils: 85 percent

Minor components: 15 percent

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

Description of Scarboro, Coastal Lowland

Setting

Landform: Outwash deltas, outwash terraces, drainageways, depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope, tread, dip

Down-slope shape: Concave

Across-slope shape: Concave, linear

Parent material: Sandy glaciofluvial deposits derived from schist and/or gneiss and/or granite

Typical profile

Oa - 0 to 8 inches: muck

A - 8 to 14 inches: mucky fine sandy loam

Cg1 - 14 to 22 inches: sand

Cg2 - 22 to 65 inches: gravelly sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Negligible

Custom Soil Resource Report

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

Depth to water table: About 0 to 2 inches

Frequency of flooding: None

Frequency of ponding: Frequent

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

Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: A/D

Ecological site: F144AY031MA - Very Wet Outwash

Hydric soil rating: Yes

Minor Components

Swansea

Percent of map unit: 10 percent

Landform: Swamps, bogs

Landform position (three-dimensional): Dip

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Mashpee

Percent of map unit: 5 percent

Landform: Terraces, drainageways, depressions

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

134—Maybid silt loam

Map Unit Setting

National map unit symbol: 9cmg

Elevation: 0 to 180 feet

Mean annual precipitation: 47 to 50 inches

Mean annual air temperature: 48 degrees F

Frost-free period: 155 to 165 days

Farmland classification: Not prime farmland

Map Unit Composition

Maybid and similar soils: 75 percent

Minor components: 25 percent

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

Description of Maybid

Setting

Landform: Marine terraces

Parent material: Silty and clayey marine deposits

Typical profile

H1 - 0 to 9 inches: silt loam

H2 - 9 to 26 inches: silty clay loam

H3 - 26 to 63 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)

Depth to water table: About 0 to 6 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: C/D

Ecological site: F144AY020MA - Very Wet Coastal Lake Plain

Hydric soil rating: Yes

Minor Components

Scitico

Percent of map unit: 10 percent

Landform: Marine terraces

Hydric soil rating: Yes

Ossipee

Percent of map unit: 10 percent

Landform: Swamps

Hydric soil rating: Yes

Not named wet

Percent of map unit: 5 percent

Landform: Marine terraces

Hydric soil rating: Yes

140B—Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2w82m

Custom Soil Resource Report

Elevation: 380 to 1,070 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Chatfield, very stony, and similar soils: 35 percent
Canton, very stony, and similar soils: 25 percent
Hollis, very stony, and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chatfield, Very Stony

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

O_i - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
B_w - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (K_{sat}): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Canton, Very Stony

Setting

Landform: Ridges, moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest

Custom Soil Resource Report

Down-slope shape: Convex, linear

Across-slope shape: Convex

Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

O_i - 0 to 2 inches: slightly decomposed plant material

A - 2 to 5 inches: fine sandy loam

Bw₁ - 5 to 16 inches: fine sandy loam

Bw₂ - 16 to 22 inches: gravelly fine sandy loam

2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 8 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent

Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (K_{sat}): 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): 6s

Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands

Hydric soil rating: No

Description of Hollis, Very Stony

Setting

Landform: Ridges, hills

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

Landform position (three-dimensional): Nose slope, side slope, crest

Down-slope shape: Convex

Across-slope shape: Linear, convex

Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

O_i - 0 to 2 inches: slightly decomposed plant material

A - 2 to 7 inches: gravelly fine sandy loam

Bw - 7 to 16 inches: gravelly fine sandy loam

2R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent

Depth to restrictive feature: 8 to 23 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Runoff class: Very high

Custom Soil Resource Report

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

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

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

Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: D

Ecological site: F144AY033MA - Shallow Dry Till Uplands

Hydric soil rating: No

Minor Components

Freetown

Percent of map unit: 5 percent

Landform: Swamps, marshes, kettles, depressions, bogs

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Newfields, very stony

Percent of map unit: 5 percent

Landform: Moraines, hills, ground moraines

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Concave

Hydric soil rating: No

Walpole, very stony

Percent of map unit: 3 percent

Landform: Depressions, outwash terraces, outwash plains, depressions, deltas

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Rock outcrop

Percent of map unit: 2 percent

Landform: Ridges, hills

Hydric soil rating: Unranked

140C—Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2w82s

Elevation: 0 to 980 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 145 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Chatfield, very stony, and similar soils: 35 percent

Canton, very stony, and similar soils: 25 percent

Hollis, very stony, and similar soils: 25 percent

Minor components: 15 percent

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

Description of Chatfield, Very Stony

Setting

Landform: Ridges, hills

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

Landform position (three-dimensional): Nose slope, side slope, crest

Down-slope shape: Convex

Across-slope shape: Linear, convex

Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

O_i - 0 to 1 inches: slightly decomposed plant material

A - 1 to 2 inches: fine sandy loam

B_w - 2 to 30 inches: gravelly fine sandy loam

2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent

Depth to restrictive feature: 20 to 41 inches to lithic bedrock

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (K_{sat}): Very low (0.00 to 0.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

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

Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Hollis, Very Stony

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

O_i - 0 to 2 inches: slightly decomposed plant material
A - 2 to 7 inches: gravelly fine sandy loam
B_w - 7 to 16 inches: gravelly fine sandy loam
2R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 8 to 23 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (K_{sat}): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Description of Canton, Very Stony

Setting

Landform: Ridges, moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Custom Soil Resource Report

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
Bw1 - 5 to 16 inches: fine sandy loam
Bw2 - 16 to 22 inches: gravelly fine sandy loam
2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: 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): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Newfields, very stony

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

Freetown

Percent of map unit: 5 percent
Landform: Swamps, marshes, kettles, depressions, bogs
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro, very stony

Percent of map unit: 3 percent
Landform: Outwash deltas, outwash terraces, drainageways, depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Rock outcrop

Percent of map unit: 2 percent

Custom Soil Resource Report

Landform: Ridges, hills
Hydric soil rating: Unranked

140D—Chatfield-Hollis-Canton complex, 15 to 35 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2w82p
Elevation: 0 to 1,340 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Chatfield, very stony, and similar soils: 35 percent
Canton, very stony, and similar soils: 25 percent
Hollis, very stony, and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chatfield, Very Stony

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

O_i - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
B_w - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (K_{sat}): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Custom Soil Resource Report

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Canton, Very Stony

Setting

Landform: Ridges, moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

O_i - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
Bw₁ - 5 to 16 inches: fine sandy loam
Bw₂ - 16 to 22 inches: gravelly fine sandy loam
2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (K_{sat}): 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): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Hollis, Very Stony

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex

Custom Soil Resource Report

Across-slope shape: Linear, convex

Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

O_i - 0 to 2 inches: slightly decomposed plant material

A - 2 to 7 inches: gravelly fine sandy loam

B_w - 7 to 16 inches: gravelly fine sandy loam

2R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 15 to 35 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent

Depth to restrictive feature: 8 to 23 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (K_{sat}): Very low (0.00 to 0.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

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

Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D

Ecological site: F144AY033MA - Shallow Dry Till Uplands

Hydric soil rating: No

Minor Components

Montauk, very stony

Percent of map unit: 7 percent

Landform: Recessionial moraines, hills, ground moraines, drumlins

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex, linear

Across-slope shape: Convex

Hydric soil rating: No

Scarboro, very stony

Percent of map unit: 6 percent

Landform: Outwash deltas, outwash terraces, drainageways, depressions

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Concave, linear

Hydric soil rating: Yes

Rock outcrop

Percent of map unit: 2 percent

Landform: Ridges, hills

Hydric soil rating: Unranked

295—Freetown mucky peat, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2w68v
Elevation: 0 to 860 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Freetown and similar soils: 82 percent
Minor components: 18 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Freetown

Setting

Landform: Marshes, kettles, swamps, depressions, bogs
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Moderately decomposed organic material

Typical profile

Oe1 - 0 to 2 inches: mucky peat
Oe2 - 2 to 79 inches: mucky peat

Properties and qualities

Slope: 0 to 1 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.14 to 14.17 in/hr)
Depth to water table: About 0 to 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): 8
Hydrologic Soil Group: B/D
Ecological site: F144AY043MA - Acidic Organic Wetlands
Hydric soil rating: Yes

Minor Components

Swansea

Percent of map unit: 8 percent
Landform: Swamps, marshes, kettles, depressions, bogs
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Natchaug

Percent of map unit: 6 percent
Landform: Depressions, depressions, depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro

Percent of map unit: 3 percent
Landform: Outwash deltas, outwash terraces, drainageways, depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Whitman

Percent of map unit: 1 percent
Landform: Hills, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

298—Pits, sand and gravel

Map Unit Composition

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

313A—Deerfield loamy fine sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2xfg8
Elevation: 0 to 1,100 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Farmland of local importance

Map Unit Composition

Deerfield and similar soils: 85 percent

Minor components: 15 percent

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

Description of Deerfield

Setting

Landform: Outwash deltas, outwash terraces, outwash plains, kame terraces

Landform position (three-dimensional): Tread

Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave

Parent material: Sandy outwash derived from granite, gneiss, and/or quartzite

Typical profile

Ap - 0 to 9 inches: loamy fine sand

Bw - 9 to 25 inches: loamy fine sand

BC - 25 to 33 inches: fine sand

Cg - 33 to 60 inches: sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Negligible

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: About 15 to 37 inches

Frequency of flooding: None

Frequency of ponding: None

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

Sodium adsorption ratio, maximum: 11.0

Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: A

Ecological site: F144AY027MA - Moist Sandy Outwash

Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 7 percent

Landform: Outwash deltas, outwash terraces, outwash plains, kame terraces

Landform position (three-dimensional): Tread

Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave

Hydric soil rating: No

Wareham

Percent of map unit: 5 percent

Landform: Drainageways, depressions

Down-slope shape: Concave

Across-slope shape: Concave

Custom Soil Resource Report

Hydric soil rating: Yes

Sudbury

Percent of map unit: 2 percent

Landform: Outwash deltas, outwash terraces, outwash plains, kame terraces

Landform position (three-dimensional): Tread

Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave

Hydric soil rating: No

Ninigret

Percent of map unit: 1 percent

Landform: Outwash terraces, outwash plains, kame terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear, convex

Across-slope shape: Concave, convex

Hydric soil rating: No

313B—Deerfield loamy fine sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2xfg9

Elevation: 0 to 1,190 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 145 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Deerfield and similar soils: 85 percent

Minor components: 15 percent

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

Description of Deerfield

Setting

Landform: Outwash deltas, outwash terraces, outwash plains, kame terraces

Landform position (three-dimensional): Tread

Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave

Parent material: Sandy outwash derived from granite, gneiss, and/or quartzite

Typical profile

Ap - 0 to 9 inches: loamy fine sand

Bw - 9 to 25 inches: loamy fine sand

BC - 25 to 33 inches: fine sand

Cg - 33 to 60 inches: sand

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Custom Soil Resource Report

Drainage class: Moderately well 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)
Depth to water table: About 15 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Sodium adsorption ratio, maximum: 11.0
Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A
Ecological site: F144AY027MA - Moist Sandy Outwash
Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 7 percent
Landform: Outwash deltas, outwash terraces, outwash plains, kame terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Wareham

Percent of map unit: 5 percent
Landform: Drainageways, depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Sudbury

Percent of map unit: 2 percent
Landform: Outwash deltas, outwash terraces, outwash plains, kame terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Ninigret

Percent of map unit: 1 percent
Landform: Outwash plains, outwash terraces, kame terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex, linear
Across-slope shape: Convex, concave
Hydric soil rating: No

314A—Pipestone sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 9cn2
Elevation: 0 to 2,100 feet
Mean annual precipitation: 28 to 55 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 100 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Pipestone

Setting

Landform: Outwash terraces

Typical profile

H1 - 0 to 6 inches: sand
H2 - 6 to 33 inches: sand
H3 - 33 to 60 inches: sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F144AY027MA - Moist Sandy Outwash
Hydric soil rating: Yes

Minor Components

Scarboro

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

Deerfield

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

Chocorua

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

Not named wet

Percent of map unit: 5 percent
Landform: Outwash terraces
Hydric soil rating: Yes

Squamscott

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

**343C—Canton gravelly fine sandy loam, 8 to 15 percent slopes,
extremely bouldery**

Map Unit Setting

National map unit symbol: 9cn7
Elevation: 0 to 1,000 feet
Mean annual precipitation: 42 to 46 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 155 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Canton

Setting

Parent material: Till

Typical profile

H1 - 0 to 5 inches: gravelly fine sandy loam
H2 - 5 to 21 inches: gravelly fine sandy loam
H3 - 21 to 60 inches: loamy sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: A

Ecological site: F144AY034CT - Well Drained Till Uplands

Hydric soil rating: No

Minor Components

Walpole

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

Newfields

Percent of map unit: 5 percent

Hydric soil rating: No

Chatfield

Percent of map unit: 5 percent

Hydric soil rating: No

395—Swansea mucky peat, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2w68x

Elevation: 0 to 950 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 145 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Swansea and similar soils: 83 percent

Minor components: 17 percent

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

Description of Swansea

Setting

Landform: Swamps, marshes, kettles, depressions, bogs

Down-slope shape: Concave

Across-slope shape: Concave

Custom Soil Resource Report

Parent material: Moderately decomposed organic material over sandy and gravelly glaciofluvial deposits

Typical profile

Oe1 - 0 to 12 inches: mucky peat
Oe2 - 12 to 25 inches: mucky peat
Cg - 25 to 79 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: High (about 11.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: B/D
Ecological site: F144AY043MA - Acidic Organic Wetlands
Hydric soil rating: Yes

Minor Components

Freetown

Percent of map unit: 7 percent
Landform: Swamps, marshes, kettles, depressions, bogs
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Walpole

Percent of map unit: 5 percent
Landform: Outwash deltas, outwash terraces, drainageways, depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro

Percent of map unit: 5 percent
Landform: Outwash deltas, outwash terraces, drainageways, depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

447B—Scituate-Newfields complex, 3 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 9cnr
Elevation: 0 to 1,000 feet
Mean annual precipitation: 35 to 56 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Scituate and similar soils: 50 percent
Newfields and similar soils: 25 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scituate

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 32 inches: cobbly fine sandy loam
H3 - 32 to 60 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F144AY037MA - Moist Dense Till Uplands
Hydric soil rating: No

Description of Newfields

Setting

Parent material: Till

Typical profile

H1 - 0 to 9 inches: fine sandy loam

Custom Soil Resource Report

H2 - 9 to 35 inches: fine sandy loam

H3 - 35 to 64 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Medium

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)*

Depth to water table: About 24 to 48 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: C

Ecological site: F144AY008CT - Moist Till Uplands

Hydric soil rating: No

Minor Components

Walpole

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

Ridgebury

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

Canton

Percent of map unit: 5 percent

Hydric soil rating: No

Montauk

Percent of map unit: 5 percent

Hydric soil rating: No

Not named

Percent of map unit: 5 percent

Hydric soil rating: No

510A—Hoosic gravelly fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9cp3

Custom Soil Resource Report

Elevation: 100 to 1,100 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 135 to 190 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Hoosic

Setting

Parent material: Outwash

Typical profile

H1 - 0 to 8 inches: gravelly fine sandy loam
H2 - 8 to 15 inches: very gravelly fine sandy loam
H3 - 15 to 60 inches: very gravelly coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (2.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Not named

Percent of map unit: 10 percent
Hydric soil rating: No

510B—Hoosic gravelly fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9cp4
Elevation: 100 to 1,100 feet

Custom Soil Resource Report

Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 135 to 190 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Hoosic

Setting

Parent material: Outwash

Typical profile

H1 - 0 to 8 inches: gravelly fine sandy loam
H2 - 8 to 15 inches: very gravelly fine sandy loam
H3 - 15 to 60 inches: very gravelly coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (2.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Not named

Percent of map unit: 10 percent
Hydric soil rating: No

538A—Squamscott fine sandy loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 9cp9
Elevation: 0 to 1,000 feet
Mean annual precipitation: 30 to 55 inches

Custom Soil Resource Report

Mean annual air temperature: 45 to 54 degrees F
Frost-free period: 120 to 180 days
Farmland classification: Farmland of local importance

Map Unit Composition

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

Description of Squamscott

Setting

Landform: Marine terraces

Typical profile

H1 - 0 to 4 inches: fine sandy loam
H2 - 4 to 12 inches: loamy sand
H3 - 12 to 19 inches: fine sand
H4 - 19 to 65 inches: silt loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F144AY019NH - Wet Lake Plain
Hydric soil rating: Yes

Minor Components

Scitico

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

Maybid

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

Eldridge

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

547A—Walpole very fine sandy loam, 0 to 3 percent slopes, very stony

Map Unit Setting

National map unit symbol: 9cpc
Elevation: 0 to 2,100 feet
Mean annual precipitation: 28 to 49 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 100 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Walpole

Setting

Landform: Depressions

Typical profile

H1 - 0 to 7 inches: very fine sandy loam
H2 - 7 to 16 inches: sandy loam
H3 - 16 to 60 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 0.1 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 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A/D
Ecological site: F144AY028MA - Wet Outwash
Hydric soil rating: Yes

Minor Components

Scarboro

Percent of map unit: 10 percent
Landform: Depressions

Custom Soil Resource Report

Hydric soil rating: Yes

Newfields

Percent of map unit: 5 percent

Hydric soil rating: No

547B—Walpole very fine sandy loam, 3 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 9cpd

Elevation: 0 to 2,100 feet

Mean annual precipitation: 28 to 48 inches

Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 100 to 195 days

Farmland classification: Not prime farmland

Map Unit Composition

Walpole and similar soils: 80 percent

Minor components: 20 percent

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

Description of Walpole

Setting

Landform: Depressions

Typical profile

H1 - 0 to 7 inches: very fine sandy loam

H2 - 7 to 16 inches: sandy loam

H3 - 16 to 60 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent

Surface area covered with cobbles, stones or boulders: 0.1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: A/D

Ecological site: F144AY028MA - Wet Outwash

Hydric soil rating: Yes

Minor Components

Scarboro

Percent of map unit: 10 percent

Landform: Depressions

Hydric soil rating: Yes

Newfields

Percent of map unit: 5 percent

Hydric soil rating: No

Squamscott

Percent of map unit: 5 percent

Landform: Marine terraces

Hydric soil rating: Yes

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7.5 Appendix E. Photo Log

Photos:



Photo 1. Str. 139 (H141 line) future work area, viewing north.



Photo 2. Proposed access route between Str. 139 (H141 line) and Newfields Road, viewing north.



Photo 3. Proposed access route between Newfields Road and Str. 141 (H141 line), viewing west.



Photo 4. Str. 141 (H141 line) future work area, viewing west.



Photo 5. Proposed access route between Strs. 141 and 142 (H141 line), viewing northwest.



Photo 6. Str. 142 (H141 line) future work area, viewing northwest.



Photo 7. Str. 143 (H141 line) future work area, viewing northeast.



Photo 8. Proposed access route between Captains Way and Str. 143 (H141 line), viewing northwest.



Photo 9. Proposed access route between Captains Way and Str. 144 (H141 line), viewing west.



Photo 10. Str. 144 (H141 line) future work area, viewing southeast.



Photo 11. Proposed access route between Captains Way and Str. 145 (H141 line), viewing west.



Photo 12. Str. 145 (H141 line) future work area, viewing northwest.



Photo 13. Proposed access route between Strs. 145 and 146 (H141 line), viewing west.



Photo 14. Str. 146 (H141 line) future work area, viewing northwest.



Photo 15. Proposed access road route between Strs. 146 and 147 (H141 line), viewing west-northwest.



Photo 16. Str. 147 (H141 line) future work area, viewing southwest.



Photo 17. Proposed access route between Strs. 147 and 148 (H141 line), viewing west across stream and PSS1E wetland.



Photo 18. Str. 148 (H141 line) future work area, viewing southwest.



Photo 19. Proposed access route between Strs. 148 and 149 (H141 line), viewing west.



Photo 20. Str. 149 (H141 line) future work area, viewing southwest.



Photo 21. Proposed access route between Strs.149 and 150 (H141 line), viewing northwest.



Photo 22. Proposed access route between Strs. 149 and 150 (H141 line), viewing southwest.



Photo 23. Str. 150 (H141 line) future work area, viewing northwest.



Photo 24. Proposed access route between Strs. 150 and 151 (H141 line), viewing west.



Photo 25. Str. 151 (H141 line) future work area, viewing southwest.



Photo 26. Proposed access route between Strs.151 and 152 (H141 line), viewing west.



Photo 27. Str. 152 (H141 line) future work area, viewing northwest.



Photo 28. Proposed access route between Strs. 152 and 153 (H141 line), viewing west.



Photo 29. Str. 153 (H141 line) future work area, viewing west.



Photo 30. Str. 154 (H141 line) future work area, viewing southeast.



Photo 31. Proposed access route between Strs. 154 and 155 (H141 line), following existing sand/gravel trail, viewing northwest.



Photo 32. Str. 155 (H141 line) future work area, viewing south.



Photo 33. Proposed access route between Strs. 155 and 156 (H141 line), following partially graveled trail, viewing west.



Photo 34. Str. 156 (H141 line) future work area, viewing northwest.



Photo 35. Proposed access route between Strs. 156 and 157 (H141 line), wetland crossing, viewing west.



Photo 36. Proposed access route between Str. 156 and Str. 157 (upland portion), viewing east.



Photo 37. Dirt parking lot within proposed access route between Strs. 156 and 157 (H141 line), viewing west.



Photo 38. Proposed access route between dirt parking lot and Str. 157 (H141 line), viewing west.



Photo 39. Str. 157 (H141 line) future work area, viewing north.



Photo 40. Entrance to proposed access route between Watson Road and Str. 158 (H141 line), viewing west.



Photo 41. Str. 158 (H141 line) future work area, viewing northeast.



Photo 42. Proposed access route between Strs. 158 and 159 (H141 line) crossing private road, viewing west.



Photo 43. Proposed access road between Strs. 158 and 159 (H141 line), west of the private road crossing, viewing west.



Photo 44. Proposed access road to immediate left of Str. 159, H141 line, viewing west. Existing trail with steep grade to far left.



Photo 45. Str. 159 (H141 line) future work area, viewing northwest.



Photo 46. Proposed access route between Str. 159 to Str. 160 (H141 line), viewing west.



Photo 47. Str. 160 (H141 line) future work area, viewing southwest.



Photo 48. Proposed access route between Beechhill Road to Strs. 163 (H141 line) and 183 (A126 line), viewing west. Please note, beginning of access utilizes existing improved road.



Photo 49. Proposed access route between Beechhill Rd to Strs. 163 (H141 line) and 183 (A126 line), viewing west. Transition from improved road to wetland matting.



Photo 50. Proposed access road between private road and Strs 163-164 on H141 line and 183-184 on A126 line, viewing west. Note unable to proceed further due to electric fence.



Photo 51. Proposed access route between existing improved road off Beechhill Road and Strs. 163 (H141 line) and 183 (A126 line), viewing west. Please note, ability to thoroughly photograph access routes and future work areas for Strs. 163-164 (H141 line) and 183-184 (A126 line) due to electric fence on property.



Photo 52. Strs. 189 (A126 line) and 169 (H141 line) future work area, viewing east.



Photo 53. Str. 190 (A126 line) future work area, viewing northeast.



Photo 54. Proposed access route between Strs. 190 and 191 (A126 line), viewing west.



Photo 55. Str. 191 (A126 line) future work area, viewing northwest.



Photo 56. Proposed access route between Strs. 191 and 192 (A126 line), viewing west.



Photo 57. Str. 192 (A126 line) future work area, viewing northwest.



Photo 58. Proposed access route between Old Town Farm Road and Str. 192 (A126 line), viewing northeast.



Photo 59. Proposed access route between Old Town Farm Road and Str. 193 (A126 line), viewing west.



Photo 60. Str. 193 (A126 line) future work area, viewing northwest.



Photo 61. Proposed access route between Strs. 193 and 194 (A126 line), viewing west.



Photo 62. Str. 194 (A126 line) future work area, viewing northwest.



Photo 63. Proposed access route between Strs. 194 and 195 (A126 line) and Str. 174 (H141 line), viewing west.



Photo 64. Proposed access route between Str. 193 and 194 (A126 line) branches to right, viewing west.



Photo 65. Str. 195 (A126 line) future work area, viewing northwest.



Photo 66. Str. 174 (H141 line) future work area, viewing southwest.



Photo 67. Proposed access route between Pine Road and Str. 181 (H141 line) on existing paved road, viewing east.



Photo 68. Str. 181 (H141 line) future work area, viewing southwest.



Photo 69. Proposed access road from Pine Rd to Str. 180 on the H141 line, viewing east.



Photo 70. Proposed access route between Pine Road and Str. 180 (H141 line), viewing east. Please note, access route utilizes existing improved gravel road.



Photo 71. Improved gravel road between Pine Road and Str. 180 (H141 line) ends at Str. 203 (A126 line), viewing east.



Photo 72. Str. 180 (H141 line) future work area, viewing southeast.



Photo 73. Proposed access route between Strs. 180 and 179 (H141 line), viewing east.



Photo 74. Str. 179 (H141 line) future work area, viewing east.



Photo 75. Proposed access route between Strs. 179 and 178 (H141 line), viewing east.



Photo 76. Str. 178 (H141 line) future work area, viewing southeast.



Photo 77. Proposed access road between Homestead Lane and Strs. 194 (H141 line) and 217 (A126 line), viewing southwest.



Photo 78. Proposed access route between Homestead Lane and Strs. 194 (H141 line) and 217 (A126 line) across field, viewing south.



Photo 79. Proposed access road to Str. 194 of the H141 line and Str. 217 of the A126 line, viewing east.



Photo 80. Str. 194 (H141 line) future work area, viewing northeast.



Photo 81. Str. 217 (A126 line) future work area, viewing northeast.



Photo 82. Proposed access route between Str. 217 (A126 line) and Longmeadow Drive, viewing northeast.



Photo 83. Proposed access route between Prescott Road and Str. 205 (H141 line), viewing southwest.



Photo 84. Str. 205 (H141 line) future work area, viewing southeast.



Photo 85. Proposed access route between Strs. 205 and 204 (H141 line), viewing northeast. Fencing prevented closer access to the future work area for Str. 204.



Photo 86. Proposed access route between Prescott Road and Str. 207 (H141 line), viewing west.



Photo 87. Str. 207 (H141 line) future work area, viewing southeast.



Photo 88. Representative portion of the proposed access route between Strs. 207 and 212 (H141 line), viewing west. Please note, the ability to photograph the access route and future work area for Str. 212 (H141 line) was limited due to the private electric fence on the property.



Photo 89. Str. 213 (H141 line) future work area, viewing northeast. Please note, private electric fence blocking further entry visible in bottom left of photo.



Photo 90. Str. 237 (A126 line) future work area, viewing east from behind the private electric fence.



Photo 91. Str. 238 (A126 line) future work area, viewing northeast.



Photo 92. Proposed access route spur to Str. 238 on the A126 line, viewing north.



Photo 93. Proposed access route between Strs. 213 and 214 (H141 line), viewing west.



Photo 94. Str. 214 (H141 line) future work area, viewing northeast.



Photo 95. Proposed access route spur to Str. 239 (A126 line), viewing north.



Photo 96. Str. 239 (A126 line) future work area, viewing northeast.



Photo 97. Proposed access route between Strs. 214 and 215 (H141 line), viewing east.



Photo 98. Str. 215 (H141 line) future work area, viewing southeast.



Photo 99. Proposed access route between Strs. 215 and 216 (H141 line), viewing east.



Photo 100. Proposed access route spur to Str. 240 (A126 line), viewing north.



Photo 101. Str. 240 (A126 line) future work area, viewing northeast.



Photo 102. Str. 216 (H141 line) future work area, viewing northeast.



Photo 103. Proposed access road between Strs. 216 and 217 (H141 line), viewing east.



Photo 104. Str. 217 (H141 line) future work area, viewing northeast.



Photo 105. Proposed access route between Strs. 217 and 219 (H141 line), viewing west.



Photo 106. Str. 219 (H141 line) future work area, viewing northeast.



Photo 107. Representative view of the upland portion of the proposed access route between Str. 219 (H141 line) and Route 125, viewing east.



Photo 108. Representative view of the wetland portion of the proposed access route between Str. 219 (H141 line) and Route 125, viewing southeast.



Photo 109. Proposed access route between Str. 219 (H141 line) and Route 125 across the Sunrise Farms Yogurt facility parking lot, viewing east.



Photo 110. Representative view of the paved portion of the proposed access route between Str. 254 (R193 line) and Route 125, viewing east.



Photo 111. Representative view of the improved, dirt and gravel portion of the proposed access route between Str. 254 (R193 line) and Route 125, viewing northwest.



Photo 112. Representative view of the unimproved portion of the proposed access route between Str. 254 (R193 line) and Route 125, viewing west.



Photo 113. Str. 254 work pad on the R193 line, taken from the northeastern corner, viewing southwest.



Photo 114. Proposed access route between Strs. 254 and 255 (R193 line), viewing west.



Photo 115. Str. 255 (R193 line) future work area, viewing southwest.



Photo 116. Proposed access route between Strs. 255 and 256 (R193 line), viewing west.



Photo 117. Str. 256 (R193 line) future work area, viewing southwest.



Photo 118. Proposed access route between Strs. 256 and 257 (R193 line), viewing west.



Photo 119. Str. 257 (R193 line) future work area, viewing northeast.



Photo 120. Proposed access route between Strs. 257 and 258 (R193 line), viewing west.



Photo 121. Str. 258 (R193 line) future work area, viewing northwest.



Photo 122. Proposed access route between Strs. 258 and 259 (R193 line), viewing west.



Photo 123. Str. 259 (R193 line) future work area, viewing southwest.



Photo 124. Proposed access route between Strs. 259 and 260 (R193 line), viewing west.



Photo 125. Str. 260 (R193 line) future work area, viewing southwest.



Photo 126. Proposed access road between Strs. 260 and 261 (R193 line), viewing west.



Photo 127. Str. 261 (R193 line) future work area, viewing southwest.



Photo 128. Str. 235 (H141 line) future work area, viewing southeast.



Photo 129. Proposed access road between Strs. 235 and 237 of the H141 line, viewing west. Joins with access road from Str. 261 of the R193 line.



Photo 130. Representative view of the unimproved portion of the proposed access route between Str. 261 (R193 line)/Str. 235 (H141 line) and Str. 237 (H141 line), viewing east.



Photo 131. Improved portion of the proposed access route between Str. 261 (R193 line)/Str. 235 (H141 line) and Str. 237 (H141 line), viewing west.



Photo 132. Str. 237 (H141 line) future work area, viewing northwest.



Photo 133. Str. 274 (H141 line) future work area, viewing south.



Photo 134. Proposed access route between Strs. 274 and 275 (R193 line), viewing east.



Photo 135. Str. 275 (R193 line) future work area, viewing east.



Photo 136. Proposed access route between Strs. 275 and 276 (R193 line), viewing southwest.



Photo 137. Str. 276 (R193 line) future work area, viewing west.



Photo 138. Str. 250 (H141 line) future work area, viewing south.



Photo 139. Proposed access route between Str. 250 (H141 line) and 277 (R193 line), viewing west.



Photo 140. Str. 277 (R193 line) future work area, viewing south.



Photo 141. Bank of the Exeter River FRS01 adjacent the Str. 277 (R193 line) future work area, viewing southeast.



Photo 142. Str. 278 (R193 line) future work area, viewing north.



Photo 143. Poned area adjacent FRS02 and Exeter River (FRS01) northwest-southwest of the Str. 278 (R193 line) future work area, viewing north.



Photo 144. Str. 251 (H141 line) future work area, viewing east.



Photo 145. Proposed access route with matted wetland/stream crossing between Danville Road and Strs. 278 (R193 line) 251 (H141 line), viewing northeast.



Photo 146. Proposed access route between South Road and Strs. 252 (H141 line) and 279 (R193 line), viewing northwest.



Photo 147. Str. 252 (H141 line) future work area, viewing east.



Photo 148. Str. 279 (R193 line) future work area, viewing north.



Photo 149. Str. 282 (R193 line) future work area, viewing northeast.



Photo 150. Proposed access route between Taylor Lane and Str. 283 (R193 line), viewing west.



Photo 151. Str. 283 (R193 line) future work area, viewing north.



Photo 152. Proposed access route between Strs. 283 and 284 (R193 line), viewing west.



Photo 153. Str. 284 (R193 line) future work area, viewing northwest.

7.6 Appendix F. Exeter River Watershed Upstream of FEMA 100-year Floodplain on Project

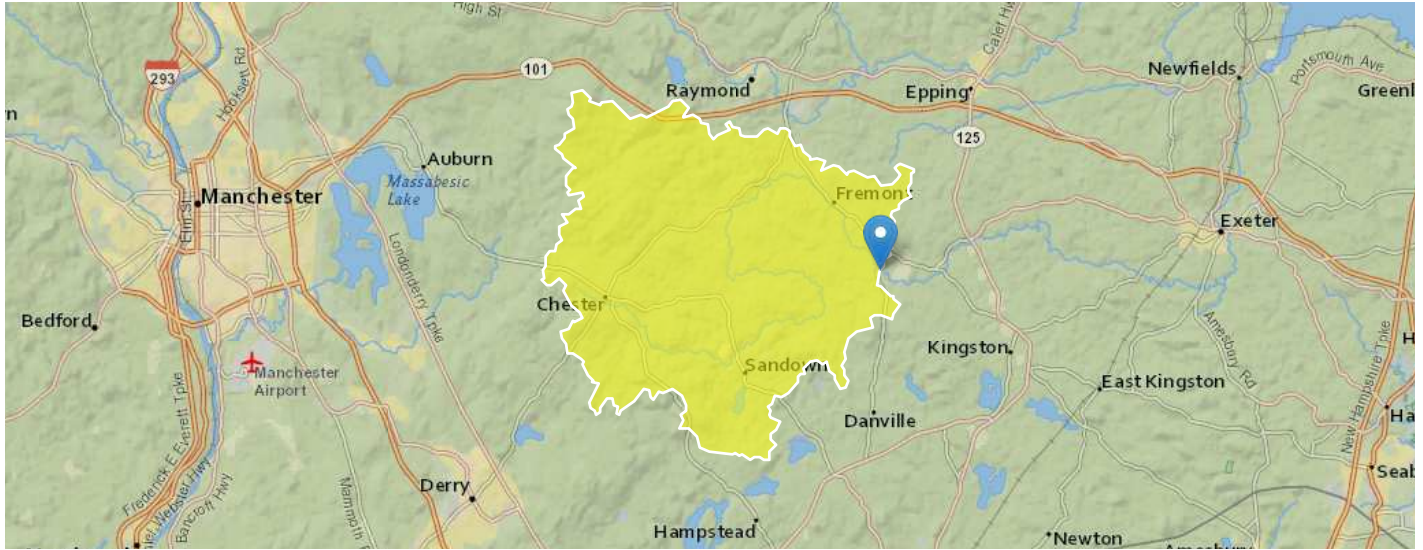
Exeter River Watershed Upstream of FEMA 100-year Floodplain on the Eversource RASH Structure Replacement Project in Fremont

Region ID: NH

Workspace ID: NH20230402215541125000

Clicked Point (Latitude, Longitude): 42.96652, -71.11898

Time: 2023-04-02 17:56:12 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
APRAVPRE	Mean April Precipitation	4.038	inches
BSLDEM30M	Mean basin slope computed from 30 m DEM	5.696	percent
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	1108473.5	meters
CENTROIDY	Basin centroid vertical (y) location in state plane units	170984.8	meters
CONIF	Percentage of land surface covered by coniferous forest	18.3701	percent
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	8.34	feet per mi
DRNAREA	Area that drains to a point on a stream	55.95	square miles
ELEVMAX	Maximum basin elevation	652.131	feet
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	10.7	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	2.73	percent
MINTEMP_W	Mean winter minimum air temperature over basin surface area	16.743	degrees F
MIXFOR	Percentage of land area covered by mixed deciduous and coniferous forest	23.0218	percent
OUTLETX	Basin outlet horizontal (x) location in state plane coordinates	1130835	feet
OUTLETY	Basin outlet vertical (y) location in state plane coordinates	170505	feet
PREBC0103	Mean annual precipitation of basin centroid for January 1 to March 15 winter period	8.35	inches
PREBC_1112	Mean annual precipitation of basin centroid for November 1 to December 31 period	8.94	inches
PRECIPCENT	Mean Annual Precip at Basin Centroid	44.6	inches
PRECIPOUT	Mean annual precip at the stream outlet (based on annual PRISM precip data in inches from 1971-2000)	44.3	inches

Parameter Code	Parameter Description	Value	Unit
PREG_03_05	Mean precipitation at gaging station location for March 16 to May 31 spring period	9.4	inches
PREG_06_10	Mean precipitation at gaging station location for June to October summer period	17.6	inches
SNOFALL	Mean Annual Snowfall	63.301	inches
TEMP	Mean Annual Temperature	46.945	degrees F
TEMP_06_10	Basinwide average temperature for June to October summer period	62.813	degrees F
WETLAND	Percentage of Wetlands	12.6851	percent

➤ Peak-Flow Statistics

Peak-Flow Statistics Parameters [Peak Flow Statewide SIR2008 5206]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	55.95	square miles	0.7	1290
APRAVPRE	Mean April Precipitation	4.038	inches	2.79	6.23
WETLAND	Percent Wetlands	12.6851	percent	0	21.8
CSL10_85	Stream Slope 10 and 85 Method	8.34	feet per mi	5.43	543

Peak-Flow Statistics Flow Report [Peak Flow Statewide SIR2008 5206]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	Plu	ASEp	Equiv. Yrs.
50-percent AEP flood	753	ft ³ /s	463	1230	30.1	3.2
20-percent AEP flood	1160	ft ³ /s	704	1910	31.1	4.7
10-percent AEP flood	1490	ft ³ /s	887	2500	32.3	6.2
4-percent AEP flood	1920	ft ³ /s	1110	3330	34.3	8
2-percent AEP flood	2260	ft ³ /s	1260	4040	36.4	9
1-percent AEP flood	2680	ft ³ /s	1450	4960	38.6	9.8
0.2-percent AEP flood	3680	ft ³ /s	1840	7370	44.1	11

Peak-Flow Statistics Citations

Olson, S.A., 2009, Estimation of flood discharges at selected recurrence intervals for streams in New Hampshire: U.S. Geological Survey Scientific Investigations Report 2008-5206, 57 p. (<http://pubs.usgs.gov/sir/2008/5206/>)

➤ Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	55.95	square miles	3.26	689
TEMP	Mean Annual Temperature	46.945	degrees F	36	48.7
PREG_06_10	Jun to Oct Gage Precipitation	17.6	inches	16.5	23.1

Low-Flow Statistics Flow Report [Low Flow Statewide]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	Plu	SE	ASEp
7 Day 2 Year Low Flow	3.88	ft ³ /s	1.41	8.15	55.7	55.7
7 Day 10 Year Low Flow	1.75	ft ³ /s	0.415	4.53	79.4	79.4

Low-Flow Statistics Citations

Flynn, R.H. and Tasker, G.D.,2002, Development of Regression Equations to Estimate Flow Durations and Low-Flow-Frequency Statistics in New Hampshire Streams: U.S.Geological Survey Scientific Investigations Report 02-4298, 66 p.
(<http://pubs.water.usgs.gov/wrir02-4298>)

➤ Flow-Duration Statistics

Flow-Duration Statistics Parameters [Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	55.95	square miles	3.26	689
PREG_06_10	Jun to Oct Gage Precipitation	17.6	inches	16.5	23.1
TEMP	Mean Annual Temperature	46.945	degrees F	36	48.7

Flow-Duration Statistics Flow Report [Low Flow Statewide]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	Plu	SE	ASEp
60 Percent Duration	34.6	ft ³ /s	25.4	45.8	18	18
70 Percent Duration	21.9	ft ³ /s	15.2	30.4	20.6	20.6
80 Percent Duration	12.8	ft ³ /s	7.79	19.7	28	28
90 Percent Duration	6.4	ft ³ /s	3.27	11.2	37.5	37.5
95 Percent Duration	3.92	ft ³ /s	1.78	7.43	44.1	44.1
98 Percent Duration	2.54	ft ³ /s	0.961	5.39	54.3	54.3

Flow-Duration Statistics Citations

Flynn, R.H. and Tasker, G.D.,2002, Development of Regression Equations to Estimate Flow Durations and Low-Flow-Frequency Statistics in New Hampshire Streams: U.S.Geological Survey Scientific Investigations Report 02-4298, 66 p.
(<http://pubs.water.usgs.gov/wrir02-4298>)

➤ Seasonal Flow Statistics

Seasonal Flow Statistics Parameters [Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	55.95	square miles	3.26	689
CONIF	Percent Coniferous Forest	18.3701	percent	3.07	56.2
PREBC0103	Jan to Mar Basin Centroid Precip	8.35	inches	5.79	15.1
BSLDEM30M	Mean Basin Slope from 30m DEM	5.696	percent	3.19	38.1
MIXFOR	Percent Mixed Forest	23.0218	percent	6.21	46.1
PREG_03_05	Mar to May Gage Precipitation	9.4	inches	6.83	11.5
TEMP	Mean Annual Temperature	46.945	degrees F	36	48.7
TEMP_06_10	Jun to Oct Mean Basinwide Temp	62.813	degrees F	52.9	64.4
PREG_06_10	Jun to Oct Gage Precipitation	17.6	inches	16.5	23.1
ELEVMAX	Maximum Basin Elevation	652.131	feet	260	6290

Seasonal Flow Statistics Flow Report [Low Flow Statewide]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SE	ASEp
Jan to Mar15 60 Percent Flow	46.7	ft ³ /s	32.5	64.6	21.2	21.2
Jan to Mar15 70 Percent Flow	40.3	ft ³ /s	28.3	55.3	20.7	20.7
Jan to Mar15 80 Percent Flow	33.3	ft ³ /s	24.4	44.2	18.2	18.2
Jan to Mar15 90 Percent Flow	25.8	ft ³ /s	18.5	34.8	19.3	19.3
Jan to Mar15 95 Percent Flow	20.5	ft ³ /s	14.4	28.1	20.7	20.7
Jan to Mar15 98 Percent Flow	16	ft ³ /s	10	24	27.1	27.1
Jan to Mar15 7 Day 2 Year Low Flow	33	ft ³ /s	24.7	42.9	17.2	17.2
Jan to Mar15 7 Day 10 Year Low Flow	19.8	ft ³ /s	13.7	27.3	21.5	21.5
Mar16 to May 60 Percent Flow	102	ft ³ /s	82.1	125	12.2	12.2
Mar16 to May 70 Percent Flow	82.6	ft ³ /s	67.6	99.7	11.4	11.4
Mar16 to May 80 Percent Flow	66.1	ft ³ /s	53.2	81.1	12.4	12.4
Mar16 to May 90 Percent Flow	49.4	ft ³ /s	38.8	61.9	13.7	13.7
Mar16 to May 95 Percent Flow	38.1	ft ³ /s	29.4	48.5	14.8	14.8
Mar16 to May 98 Percent Flow	27.7	ft ³ /s	20.1	37.1	18.1	18.1
Mar16 to May 7 Day 2 Year Low Flow	43.8	ft ³ /s	34.3	54.8	14.5	14.5
Mar16 to May 7 Day 10 Year Low Flow	25.2	ft ³ /s	19.1	32.3	16.2	16.2
Jun to Oct 60 Percent Flow	9.02	ft ³ /s	4.69	15.7	36.7	36.7
Jun to Oct 70 Percent Flow	6.5	ft ³ /s	3.19	11.8	39.9	39.9
Jun to Oct 80 Percent Flow	4.92	ft ³ /s	2.22	9.43	44.5	44.5
Jun to Oct 90 Percent Flow	3.05	ft ³ /s	1.23	6.27	50.7	50.7
Jun to Oct 95 Percent Flow	2.2	ft ³ /s	0.793	4.83	57	57
Jun to Oct 98 Percent Flow	1.56	ft ³ /s	0.524	3.58	61.1	61.1
Jun to Oct 7 Day 2 Year Low Flow	3.57	ft ³ /s	1.28	7.6	55.6	55.6
Jun to Oct 7 Day 10 Year Low Flow	1.57	ft ³ /s	0.378	4.03	78.5	78.5
Nov to Dec 60 Percent Flow	36.8	ft ³ /s	24.2	53.5	23.3	23.3
Nov to Dec 70 Percent Flow	26.5	ft ³ /s	16.6	40	25.9	25.9
Nov to Dec 80 Percent Flow	18	ft ³ /s	10.9	27.9	27.8	27.8
Nov to Dec 90 Percent Flow	11	ft ³ /s	6.2	17.9	31.6	31.6
Nov to Dec 95 Percent Flow	7.29	ft ³ /s	3.62	13	38.3	38.3
Nov to Dec 98 Percent Flow	4.57	ft ³ /s	1.81	9.39	50.6	50.6
Oct to Nov 7 Day 2 Year Low Flow	19	ft ³ /s	12.3	27.9	23.3	23.3
Oct to Nov 7 Day 10 Year Low Flow	6.44	ft ³ /s	3.22	11.4	36.6	36.6

Seasonal Flow Statistics Citations

Flynn, R.H. and Tasker, G.D.,2002, Development of Regression Equations to Estimate Flow Durations and Low-Flow-Frequency Statistics in New Hampshire Streams: U.S.Geological Survey Scientific Investigations Report 02-4298, 66 p. (<http://pubs.water.usgs.gov/wrir02-4298>)

➤ Bankfull Statistics

Bankfull Statistics Parameters [Appalachian Highlands D Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	55.95	square miles	0.07722	940.1535

Bankfull Statistics Parameters [New England P Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	55.95	square miles	3.799224	138.999861

Bankfull Statistics Parameters [USA Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	55.95	square miles	0.07722	59927.7393

Bankfull Statistics Flow Report [Appalachian Highlands D Bieger 2015]

Statistic	Value	Unit
Bieger_D_channel_width	80.7	ft
Bieger_D_channel_depth	3.56	ft
Bieger_D_channel_cross_sectional_area	293	ft ²

Bankfull Statistics Flow Report [New England P Bieger 2015]

Statistic	Value	Unit
Bieger_P_channel_width	78	ft
Bieger_P_channel_depth	3.33	ft
Bieger_P_channel_cross_sectional_area	270	ft ²

Bankfull Statistics Flow Report [USA Bieger 2015]

Statistic	Value	Unit
Bieger_USA_channel_width	51.1	ft
Bieger_USA_channel_depth	2.84	ft
Bieger_USA_channel_cross_sectional_area	150	ft ²

Bankfull Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
Bieger_D_channel_width	80.7	ft
Bieger_D_channel_depth	3.56	ft
Bieger_D_channel_cross_sectional_area	293	ft ²
Bieger_P_channel_width	78	ft
Bieger_P_channel_depth	3.33	ft
Bieger_P_channel_cross_sectional_area	270	ft ²
Bieger_USA_channel_width	51.1	ft
Bieger_USA_channel_depth	2.84	ft
Bieger_USA_channel_cross_sectional_area	150	ft ²

Bankfull Statistics Citations

Bieger, Katrin; Rathjens, Hendrik; Allen, Peter M.; and Arnold, Jeffrey G., 2015, Development and Evaluation of Bankfull Hydraulic Geometry Relationships for the Physiographic Regions of the United States, Publications from USDA-ARS / UNL Faculty, 17p. (https://digitalcommons.unl.edu/usdaarsfacpub/1515?utm_source=digitalcommons.unl.edu%2Fusdaarsfacpub%2F1515&utm_medium=PDF&utm_campaign=PDFCoverPages)

➤ Recharge Statistics

Recharge Statistics Parameters [Groundwater Recharge Statewide 2004 5019]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
PRECIPOUT	Mean Annual Precip at Gage	44.3	inches	35.83	53.11
TEMP	Mean Annual Temperature	46.945	degrees F	36.05	48.69
MINTEMP_W	Mean Winter Min Temperature	16.743	degrees F	0.8	19.88
CONIF	Percent Coniferous Forest	18.3701	percent	3.07	56.18
PREG_03_05	Mar to May Gage Precipitation	9.4	inches	6.83	11.54
SNOFALL	Mean Annual Snowfall	63.301	inches	54.46	219.07
PREG_06_10	Jun to Oct Gage Precipitation	17.6	inches	16.46	23.11
MIXFOR	Percent Mixed Forest	23.0218	percent	6.21	46.13
PREBC_1112	Nov to Dec Basin Centroid Precip	8.94	inches	6.57	15.2
PRECIPCENT	Mean Annual Precip at Basin Centroid	44.6	inches	37.44	75.91

Recharge Statistics Flow Report [Groundwater Recharge Statewide 2004 5019]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
GW_Recharge_Jan_to_Mar15	5.66	in	15.5
GW_Recharge_Mar16_to_May	7.49	in	12.4
GW_Recharge_Jun_to_Oct	2.44	in	26.5
GW_Recharge_Nov_to_Dec	3.95	in	15.8
GW_Recharge_Ann	21.1	in	12.4

Recharge Statistics Citations

Flynn, R.H. and Tasker, G.D., 2004, Generalized Estimates from Streamflow Data of Annual and Seasonal Ground-Water-Recharge Rates for Drainage Basins in New Hampshire, U.S. Geological Survey Scientific Investigations Report 2004-5019, 67 p.
(<http://pubs.usgs.gov/sir/2004/5019/>)

➤ Maximum Probable Flood Statistics

Maximum Probable Flood Statistics Parameters [56.0 Percent (31.3 square miles) Crippen Bue Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	55.95	square miles	0.1	10000

Maximum Probable Flood Statistics Parameters [44.0 Percent (24.6 square miles) Crippen Bue Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	55.95	square miles	0.1	3000

Maximum Probable Flood Statistics Flow Report [56.0 Percent (31.3 square miles) Crippen Bue Region 1]

Statistic	Value	Unit
Maximum Flood Crippen Bue Regional	55400	ft ³ /s

Maximum Probable Flood Statistics Flow Report [44.0 Percent (24.6 square miles) Crippen Bue Region 2]

Statistic	Value	Unit
Maximum Flood Crippen Bue Regional	64500	ft ³ /s

Maximum Probable Flood Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
Maximum Flood Crippen Bue Regional	59400	ft ³ /s

Maximum Probable Flood Statistics Citations

Crippen, J.R. and Bue, Conrad D.1977, Maximum Floodflows in the Conterminous United States, Geological Survey Water-Supply Paper 1887, 52p. (<https://pubs.usgs.gov/wsp/1887/report.pdf>)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS). Although the software has been subjected to rigorous review, the USGS reserves the right to update the software as needed pursuant to further analysis and review. No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the functionality of the software and related material nor shall the fact of release constitute any such warranty. Furthermore, the software is released on condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its authorized or unauthorized use.

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.14.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

7.7 Appendix G. 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		
Eversource RASH Structure Replacement Project – Fremont, Brentwood, and Exeter Project Name		
Existing R193, A126, and H141 Transmission Lines Right-of-Way Street Address		
Fremont, Brentwood, and Exeter City/Town	Multiple Zip Code	
Multiple – see attached Tax Map/Lot Number		
B. APPLICANT/OWNER INFORMATION		
Jeremy First Name	Fennell Last Name	
Public Service Company of New Hampshire d/b/a 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		
William First Name	McCloy Last Name	
Normandeau Associates, Inc. Organization		
25 Nashua Road Street Address		
Bedford City/Town	New Hampshire State	03110 Zip Code
wmccloy@normandeau.com Email	802-861-7038 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 R193, A126, and H141 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

5/5/23

Date



Applicant/Owner Agent, **William McCloy**,
Normandeau Associates, Inc.

5/5/23

Date

A. PROJECT INFORMATION	
Eversource RASH Structure Replacement Project – Fremont, Brentwood, and Exeter Project Name	
Existing R193, A126, and H141 Transmission Lines Right-of-Way Street Address	
Fremont, Brentwood, and Exeter City/Town	Multiple Zip Code
Multiple – see attached Tax Map/Lot Number	

B. APPLICANT/OWNER INFORMATION		
Jeremy First Name	Fennell Last Name	
Public Service Company of New Hampshire d/b/a 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		
William First Name	McCloy Last Name	
Normandeau Associates, Inc. Organization		
25 Nashua Road Street Address		
Bedford City/Town	New Hampshire State	Bedford City/Town
wmccloy@normandeau.com Email		802-861-7038 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 RASH Structure Replacement Project AOT application. Future disturbance, beyond the scope of the 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 R193, A126, and H141 ROWs. Eversource, through consultation with NHDES, will evaluate whether future terrain disturbances within these ROW 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 2023 and 2024 within the R193, A126, and H141 ROW are included in this application and shown on Figures 3 and 4. Project disturbances included in this application and subsequent permit approvals will be considered if future structure maintenance is proposed within the R193, A126, and H141 ROW. Eversource respectfully requests a waiver from including past disturbance in this application. Future disturbances within the R193, A126, and H141 ROW 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

5/5/23

Date



Applicant/Owner Agent, **William McCloy**,
Normandeau Associates, Inc.

5/5/23

Date

A. PROJECT INFORMATION	
Eversource RASH Structure Replacement Project – Fremont, Brentwood, and Exeter Project Name	
Existing R193, A126, and H141 Transmission Lines Right-of-Way Street Address	
Fremont, Brentwood, and Exeter City/Town	Multiple Zip Code
Multiple – see attached Tax Map/Lot Number	

B. APPLICANT/OWNER INFORMATION		
Jeremy First Name	Fennell Last Name	
Public Service Company of New Hampshire d/b/a Eversource Energy Organization		
13 Legends Drive Street Address		
Hooksett City/Town	New Hampshire State	03106 Zip Code
Ashley.friend@eversource.com Email		603-634-3396 Telephone Number

C. APPLICANT/OWNER AGENT INFORMATION		
William First Name	McCloy Last Name	
Normandeau Associates, Inc. Organization		
25 Nashua Road Street Address		
Bedford City/Town	New Hampshire State	Bedford City/Town
wmccloy@normandeau.com Email		802-861-7038 Telephone Number

D. WAIVER REQUESTS	
Env-Wq 1503.21 (d)(6&7) Rule Section Waiver Request	Notification; Certification Name of Rule
Reason for Waiver Request Eversource is requesting a waiver for deviations from the approved plans without applying for an amended permit or a new permit if shifts in the proposed project layout occur. Changes in project layout are frequently identified during construction by Eversource and their contractors and may be necessary to safely perform the work. Access shifts would be limited to the extent necessary for safety, would not impact new resources, and access would remain within the existing and maintained ROW. The need for additional permit applications can impact construction schedules and incur costly delays.	
Waiver Timeline Permanent	
Proposed Alternative Allow for the access road centerlines to be relocated during construction, if necessary, up to a distance equal to the approximate width of the ROW (approximately 200 feet on the R193, A126, and/or H141 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. 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 200 feet on the R193, A126, or H141 Line). Shifts would not create greater than 5% increase in disturbed area at each work pad. This would allow contractors to avoid steep terrain or other hazardous areas, or areas that may require significant grading or earthwork that may not have been identified during initial constructability reviews. Landowners may also request layout changes be made after project permitting is complete. In most cases this shift is done to reduce the amount of disturbed area.	
Compliance with Env-Wq 1503.21 (d)(6&7) The project proposes to improve access routes and work pads around utility structures for the purpose of maintaining existing utility infrastructure. This project is necessary to maintain the safety and reliability of the electrical infrastructure. Proposed disturbances shown on Figures 3 and 4 are the result of avoidance and minimization measures and constructability reviews. Layout changes and shifts will be limited to the proposed alternative above. A reduction in disturbed area is often the result. As previously mentioned, access shifts would be limited to the extent necessary to safely perform work. Access routes will remain within the existing and maintained ROW and would not disturb new resources. Best Management Practices will be utilized to protect wetlands from erosion, sedimentation, or other environmental degradation as originally proposed. Eversource respectfully requests a waiver from limiting shifts of the project road centerlines and parking areas to 20 feet.	

E. SIGNATURES



Applicant/Owner, **Jeremy Fennell**,
Eversource Energy

5/5/23

Date



Applicant/Owner Agent, **William McCloy**,
Normandeau Associates, Inc.

5/5/23

Date

7.8 Appendix H. Mail Receipts

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:
 Exeter, NH 03833
 Town of Brentwood

Postage	\$4.15	\$3.35
Certified Fee	\$0.00	\$0.00
Return Receipt Fee (Endorsement Required)	\$0.00	\$0.00
Restricted Delivery Fee (Endorsement Required)	\$0.00	\$0.00
Total Postage & Fees	\$10.45	\$17.95



Name (Please Print Clearly) (to be completed by mailer)
 Town of Brentwood
 Street, Apt. No.; or PO Box No.
 1 Dalton Road
 City, State, ZIP+4
 Brentwood, NH 03833
 PS Form 3800, July 1999 See Reverse for Instructions

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:
 Fremont, NH 03044
 Town of Fremont

Postage	\$4.15	\$3.35
Certified Fee	\$0.00	\$0.00
Return Receipt Fee (Endorsement Required)	\$0.00	\$0.00
Restricted Delivery Fee (Endorsement Required)	\$0.00	\$0.00
Total Postage & Fees	\$10.45	\$17.95



Name (Please Print Clearly) (to be completed by mailer)
 Town of Fremont
 Street, Apt. No.; or PO Box No.
 PO Box 120
 City, State, ZIP+4
 Fremont, NH 03044-0120
 PS Form 3800, July 1999 See Reverse for Instructions

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:
 Exeter, NH 03833
 Town of Exeter

Postage	\$4.15	\$3.35
Certified Fee	\$0.00	\$0.00
Return Receipt Fee (Endorsement Required)	\$0.00	\$0.00
Restricted Delivery Fee (Endorsement Required)	\$0.00	\$0.00
Total Postage & Fees	\$10.45	\$17.95



Name (Please Print Clearly) (to be completed by mailer)
 Town of Exeter
 Street, Apt. No.; or PO Box No.
 10 Front Street
 City, State, ZIP+4
 Exeter, NH 03833
 PS Form 3800, July 1999 See Reverse for Instructions

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:
 Exeter, NH 03833
 Exeter - Squamscott River LAC

Postage	\$4.15	\$3.35
Certified Fee	\$0.00	\$0.00
Return Receipt Fee (Endorsement Required)	\$0.00	\$0.00
Restricted Delivery Fee (Endorsement Required)	\$0.00	\$0.00
Total Postage & Fees	\$10.45	\$17.95



Name (Please Print Clearly) (to be completed by mailer)
 William Meserve
 Theresa Walker, RPC
 Street, Apt. No.; or PO Box No.
 156 Water St.
 City, State, ZIP+4
 Exeter, NH 03833
 PS Form 3800, July 1999 See Reverse for Instructions

7099 3400 0004 2146 1077
 7099 3400 0004 2146 1060
 7099 3400 0000 2146 1091
 7099 3400 0000 2146 6602

Redaction Log

Total Number of Redactions in Document: 59

Redaction Reasons by Page

Page	Reason	Description	Occurrences
118	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
122	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
123	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
124	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
125	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
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
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
129	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
130	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
131	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
134	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
135	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
136	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
137	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
138	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
139	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
140	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
141	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
142	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
143	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
144	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
145	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
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Redaction Reasons by Exemption

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