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January 3, 2017

Mr. Robert Stein, Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Docket No. 466: Frost Bridge to Campville 115-kV Project
Submission of *Invasive Species Control Plan* Pursuant to Decision and Order Condition 2(k)

Dear Chairman Stein:

In the *Development and Management (D&M) Plan for the Frost Bridge to Campville 115-kV Project (Project): D&M Plan for New 115-kV Transmission Line and Related Transmission Line Modifications (July 2016),* The Connecticut Light and Power Company doing business as Eversource Energy (Eversource) indicated that a Project-specific *Invasive Species Control Plan*, as required pursuant to Condition 2(k) of the Connecticut Siting Council's (Council's) Decision and Order in Docket 466, would be provided to the Council at a later date. Thus, the D&M Plan (as approved by the Council on September 15, 2016) included wetland invasive species control best management practices for use during construction (refer to D&M Plan Volume 3, Detail Sheet 2), but did not contain the *Invasive Species Control Plan*.

At the time of the submittal of the D&M Plan to the Council, the *Invasive Species Control Plan* was under review by both the Connecticut Department of Energy and Environmental Protection (CT DEEP) and the U.S. Army Corps of Engineers (USACE) as part of Eversource's Project applications to those agencies pursuant to the federal Clean Water Act. As a result, Eversource elected to exclude the *Invasive Species Control Plan* as part of the July 2016 D&M Plan and instead provide it to the Council after incorporating any updates required as a result of the CT DEEP and USACE review processes.

Both the CT DEEP and USACE have now issued Project-specific approvals in accordance with Clean Water Act Sections 401 and 404, respectively. Accordingly, pursuant to Condition 2(k), Eversource submits the enclosed *Invasive Species Control Plan* and 15 copies for the Council's review and approval. This plan constitutes Appendix A of the above-referenced D&M Plan.

Should you or other Council members have any questions regarding this submission, please do not hesitate to contact me via e-mail at kathleen.shanley@eversource.com or telephone at (860) 728-4527.

Sincerely,

Kathleen M. Shanley
Manager, Transmission Siting

Enclosure

THE FROST BRIDGE TO CAMPVILLE 115-kV PROJECT

BY

THE CONNECTICUT LIGHT AND POWER COMPANY

DOING BUSINESS AS EVERSOURCE ENERGY

INVASIVE SPECIES CONTROL PLAN

JANUARY 2016

Section 1
Introduction

The Connecticut Light and Power Company doing business as Eversource Energy (Eversource) proposes to construct a new 10.4-mile 115-kilovolt (kV) overhead electric transmission line between its Frost Bridge Substation in the Town of Watertown and its Campville Substation in the Town of Harwinton (Proposed Route) and to make related improvements to both substations (Project). This Wetland Invasive Species Control Plan (Plan) is developed to address communities of invasive plant species that occur along the Proposed Route, and describes the procedures that Eversource will apply to avoid or minimize the potential for the spread of invasive plant species during construction. The procedures described in this Plan will be implemented in wetlands that are affected by Project construction activities.

The overall goal of the Plan is to protect the ecological conditions of wetlands along the Proposed Route, specifically focusing on minimizing the spread of invasive species within affected wetlands and avoiding the introduction of invasive species to those wetlands in which invasive species are not currently present.

Field surveys conducted by Tighe & Bond in the spring of 2015 identified occurrences of invasive species within wetlands along the Proposed Route. The target species of greatest concern is common reed *(Phragmites australis)*, since it is the most abundant invasive species observed along the Proposed Route and the spread of this species in wetlands may adversely impact the ecologic integrity of the affected wetland habitats. Based on the results of additional surveys which will be conducted prior to construction (as described in Section 4.1) additional target species may be added.

Eversource contractors will utilize established construction best management practices (BMPs) and measures that (1) do not contribute to the spread of, or (2) reduce the spread of target invasive plant species are the objectives of this Plan. These measures will be incorporated into the construction plans for the Project.

Note: Certain wetlands containing invasive plants extend well beyond the Project area and outside of areas in which any Project activities will be performed. Therefore, attempting to eradicate invasive species from portions of such wetlands within the proposed work areas within the ROW is unlikely to be successful and is not considered a practical goal of this Plan.

1.1 Existing ROW Vegetation Management Program

The Project is along an existing ROW. Accordingly, the land found within existing ROW corridors is presently maintained according to federal and regional standards for electric transmission line operation. These standards have been incorporated by Eversource in its Specifications for Rights-of-Way Vegetation Management, Section III, Technical Requirements, 2016, which is included in Appendix A.

This well-established ROW maintenance program involves selective control of targeted plant species in upland and wetland areas using integrated vegetation management techniques. The program's primary function, which is performed on a four-year rotation, is to control the heights and densities of existing vegetation and to limit a selective list of

certain invasive species within the transmission line ROW to allow the safe operation and maintenance of the transmission lines, while also improving species diversity and wildlife habitat. Specifically, the program is designed to eliminate target tree species and a limited number of invasive shrubs, while encouraging the augmentation of low-growth native plant communities.

Section 2
Invasive Species of Concern in Wetlands

The CT DEEP, under PA 03-136 and in cooperation with the Connecticut Invasive Plants Council (through the Invasive Plant Atlas of New England [IPANE]), has compiled a State list of invasive plants. The species listed in the following table were found in wetlands along the Project ROW, based on field investigations.

Table 2-1 Invasive Species Found in Project Wetlands

Common Name	*Latin Name*
Purple loosestrife	*Lythrum salicaria L.*
Common reed*	*Phragmites australis*
Multiflora rose	*Rosa multiflora*
Asiatic bittersweet	*Celastrus orbiculatus*
Japanese barberry	*Berberis thunbergii*
Glossy Buckthorn	*Frangula alnus*
Morrow's honeysuckle	*Lonicera morrowii*
Autumn olive	*Elaeagnus umbellata*
Reed canary grass	*Phalaris arundinacea L.*
Japanese knotweed	*Polygonum cuspidatum*
Privet	*Ligustrum vulgare*
Spurge (leafy)	*Euphorbia esula L.*

*Indicates invasive species found in most abundance.

Section 3
Baseline Locations of Invasive Species along the Project Row

During the Project wetland delineations, invasive species presence was documented for each wetland within the Proposed Route. Information compiled during the wetland delineations is summarized in Table 3-1, below. Table 3-1 identifies Permit Area wetlands along the ROW, by town and Project-specific wetland number (keyed to the 100 Scale Maps) and identifies the invasive plants (if any) present. The percent areal cover of invasive species is currently less than 75% in all wetlands. Invasive species abundance is generally correlated to the level of disturbance within the Project ROW. Invasive species were found to be virtually absent through Black Rock Park in Watertown (Permit Areas 5-9).

Table 3-1: Summary of Permit Area Invasive Species

Permit Area	Wetland No.	Dominant Wetland Class	Invasive Species Present*
Watertown			
1	W-A9	PSS	*Rosa multiflora, berberis thunbergii, Lonicera morrowii*
2	W-B2	PSS	*Rosa multiflora, Lonicera morrowii, Phragmites australis*
3	W-B6	PSS	*Phragmites australis*
4	W-B11	PEM/PSS	*Phragmites australis, Polygonum cuspidatum*
5	W-C1	PFO	None
6	W-C4	PFO	None
7	W-C12	PFO	None
8	W-C15	PFO	None
9	W-C20	PFO	None
Thomaston			
10	W-D3	PFO	None
11	W-D10 W-D11	PFO	*Rosa multiflora, Lonicera morrowii, Phragmites australis, Elaeagnus umbellata*
12	W-D12	PSS	*Rosa multiflora, Phragmites australis, Elaeagnus umbellata*
13	W-E2	PSS	*Rosa multiflora*
Litchfield			
13	W-E2	PSS	*Rosa multiflora*
14	W-E4	PFO	*Rosa multiflora*
15	W-E6	PFO	None
16	W-E8	PFO	None
17	W-E9	PFO	*Rosa multiflora, Lonicera morrowii*

Table 3-1: Summary of Permit Area Invasive Species

Permit Area	Wetland No.	Dominant Wetland Class	Invasive Species Present*
18	W-E10	PSS	None
19	W-E12	PEM	None
20	W-F4 W-F7	PFO PSS	*Rosa multiflora*, *Phragmites australis*
Harwinton			
21	W-F11	PFO	*Rosa multiflora, Lonicera morrowii*
22	W-F12	PSS	*Rosa multiflora, Lonicera morrowii*
23	W-F13	PEM	None
24	W-F14	PSS	None
25	W-F15	PFO	None
26	W-G1	PFO/PSS	*Polygonum cuspidatum, Lonicera morrowii, Rosa multiflora*

*During spring 2015 wetland delineation. Includes species observed in uplands in proximity to the wetland boundary.

Section 4
Invasive Species Management

For the construction of the Project, Eversource will implement both pre-construction and construction-phase measures in an effort to control the spread of invasive plant communities on the ROW. The objective of these measures will be to perform construction activities in a manner that minimizes the potential for spread of invasive plant species within wetlands or from wetland-to-wetland along the ROW, and to restore wetlands affected by the Project promptly to limit the potential for invasive species to colonize disturbed soils.

To achieve these goals, both pre-construction phase planning and construction-phase measures will be implemented, including construction BMPs for work in wetlands containing invasive plants. These measures are discussed in the following subsections.

4.1 Pre-Construction Measures

Eversource has initiated, or will initiate, some of the pre-construction measures, including completion of the following tasks:

1. Identification of target species of invasive plants. Based on the surveys conducted to date, common reed is the primary target species within the Project ROW;

2. Inventory of candidate wetland sites populated with invasive plant communities where construction BMPs should be employed; and,

3. Photo-documentation and mapping of representative candidate wetland sites dominated by invasive plant communities.

Eversource will retain the services of an Environmental Monitor (EM) throughout the pre-construction and construction phase of the Project. The purpose of the EM will be to perform site inspections, monitor compliance with all applicable federal, state, and local permit conditions, monitor the contractor(s) strict adherence to Eversource policies, and monitor effectiveness of and propose modifications to BMPs. Prior to construction, the EM will provide environmental training to the contractors, inspectors and work crews. This training would include an overview of the objectives of this Plan, a review of the ROW mapping, a discussion on the target species, ways to identify invasive plants in the field, and presentation of the BMPs to be implemented during construction in these areas.

Prior to construction, the EM will conduct a reconnaissance, confirmatory survey to locate the limits of any dense stands of dominant invasive plant species within a targeted wetland area. The EM will discuss the construction procedures in these specific wetland areas with the contractor prior to construction. The EM will also work with the contractor to determine the appropriate locations for cleaning construction mats (timber/swamp mats or equivalent).

Eversource has initiated a policy with its contractors/vendors that provide and install construction mats. Eversource expects the contractor/vendor to inspect and clean construction mats prior to delivery to an Eversource ROW or facility.

4.2 Construction-Phase Measures

Eversource proposes to implement a series of procedures within the limits of the ROW and substation sites during the construction phase of the Project to meet the intended goals of this Plan. Care and consideration would be taken during all phases of Project construction to prevent the spread of target invasive species to areas that are currently devoid of them, and to prevent the spread of target invasive plant communities that currently exist.

Eversource and its contractors will take precautionary measures to prevent and/or reduce the introduction or spreading of target invasive species when clearing, placing and removing swamp/timber mats and when moving equipment through areas containing said species. Equipment/mat decontamination will be conducted at appropriate locations to the extent feasible to prevent spreading target invasive species.

Vegetation removal and tree clearing along the ROW will be one of the first activities to occur, after the ROW is surveyed and staked. Vegetation clearing within the ROW is necessary to provide access along the ROW, access to structure locations, and to provide clearance for the proposed overhead transmission line. To control the spread of target invasive plant species duringconstruction, the following procedures will be implemented:

- All equipment, vehicles and materials (materials being defined as swamp mats, timber mats or equipment mats) are to be clean and free of excess soil, debris and vegetation prior to arrival at the Project site. Contractor certification that this has been completed will be required;

- Access plans given to construction crews will identify the location of dominant communities of target invasive plant species in wetlands;

- Vegetation management and tree clearing contractors will install temporary swamp mats to gain access to portions of the ROW requiring tree clearing and vegetation removal. These contractors may also use specialized equipment for accessing the terrain encountered along the ROW. Clearing equipment must arrive onto the Project site clean and free of excess soil, dirt, debris and vegetation;

- Prior to exiting a wetland dominated by target invasive plant species, clearing equipment, including heavy equipment and track vehicles, will be swept and any excess soil will be removed from the tracks and/or tires to minimize the potential of introducing invasive plant species to other portions of the ROW;

- Cleaning of matting will involve dropping mats one on top of another to shake loose any sediment and debris. The matting will then be swept to remove the loose material; and

- Clearing of vehicles and other equipment will involve removal of visible dirt, debris and vegetation through the use of brooms, shovels, and, if needed, compressed air.

- All swamp mats and equipment mats are to be cleaned prior to being moved from wetlands dominated by target invasive plant species;

- Prior to exiting a wetland dominated by target invasive plant species, equipment, including heavy equipment and track vehicles, will be swept and any excess soil will be removed from the tracks and/or tires to minimize the potential of introducing invasive plant species to other portions of the ROW;

- Final restoration of the ROW is to be carried out in accordance with the current version of the Eversource Best Management Practices Manual Construction and Maintenance Environmental Requirements. If "hay bale" erosion controls are required on site, the contractor will be required to use alternative measures, to the extent practicable and if local sources are available, utilize straw bales, coconut rolls, wood chip bags or silt fence in lieu of traditional hay bales which may contain noxious or invasive seed stock or plant matter. This is especially important when erosion controls are installed adjacent to wetlands. Efforts will be made during construction, to the extent practicable, to minimize equipment mobility in areas containing invasive species so as to avoid dragging invasive plant material back and forth from established stands into other wetlands.

Section 5
Invasive Species Monitoring

Invasive plant species control measures for this Project will identify and address target species for monitoring and control. Based on field surveys conducted to date, common reed, which has the greatest potential for proliferation within the Project ROW would be considered a target species. The objectives of the invasive plant species monitoring program will be to:

1. Update the status of invasive plant species in target wetlands along the ROW, and evaluate the efficacy of treatments;

2. Define the types of control measures that are most appropriate for each occurrence; and

3. Implement such control measures in selected wetland habitats.

5.1 Monitoring Program Implementation

In accordance with the Eversource's existing vegetation management programs, all contractors performing management activities must be trained in the identification of the invasive plant species of concern, or will retain a qualified independent researcher (e.g. consulting firm, local university). The monitoring program will consist of field investigations of the ROW to determine whether invasive species are present and if so, to provide recommendations concerning control options. For each of the target wetlands, invasive species monitoring forms will be completed, along with appropriate photo documentation. Any conditions in a particular wetland that would influence the use of a particular type of invasive plant species control method would be noted on these forms.

5.2 Monitoring Schedule

Initial invasive plant species monitoring along the ROW is proposed to occur during the first growing season following construction and each year for four years thereafter (total of five years of annual monitoring). The goal of this five year monitoring effort will be to observe target locations where invasive plant species are present so that control measures can be implemented as soon as practical, particularly in wetlands where invasive plant species are beginning to colonize as a result of construction disturbance.

Five years of annual monitoring will allow an evaluation of the effectiveness of both initial and follow-up invasive species control measures. In addition, it will provide a database concerning the characteristics of the wetlands along the ROW, post-construction.

In the initial year, and for all subsequent monitoring years, the field investigation program will be conducted during the growing season, when plant species are most easily identified. The monitoring effort will be scheduled so as to allow for treatment measures to be implemented in the same growing season. Monitoring and control implementation will be adjusted to site-specific conditions dependent mainly on the severity of the influx of invasive plant species and the value of the surrounding areas, if necessary.

5.3 Monitoring Reports

The results of each year's invasive plant species field monitoring will be compiled into a brief report, which will include a summary of the field results, a table that identifies the locations of invasive plant species along the ROW, and copies of the monitoring forms and wetland photographs. Comparisons will be made as to whether invasive plant species are becoming more or less prevalent, based on a review of the baseline (pre-construction) data and on trends over time as the monitoring program progresses. In addition, the monitoring report will include recommendations regarding where invasive plant species control measures are warranted and, if so, the anticipated type of controls and the schedule for the implementation of control measures.

The monitoring report will be provided for informational purposes to the USACOE, and CT DEEP by the end of the calendar year in which the monitoring was conducted. Thereafter, the schedule for the submission of a monitoring report, if required, will be determined based on the results of consultations with involved agencies.

However, implementation of invasive plant species control measures will be performed as recommended based on the results of the monitoring and will not require agency pre-approvals. The application of invasive plant species control measures will be performed pursuant to any standard permit and safety requirements governing such activities.

5.4 Schedule of Implementations of Wetland Invasive Species Controls

Eversource recognizes that early treatment measures can prevent the spread of invasive species. As a result, Eversource may initiate an invasive control approach prior to the start of construction, depending upon receipt of all necessary permits. Eversource will undertake invasive species control measures within the timeframe of the Section 404 USACOE permit and similar measures in Connecticut in accordance with anticipated permit conditions to be stipulated by the CT DEEP in their Section 401 Water Quality Certification. Particular treatment efforts will be focused on preserving and enhancing the quality of wetlands within the Project ROW.

The schedule for the treatment will depend on the types of controls recommended and the results of the yearly monitoring program. For example, mechanical removal of certain invasive plant species could be performed at any time of the year, whereas the use of biological controls or a cut/spray method may require work in the growing season. The final decision regarding chemical treatment regimens will be made by a Connecticut Licensed Pesticide Applicator holding a Supervisory Certification.

APPENDIX A:

EVERSOURCE SPECIFICATIONS FOR RIGHTS-OF-WAY VEGETATION MANAGEMENT, SECTION III, TECHNICAL REQUIREMENTS, 2016

EVERSOURCE ENERGY

EVERSOURCE ENERGY
SPECIFICATION FOR RIGHTS-OF-WAY VEGETATION MANAGEMENT

SECTION III
TECHNICAL REQUIREMENTS
2016

I. Scope

This specification covers the selective vegetation control of targeted undesirable tree, brush and vine species on Eversource Energy (EE) transmission and distribution rights-of-way. Management of undesirable vegetation will be performed through the integrated use of manual, mechanical, chemical or other means as may be available to eliminate identified target species and remove potentially conflicting trees or tree parts from contact with the overhead conductors and/or electric facilities.

II. Objective

The primary purpose of rights-of-way vegetation control is to provide a clear and accessible area for the safe operation, review and maintenance of electric facilities located on the right-of-way. Reliability will be preserved through the removal of all potentially interfering tree, shrub and vine species that may, through normal growth, encroach within the minimum vegetation clearance distances (MVCD) between the vegetation and the overhead electric conductors or impede physical or visual access along the right-of-way. Vegetation species such as native grasses, forbs, ferns and low growing shrubs are considered desirable and shall be preserved and encouraged to grow.

III. General Requirements

A. Maintenance Zones

The type of maintenance will be dictated by voltage of the conductors, the construction type and the average width of the right-of-way on each project. The management of vegetation within the established cleared limits of the rights-of-way may be performed in one of two ways, a two zone management approach for higher voltage classes and/or wider rights-of-way and a single or one-zone approach for lower voltages and/or narrow rights-of-way. The voltage class will be defaulted to the highest voltage on the right-of-way if the right-of-way is shared by more than one circuit or line.

The two maintenance systems are as follows:

Two Zone System: for rights-of-way widths greater than 100 feet.
One Zone System: for rights-of-way 100 feet or less in width

1. Two-Zone Maintenance

Management of vegetation within right-of-way clearing limits shall be performed in accordance with the two-zone maintenance concept for transmission voltage lines and rights-of-way in excess of 100 feet in width. A wire or conductor zone and a border or side zone shall be developed and maintained in accordance with these specifications.

Wire Zone: The wire zone shall include the area directly beneath the overhead conductors extending outward a distance of 15 feet from the outermost conductor(s).

Side Zone: The side zones shall include all areas from the 15-foot limit of the outermost conductor(s) to the edge of the maintained width of the right-of-way.

2. One-Zone Maintenance

Management of vegetation within right-of-way boundaries shall be performed for right-of-way widths of 100 feet and less. The entire maintained width of the right-of-way is managed as a wire zone in accordance with the management requirements listed under Section B.1..

Note: Distribution only rights-of-way will be maintained under the One Zone maintenance requirements.

B. General Areas

General areas will include all right-of-way sections where the company owns the land encompassed by the rights-of-way in fee, where easement rights or environmental concerns do not restrict or alter the preferred maintenance method(s), or where physical features do not require a maintenance practice different than the preferred method(s).

1. Wire Zones: Normally, all tree species and selected undesirable shrub species (state-listed invasive shrub species) regardless of height at the time of maintenance will be controlled. Also, desirable shrub species that are greater than 8 feet in height at the time of maintenance **(3 feet in height for eastern Massachusetts ROWs)** may be controlled depending on location and physical conditions within the right-of-way or position relative to facilities (ie. terrain or large clearances due to heights of the overhead conductors). Selected invasive species as listed below will be eliminated on all areas of the right-of-way regardless of height. All hardwood tree species will be controlled. Targeted species may be treated standing (basal or foliar applications) when stems are less than 12 feet in height at the time of treatment. Stems exceeding 12 feet in height at the time of maintenance shall be cut and subsequently treated with a cut surface herbicide. All cut surface applications shall be performed in the same day as the stems are initially cut.

All cedars species less than 8 feet in height at the time of maintenance shall be controlled. Conifers less than 4 feet in height may either be treated standing or cut, and all conifers taller than 4 feet in height shall be cut and diced. Cedar trees in excess of 8 feet generally will not be managed under this maintenance specification and the proper course of action for any cedar tree work will be noted in the Special Conditions (Section II).
(See Appendix 1 for a partial listing of desirable shrubs)

2. Side Zones: Normally all tree species (except cedar trees in limited areas) that obtain heights greater than 20 feet at maturity **(10 feet for eastern Massachusetts ROWs)** and all listed invasive shrub species will be controlled. All other shrub species regardless of height may remain where practical. (See Appendix 1 for a listing of the desirable species for side zones)

Requirements for control may be modified to take into consideration topographical features such as valleys, gorges and steep slopes that result in large clearances from the overhead conductors, or where certain target species may be retained to provide barriers to the right-of-way or where visual aspects may limit the use of herbicides. These locations and modifications will be listed in Section II.

3. Invasive Species Control: Invasive species to be controlled within the entire maintained areas include the following species:

Multiflora Rose	*Rosa multiflora*
Common Buckthorn	*Rhamnus cathartica*
Glossy Buckthorn	*Frangula alnus*
Autumn Olive	*Elaeagnus umbellata*
Russian Olive	*Elaeagnus augustifolia*
Japanese Barberry	*Berberis thunbergii*
Honeysuckle	***Lonicera spp*.**

Common Barberry *Berberis vulgaris*

Where state listed invasive shrubs provide a border or barrier between properties, sensitive areas or at road intersections, these species may be retained to allow for privacy and or prevent unauthorized access into and along the right-of-way. Locations where these species may be retained must be approved by the Eversource Energy representative and/or noted on the structure sheets.

For ROW projects in eastern Massachusetts, include all vine species and Japanese knotweed (*Polygonum cuspidatum*) as additional species to control.

C. Sensitive Areas

Sensitive areas are those areas where the preferred maintenance method used for general areas cannot be used and must be modified or altered to obtain the desired control. Sensitive areas shall include but are not limited to:

- Residential areas (yards)
- Public water supply watersheds
- Public or private well locations
- Stream or river crossings
- Wetlands (wet)
- No chemical areas

Additional information provided in the contracts for each listed project will contain information where environmentally sensitive areas or areas were maintenance requirements must be modified due to location or property owner concerns will be noted in Section II – Special Conditions or listed on the structure sheets. All Contractors are required to adhere to any restrictions or requirements that have been identified on the structure sheets for each project.

All target species identified in Section III. B. shall be controlled in these areas when possible. Herbicide applications may be performed unless the easement or structure sheets specifically restrict the use of chemicals. In areas where herbicide use is restricted or where herbicide use should be excluded, all target vegetation shall be cut and diced or chipped.

Within areas bordering stream and river channels, vegetation management should focus on the removal of tall growing tree species and attempt to preserve to the extent possible shrub and other compatible vegetation species that will provide screening and shade to the watercourse.

Target vegetation that is located within or adjacent to landscaped and/or lawn areas will be cut and stump treated where applicable. No foliar applications shall be made in any landscaped area that will result in potential damage to landscaping plants or grass areas.

Within the sensitive areas, herbicide applications shall be restricted from the following areas:

CONNECTICUT
- Within 100 feet of a public water supply well
- Within 50 feet of a private well
- Within wet wetland areas (10 feet from standing water)
- Within 10 feet of a river, stream or other body of water

MASSACHUSETTS
- Within any identified Zone I public water source
- Within 400 feet of a public water supply well
- Within 100 feet of a Class A public surface water supply
- Within 100 feet of a tributary within the Zone A of a Class A public surface water supply
- Within 10 feet of a tributary that exists beyond 400 feet of any Class A public surface water supply
- Within 100 feet for 400 hundred feet upstream of both sides of a river of a Class B public surface water supply intake
- Within 50 feet of a private well

- Within wet wetland areas (10 feet from standing water)
- Within 10 feet of a river, stream or other body of water
- Within 10 feet of any Certified Vernal Pool

NEW HAMPSHIRE
- Within public water supply watersheds without a state permit
- Within 50 feet of any public well
- Within 400 feet of a gravel packed well or 250 feet of a drilled well used for public water supply without a state permit
- Within 50 feet of a private well
- Within wet wetland areas (25 feet from standing water)
- Within 25 feet of a river, stream or other body of water

D. Access and Structures

Existing access roads within rights-of-way including existing access to structures shall be cleared of all woody vegetation and where applicable, herbicide treated to a minimum width of 14 feet.

Structures shall be cleared of all woody vegetation (including vines) and where applicable, herbicide treated to a radius of 15 feet around each structure.

Guys shall be cleared of all woody vegetation (including vines) and where applicable, herbicide treated to a radius of 5 feet at the anchor location. All vegetation in contact with the guy wire shall be herbicide treated or cut and removed. **Vines in contact with structures or guy wires shall be cleared manually if the vines have grown to at least 25% of the height of the structure or guy wire and all cut stumps of vines treated with an approved cut-surface herbicide mixture. Vines less than 25% may be controlled using foliar applications if herbicide use is not restricted.**

All stumps resulting from the cutting or mowing of standing vegetation shall be as low as practical around structures, guys and access areas and shall not exceed 3 inches in height.

E. Substations

Substation perimeter fence areas shall be cleared to a distance of 10 feet from the fence of any non-landscaped vegetation. All vegetation shall be cut and diced with the stumps treated with approved herbicides. The clearing shall provide an open access at least 5 feet in width around the entire perimeter of the station fence when the station is listed as a transmission maintenance facility. Substations that are not listed transmission facility stations shall only have the fence area cleared where the transmission right-of-way intersects the station fence for the width of the transmission right-of-way.

A listing of the stations that will be maintained under any brush control contract will be provided under the appendices in Section II – Special Conditions.

IV. Maintenance Methods

A. Herbicide Applications

All target vegetation may be chemically treated using one or more of the following methods:

- High Volume Foliar (Must be specifically listed in bid proposal and locations noted)
- Low Volume Foliar
- Ultra-low Volume Foliar
- Low Volume Basal
- Cut & Stump Treatments

Applications directly to soil or the ground as well as non-selective broadcast applications or high volume basal applications shall not be used on the Eversource Energy system.

The following herbicide materials are approved for use on the Eversource Energy system:

FOLIAR APPLICATIONS

- ESCORT* High and low volume
- ARSENAL* High and low volume
- POWERLINE High and low volume
- VANQUISH High and low volume
- ACCORD/RODEO High and low volume
- GARLON 4 ULTRA High and low volume
- KRENITE S* High and low volume
- MILESTONE VM High and low volume
- VIEWPOINT High and low volume (CT only)
- POLARIS* High and low volume

BASAL APPLICATIONS

- GARLON 4 Low volume basal
- GARLON 4 ULTRA Low volume basal
- STALKER Low volume basal

CUT SURFACE APPLICATIONS

- ACCORD/RODEO* (50/50 with water)
- STALKER (with water - use labeled rates)
- ARSENAL* (with water - use labeled rates)
- POWERLINE (with water - use labeled rates)
- KRENITE S* (50/50 with water)
- PATHWAY
- GARLON 4# (in basal oil - use labeled rates)
- GARLON 4 ULTRA (in basal oil - use labeled rates)
- PATHFINDER
- POLARIS* (in accordance with labeled rates)

* Sensitive area approved herbicide for Massachusetts
# Sensitive area approved herbicide for Massachusetts - application by sponge only

Foliar applications may employ a mixture containing two or more of the approved materials listed above. Basal applications shall employ a diluent labeled and approved for basal oil applications.

Note: Application mixtures will be specified within the contract requirements for eastern Massachusetts projects.

Applications shall cease in the event of precipitation and any work performed within two hours of significant rainfall shall be retreated. Efforts shall be made including the use of adjuvants to reduce or eliminate spray drift. Applications shall cease when wind speeds exceed 10 mph.

B. Manual Cutting

Manual cutting shall be employed when target stems exceed 12 feet in height, in sensitive areas where foliar or basal applications are not acceptable or may result in damage to landscaped areas and around any structure or guy areas. All stumps resulting from the cutting of hardwood trees and shrub species including pitch pine shall be treated with an approved cut-surface herbicide where these applications are not restricted. All stumps shall be cut as low as practical and not more than 3 inches in height. All slash shall be wind-rowed along the right-of-way edge or diced in general areas. In sensitive areas, slash shall be diced, chipped or removed from the right-of-way depending on the physical locations.

Cut cherry trees in active pasture areas will be removed from the pasture immediately after cutting during the growing season and diced in an appropriate area of the right-of-way outside of the active pastures. NOTE: wilted cherry leaves are highly toxic to most livestock.

Diced or piled slash shall not be left within access areas or within the cleared areas around structures and guys. Slash and debris shall also be kept out of water courses, stream and river banks and bodies of water including standing water in wetland areas. **In New Hampshire, slash shall not be piled within 50 feet of any road or within 25 feet of any right-of-way edge that also serves as a property boundary.**

Trees or tree branches that are in close proximity to the conductors or are visibly damaged, dead or diseased and pose a threat to the conductors will be identified as "hazard trees" and will be cut and/or removed when required by the Owner's Representative.

C. Mechanical Mowing

Mowing may be performed when necessary to reduce the heights of large dense stands of undesirable vegetation in preparation for an herbicide application or where herbicide applications are restricted. Mowing shall be selective in that large patches of low-growing desirable vegetation shall be retained where practical. Mowing shall be limited to wire zone areas, for access roads along the rights-of-way, or around structures and guys. However, limited mowing of side zones may be allowed to reduce dense stands of target vegetation. Mowing may only be performed after the review and approval of the Owner's Representative. Except in no-chemical areas, mowing shall be followed up with an herbicide application to the target stumps or resprouts.

The resulting stubble from mowing operations shall be as low as practical depending on the densities and terrain.

All areas scheduled for mowing shall be patrolled by foot in advance of all areas to be mowed and the following tasks performed in advance of mowing:

- Identification of all obstructions or fixtures that could impact the mowing equipment (fences, rocks, boulders, ledges, standing water, wetlands or unstable ground)
- Manual cutting and clearing around all guy wires, anchor points and structures (poles or towers) or other potential obstructions
- Clearly flag with brightly colored tape, all guy wires or other obstructions that could be damaged by the mowing equipment

The location and type of all potential obstructions or structures shall be communicated to the operator of the mowing equipment before any mechanical mowing is to be performed in any area.

The use of rear-mounted mowing units that require the operator to physically turn to observe and manipulate the mowing unit will not be allowed on the Eversource Energy system. All mowing units must be equipped with front mounted mowing heads or decks**.**

For Connecticut and Western Massachusetts projects, mowing shall be restricted to the dormant season only from September 30th to March 31st.

D. Tree Trimming

When required, trimming alongside the conductors shall be performed so that all branches to be removed are cut back to the edge of the right-of-way or main trunk depending on easement restrictions and property owner consent to trim beyond the right-of-way edge. All trimming shall be performed to provide the following clearances between vegetation and the conductors:

Voltage Class	Minimum Under Clearance	Minimum Side-Clearance	Minimum Side-Clearance (>750 foot spans)
<230kV	11 feet	20 feet	30 feet
230kV	15 feet	30 feet	36 feet
345kV	15 feet	30 feet	43 feet

All trimming shall be performed in accordance with proper arboricultural practices (i.e. ANSI A-300). If trimming alone cannot provide the minimum clearances listed – efforts shall be made to remove the offending trees or vegetation.

Clearance distances for Distribution projects will be listed in the Section II – Special Conditions by Operating Company

E. Tree Removal

Removal of trees within or along the right-of-way shall be performed in such a manner as to eliminate any potential for the felled tree to come within the minimum air-gap distances of the transmission lines. Minimum air gap distances (phase to ground) for the four transmission voltages on the Eversource Energy system are as follows:

Voltage	Minimum Vegetation Clearance Distance
69kV	**1.15 feet**
115kV	**1.99 feet**
230kV	**4.25 feet**
345kV	**4.48 feet**

All trees that if felled would come close enough to the conductors than the minimum air-gap distances listed above shall be topped to remove that portion of the tree that could come within the minimum air gap distances and secured by ropes to avoid coming closer than the minimum air gap distances in a safe manner.

In areas where there currently exists large numbers of incompatible tree species within the wire zones (i.e. cedars) removal will be performed on a staggered basis and the amount or number of trees to be removed will focus on those areas where there exists the greatest potential risk of contact with the overhead facilities. Where possible and where reliability will not be compromised, the objective is to remove no more than 50% of the population of trees in any given year. The amount of trees to be removed may be greater in those areas where there is a greater number of non-compliant vegetation that constitutes a risk of violating the minimum vegetation clearance distances (MVCD's) to the energized conductors.

V. Skilled Contractor Personnel

The Contractor shall employ supervisory and field personnel who are thoroughly trained in selective woody vegetation control techniques including all methods and materials to perform the work as specified. **The ability to recognize and identify desirable and undesirable species is mandatory for all vegetation control personnel**. All persons applying herbicides shall possess a valid applicator's license or supervisory certification for the state in which herbicides are being applied. All contract employees shall perform work in accordance with regulations listed under OSHA 29 CFR 1910.269. Trimming shall be performed by personnel certified by the Contractor to perform this work and in accordance with ANSI Z-133.1.1994. Trimming shall comply with standards listed under ANSI A-300.

Contractors are required to certify that all personnel performing work in close proximity to transmission facilities are qualified to perform this work and ensure that all employees are trained and competent in the safe work practices around energized facilities.

The Contractor is required to know and understand all laws and regulations pertaining to the control of vegetation on right-of-ways, the use of herbicides and any restrictions to herbicide use for each state in which they are performing right-of-way vegetation control.

VI. Property Owner Notification

The required notification process and procedures will be outlined in the Section II's for each area. In general, the contractor shall inform property owners and right-of-way abutters with homes or buildings located within 200 feet of the right-of-way or with maintained property to the edge of the right-of-way or within the right-of-way area, of the proposed work prior to the commencement of work. The amount of time required for this

notification prior to the start of work varies by state and is addressed in the Section II. First class mailings, personal contact or notification by a door hanger are generally required. In Massachusetts, the Contractor shall also solicit private well information in the event public water supply is not present in the area where work is proposed. The Contractor shall also keep a listing of the contacts made and provide this list to the Owner's Representative at the completion of the project, or upon request by the Owner's Representative during the course of the project.

At a minimum the notification reports shall include the following:

- **Project number or line number (trimming projects)**
- **Address (including house number, road and town)**
- **Relative pole numbers for the property notified**
- **Method of notification (in person, door hanger, phone contact)**
- **Name of person notified (for in person and phone contacts)**
- **Date notification was made**
-

*** See Appendix 6 for sample Notification Log**

The Notification person(s) shall be knowledgeable about all aspects of the work being performed including the timing of the work, the methods that will be employed and the materials that will be used on each particular property. Knowledge of the herbicides being used is required and the notification person(s) must be able to communicate the information specific to the materials to be used and to answer questions about environmental fate and toxicity of the products.

When using notification door hanger cards the Contractor shall only check off the work that is proposed to be done under the contract for that specific property and not check off all possible work requirements that would not be needed for this contract. Care should be taken to ensure that no-chemical properties are not provided a door hanger card with the use of herbicides box checked.

Notification may be made by personal visit, phone contact or use of a Company-approved door hanger. When door hangers are used, the Contractor will provide the contact name and a phone number for both the Contractor and the Owner's Representative handling the project.

The Owner's Representative shall serve as the primary contact for any property owner questions regarding the work to be performed or any issues regarding compatible and non-compatible vegetation within the right-of-way. All notification material and methods shall include the name of the Owner's Representative to all property owners notified of impending work.

The Contractor shall note the name of the person contacted when notification is made in-person or through a phone contact on the approved NU notification log. All notification logs must be presented to the Owner's Representative at the completion of the notification process on each project or upon request if the notifications are underway.

The Contractor shall use a toll-free number on all notification materials used for property-owner inquiries.

NOTE: For all touch-up applications, property owner notification must again be performed in the year the application is to be made in advance of the work.

Special Notification Requirements – Massachusetts

See Section II – Special Conditions for the information on mandatory pre-notification requirements for all work within transmission rights-of-way in Massachusetts.

VII. Environmental

All work performed under the rights-of-way brush control program will comply with all pertinent state statutes and federal regulations regarding herbicide use and applications. It is the Owner's position that strict compliance with the principles of selective vegetation control and the identification and preservation of listed desirable species will be required. To be environmentally compliant, all crews shall be trained in the proper

methods and use of herbicide application techniques that will be employed. Low-volume and low pressure application methods are preferred. Proposals to employ high-volume/high pressure applications must be made at the time the bid proposal is submitted and will only be allowed after review and approval of the Owner's Representative.

All crew personnel shall be trained and knowledgeable in the proper actions for oil and pesticide spill containment and cleanup. All vehicles shall possess containment and cleanup equipment and materials at all times while performing this contract. All spills will be reported to the Owner's Representative in accordance with the procedure listed under Section VIII, E. Problems and Complaints (below) and all state and federal agencies shall be notified if any spill meets the requirements for reporting for these agencies.

Contractor personnel must ensure that they follow all regulations as they relate to work within or travel through wetland areas. Adverse impacts to wetland areas shall be avoided at all times and crews shall only employ manual control methods within designated wetlands and wet areas. Mechanized vehicles shall not be used in wetland or wet areas and care shall be taken to avoid travel through wetlands if conditions at the time of maintenance result in rutting or soil damage in these areas. All damaged areas shall be repaired immediately and the Eversource Energy Representative shall be notified of any inadvertent entry and damage to wetlands.

Contractor personnel must also ensure that they follow all prescribed maintenance requirements in state-listed protected species habitats as provided by the Owner as part of the contract information.

Failure to adhere to the requirements of this section may result in contract suspension or cancellation.

VIII. Company Oversight

All projects will be managed by a Company employee or contracted Arborist (Owner's Representative) who will have the responsibility to oversee the daily work and conformance to the contract requirements and maintenance specifications.

The Owner's Representative shall perform routine inspections of all crews during the performance of the work. These inspections will include weekly crew evaluations and specifically review work for compliance with all contract requirements and specifications. Reviews will also focus on environmental issues and the performance of work in and around designated sensitive areas. Problems or deficiencies shall be addressed immediately with Contractor crews, Contractor supervision and Eversource Energy's Transmission Vegetation Management. All problems noted with the work being performed will be documented and provided to the Contractor for correction. The Contractor shall provide written documentation on the proposal for problem resolution and corrective actions.

IX. Miscellaneous

A. Changes to Contract Requirements

In the event changes are requested in any portion of the contract such as delaying cutting to a period outside of the normal prep-cutting period or to request mowing in place of manual prep-cutting, the Contractor must first request such modifications in writing to the Manager – Transmission Vegetation Management. All requests for modifications must be made well in advance of the need for the proposed modification. Any requested modifications must state a reason as to why the revision is necessary and is in the best interest of the Contractor's and company's needs. Modifications can only be implemented upon a written approval from the Manager – Transmission Vegetation Management.

B. Preparatory Cutting and Patrols

In order to ensure that there are no potential tree/conductor problems during the course of the maintenance period and prior to the completion of all work, it shall be necessary for the Contractor to perform a complete patrol of all areas to verify work needs and methods as well as review and identify any potential tree problems**. Contractors shall use the form provided by Eversource Energy for listing problem areas to be reviewed by the Owner's Representatives (Appendix 2).**

The patrol and danger tree identification shall be completed before April 1st of each year. Also, all cutting - selective cutting areas, structure and access clearing and the cutting of vegetation in excess of 12 feet in height shall be performed and completed before June 1st of each year.

All hazard tree reports shall be provided to the Eversource Energy TVM Representative on a weekly basis after patrols have been completed for that week.

C. Access for Rights-of-Ways

The Owner will provide information on the appropriate access points to rights-of-way where they exist. The Owner's Representative will supply keys and combination numbers for all Company locked gates that will be returned to the Owner's Representative upon completion of the contract. The Contractor shall be responsible for obtaining landowner permission to use any other access points not designated by the company. Access along rights-of-way shall not cause harm or damage to any private or property or fixtures.

The Contractor is liable for any damage or repairs required to off right-of-way access on private property that they may have secured from the property owner.

D. In-Lieu-Of Agreements

At easement locations where the property owner has refused the use of herbicides or the removal of potentially interfering target species, the Owner's Representative will obtain an in-lieu-of agreement for the property owner to maintain the right-of-way area in a manner that is approved and accepted by the Company. If a property owner refuses to allow the performance of the work as specified, the Contractor shall inform the Owner's Representative immediately for resolution.

D. Work Periods

Work shall normally be performed during the company's normal work period - weekdays 7:30 am to 4:30 pm unless prior approval has been obtained from the Owner's Representative. There will be no work performed on weekends or company observed holidays unless prior approval is obtained from the Owner's Representative in advance of the work.

E. Problems and Complaints

The Contractor shall immediately inform the Owner's Representative of any problems or complaints received from property owners, abutters or town or state officials that develop during the course of the work.

The Contractor shall also immediately notify the Owner's Representative of any incidents involving:

- Electric interruptions
- Electrical contacts by employees
- Employee accidents or injuries (non-electrical)
- Damage to company equipment or property
- Damage to private property
- Herbicide or oil spills

Completion of the Contractor Incident Report Form (Appendix 5) is required on all recordable incidents listed above.

The Contractor is responsible for any repairs to Company or private property damaged during the course of the work.

F. Weekly Reports

Eversource Energy Weekly Transmission Brush Control or Tree Work Report (form OP3368 - Appendix 3) shall be completed daily and submitted to the Owner's Representative weekly. The report shall be complete and provide all information relative to the project including the line or project numbers(s) all labor and equipment hours, amounts of herbicide mixtures and materials used, amount of area treated, location of areas treated (by structure number, road crossing or substation) and the number of trees removed or number of

trees trimmed within the right-of-way or along the right-of-way edge. NOTE: only one form required per week per right-of-way project.

Contractor Supervision shall sign and date all completed time sheets and submit to the Owner's Representative by Tuesday of the week following the ending date on the time sheet. The Owner's Representative shall review and approve time sheet information and sign and date the time sheet verifying work is completed as required and all time sheet information is accurate.

G. Pesticide Application Records

Contractors are required to adhere to all state pesticide laws regarding the completion and retention of daily Pesticide application records for all herbicide applications. These records may be requested by Eversource Energy if and when issues regarding applications are required.

H. Project Summary Reports

The Contractor shall submit summary information on the Eversource Energy System Rights-of-Way Herbicide Application Summary Report form (Appendix 4) for each project worked that year. This includes the general maintenance year as well as the touch-up performed in subsequent years.

Information required on this form includes the total acreage treated using the various application methods and materials as well as the total volumes of herbicide mixtures applied, the total amounts of each individual herbicide product applied (along with corresponding acreage) and the total amounts of basal oil diluents used. The summary report shall also list the total man hours, man-days and calendar days required to complete the project. A man-day is considered an 8-hour day.

All Project Summary Reports are due before December 31st of the year in which the project was performed.

APPENDIX 1
WOODY SPECIES ALLOWED TO REMAIN IN THE WIRE ZONE: (PARTIAL LIST)

COMMON NAME	GENUS/SPECIES
Arrowwood Viburnum	*Viburnum dentatum*
Bayberry	*Myrica pennsylvanica*
Blueberry - Highbush *****	*Vaccinium corymbosum*
Blueberry - Lowbush	*Vaccinium angustifolium & V. vacillans*
Brambles	*Rubus spp.*
Buttonbush	*Cephalanthus occidentalis*
Dogwood - Gray	*Cornus racemosa*
Dogwood - Redosier	*Cornus stolonifera*
Dogwood - Silky	*Cornus amomum*
Elderberry	*Sambucus spp.*
Hazelnut	*Corylus americana & C. cornuta*
Honeysuckle - Bush	*Diervilla lonicera*
Honeysuckle - Fly	*Lonicera canadensis*
Huckleberry	*Gaylussacia spp.*
Maple-leaf Viburnum	*Viburnum acerifolium*
Meadowsweet - Broad-leaved	*Spirea latifolia*
Meadowsweet - Narrow-leaved	*Spirea alba*
Mountain Laurel *****	*Kalmia spp.*
New Jersey Tea	*Ceanothus americanus*
Oblong Fruited Juneberry	*Amelanchier bartramiana*
Oldfield Common Juniper	*Juniperus depressa*
Pasture Juniper	*Juniperis communis*
Running Shadbush	*Amelanchier stolonifera*
Scrub Oak (Bear Oak*)*	*Quercus ilicifolia*
Sheeplaurel	*Kalamia augustifolia*
Spicebush	*Lindera benzoin*
Steeplebush	*Spirea tomentosa*
Sweetfern	*Comptonia peregrina*
Sweetpepperbush	*Clethra alnifolia*
Winterberry	*Ilex verticillata*
Witch Hobble	*Vburnum alnifolium*
Witherod	*Viburnum cassinoides*

***** Normally will not be treated or removed regardless of height

SPECIES ALLOWED TO REMAIN IN THE SIDE ZONES: (PARTIAL LIST)

All species listed above including:

Alder	A*lnus spp.*
Hornbeam	*Carpinus betulus*
Dogwood - Alternate-leaved	*Cornus alternifolia*
Dogwood - Flowering	*Cornus florida*
Hornbeam	*Carpinus caroliniana*
Sumac - Shining	*Rhus copillina*
Sumac - Smooth	*Rhus glabra*
Sumac - Staghorn	*Rhus typhina*
Willows (except tree species)	*Salix spp.*
Witch-Hazel	*Hamamelis virginiana*

APPENDIX 2

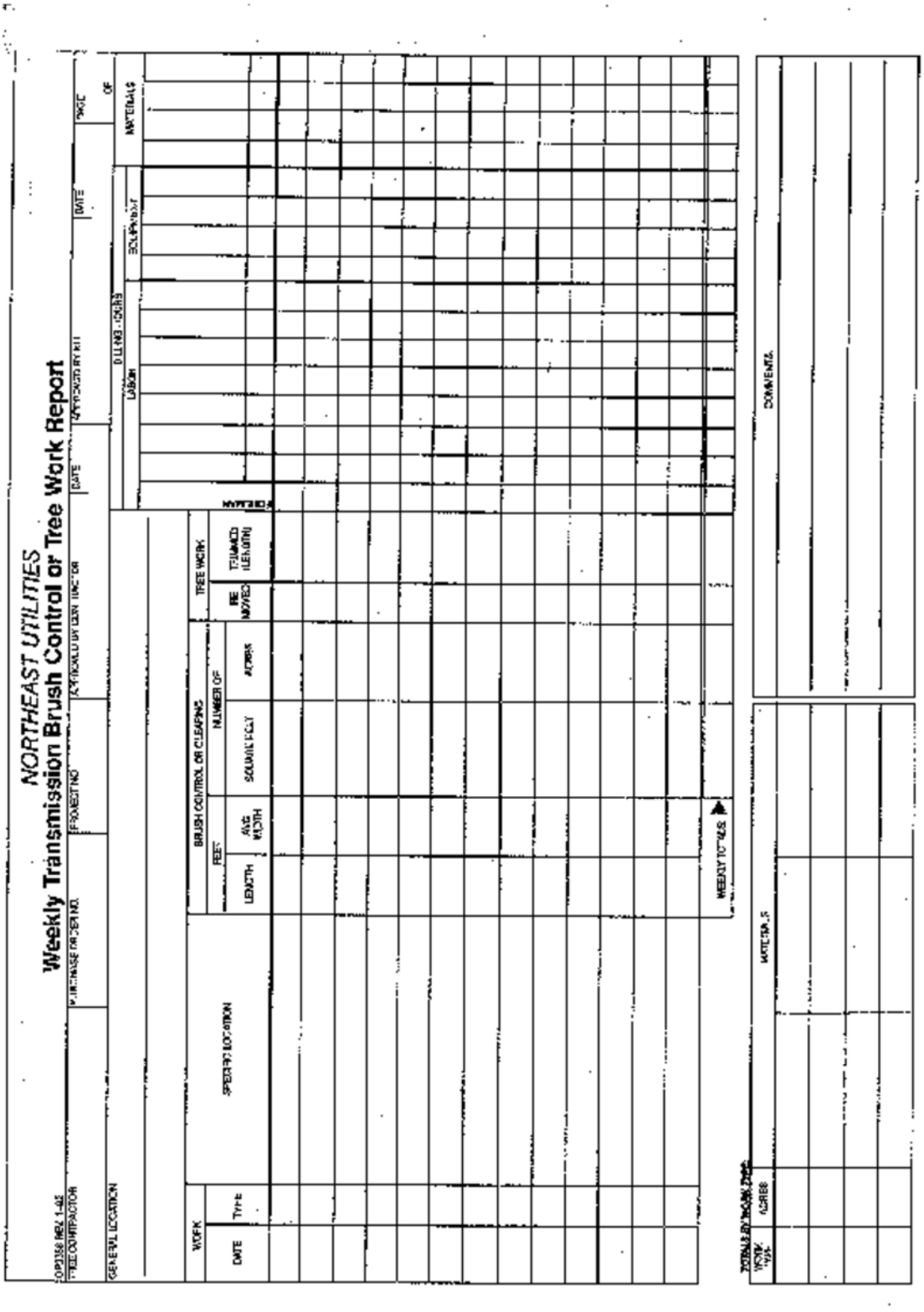
Eversource Energy Transmission Rights-of-Way Danger Tree Report

Project Number: _____ Contractor: _____ Week Ending _____

Line Number	Structure Number	Location*	Description of Problem

* Location shall note whether the problem is within the right-of-way or outside of or along the side of the right-of-way edge

APPENDIX 3


NORTHEAST UTILITIES
Weekly Transmission Brush Control or Tree Work Report
WORK
DATE
Type
SPECIFIC LOCATION
BRUSH CONTROL OR CLEARING
FEET
LENGTH
AVG WIDTH
NUMBER OF
SQUARE YDS
ACRES
TREE WORK
TRIMMED
REMOVED
TRIMMED (LENGTH)
LABOR
EQUIPMENT
MATERIALS
WEEKLY TOTALS
COMMENTS
MATERIALS

APPENDIX 4

Eversource Energy System
Rights-of-Way Herbicide Application Summary Report

Year: _____ **Project No:** _____

Project Description: _____

_____

Contractor: _____ **Total Project Acres:** _____

Application Type:	Acres Treated	Mix Quantity	Herbicide	Herbicide Amount	Total Man-Days
Open Acres					

Notes:

APPENDIX 5

EVERSOURCE ENERGY
TRANSMISSION LINE CLEARANCE
INCIDENT REPORT

District:_____ Date of Incident:_____

Time of Incident:_____ Contractor:_____

Foreman:_____ Person Involved in Incident:_____

Town:_____

Street:_____ Pole No.:_____

Nature of Incident:

___ Electrical Contact
___ Employee Injury (non electrical)
___ Vehicle Accident
___ Property Damage
___ Electrical Interruption
___ OIL Spill
___ Pesticide Spill

Interruption No.:_____ Circuit:_____ Voltage:_____

No. Customers Interrupted:_____ Contractor Charges:_____

Incident Description:

_____

_____

_____

_____

_____

Follow Up Action Taken With Contractor:

_____

_____

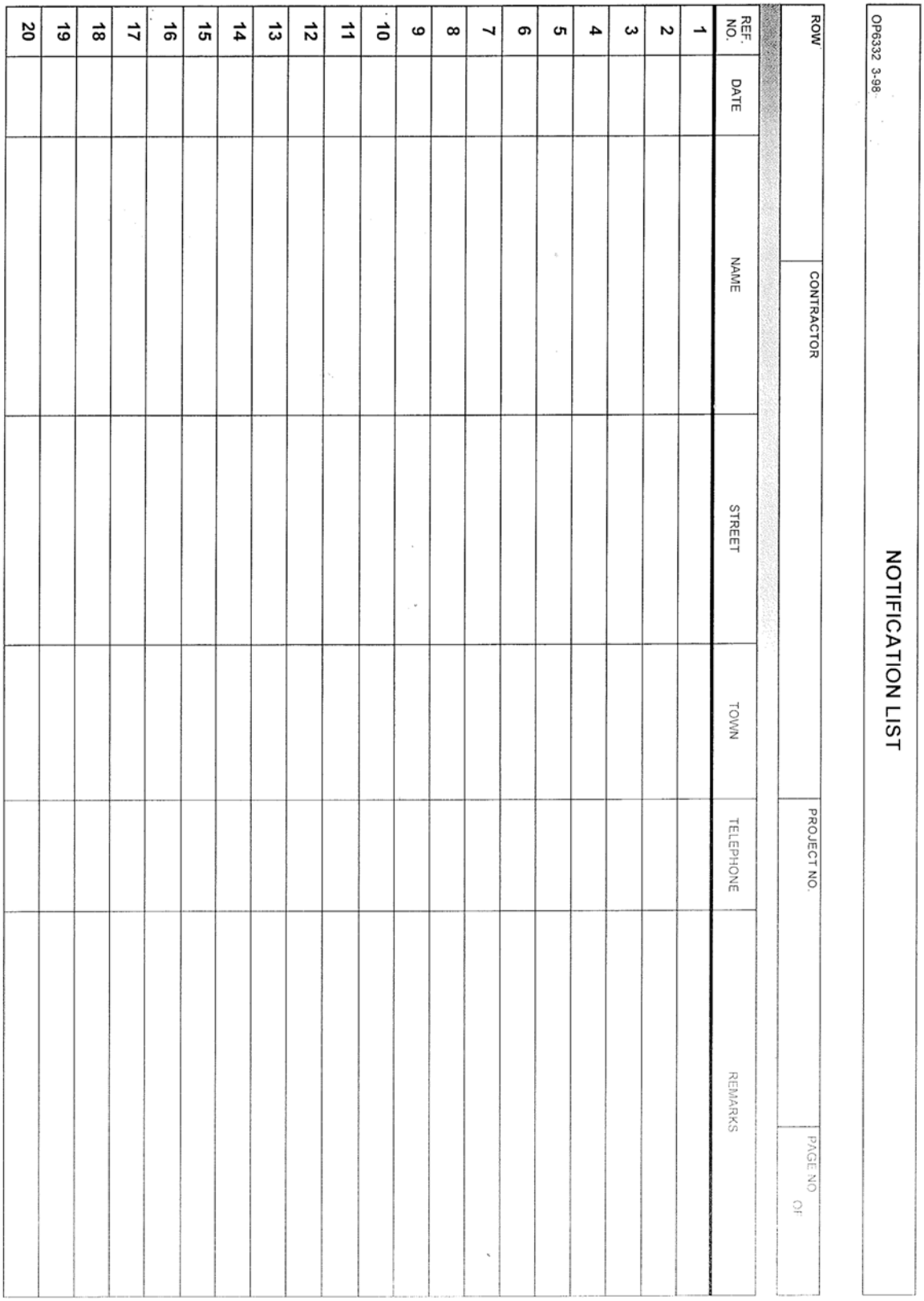
_____

_____

_____

Reviewed By: Arborist:_____ Date:_____

Contractor:_____ Date:_____



OP6332 3-98

NOTIFICATION LIST

ROW | CONTRACTOR | PROJECT NO. | PAGE NO. | OF

REF. NO.	DATE	NAME	STREET	TOWN	TELEPHONE	REMARKS
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
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