THE FROST BRIDGE TO CAMPVILLE 115-kV PROJECT

BY

THE CONNECTICUT LIGHT AND POWER COMPANY

DOING BUSINESS AS EVERSOURCE ENERGY

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EXHIBIT 1: INVENTORY AND ASSESSMENT OF VERNAL POOLS

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Inventory and Assessment of Vernal Pools

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Section 1
Introduction

The following vernal pool assessment details vernal pool investigations conducted by Davison Environmental, LLC on behalf of Tighe & Bond. This work was conducted in support of The Connecticut Light and Power Company doing business as Eversource Energy's (Eversource) proposed new 10.4-mile 115-kilovolt (kV) overhead electric transmission line between its existing Frost Bridge Substation in the Town of Watertown and Campville Substation in the Town of Harwinton (Project). The proposed new 115-kV transmission line would cross portions of four towns in Litchfield County: Watertown, Thomaston, Litchfield, and Harwinton.

Section 2
Vernal Pool Regulations

The Connecticut Siting Council (Council) published an application guide *Electric and Fuel Transmission Line Facility* in April 2010. Section VIII of the Guidelines provides an outline of the contents for an application to the Council. Specifically, Section VI.I.D requires the applicant to depict vernal pools in the existing conditions plans, along with a 100-foot buffer around the pool.

Projects subject to the Council's jurisdiction are not subject to local inland wetland commission regulations in Connecticut. Connecticut's Inland Wetlands and Watercourse Act (Act), originally enacted in 1972, did not address vernal pools. The regulation of vernal pools is provided through a later amendment, P.A. 95-313. This 1995 amendment expanded the definition of "watercourse" to include "*all other bodies of water, natural or artificial, vernal or intermittent*." Neither the Act nor its amendment provide a definition for vernal pool.

Under authority granted by Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (USACE) - New England District issued the *Department of the Army General Permit State of Connecticut & Lands Located Within the Exterior Boundaries of an Indian Reservation* (GP) on July 15, 2011 that expires on July 15, 2016. Vernal pools are included as one of six classes defined as "Special Wetlands" in the GP. The GP notes that determinations of USACE jurisdiction under Section 404 will be made on a case-by-case basis.

Section 3
Vernal Pool Determination and Identification Methods

A number of vernal pool definitions have been developed by both regulatory authorities and conservation organizations. The Connecticut Department of Energy and Environmental Protection (CT DEEP) generally describes vernal pools through their website, but cautions that the data provided is informational in nature and should not supplant regulations of municipal inland wetlands agencies. CT DEEP describes vernal pools as *"small bodies of standing fresh water found throughout the spring*" that are "*usually temporary"* and "*result from various combinations of snowmelt, precipitation and high water tables associated with the spring season*".

Calhoun and Klemens (2002) *Best development practices: Conserving pool-breeding amphibians in residential and commercial developments in the northeastern United States* (BDP Manual) provides the following operational definition of vernal pools:

Vernal pools are seasonal bodies of water that attain maximum depths in the spring or fall, and lack permanent surface water connections with other wetlands or water bodies. Pools fill with snowmelt or runoff in the spring, although some may be fed primarily by groundwater sources. The duration of surface flooding, known as hydroperiod, caries depending upon the pool and the year; vernal pool hydroperiods range along a continuum from less than 30 days to more than one year. Pools are generally small in size (<2 acres), with the extent of vegetation varying widely. They lack established fish populations, usually as a result of periodic drying, and support communities dominated by animals adapted to living in temporary, fishless pools. In the region, they provide essential breeding habitat for one or more wildlife species including Ambystomid salamanders (Ambystoma spp., called "mole salamanders" because they live in burrows), wood frogs (Rana sylvatica), and fairy shrimp (Eubranchipus spp.).

Vernal pool physical characteristics can vary widely while still providing habitat for indicator species. "Classic" vernal pools are natural depressions in a wooded upland with no hydrologic connection to other wetland systems. Anthropogenic depressions such as quarry holes, old farm ponds and borrow pits can also provide similar habitat. Often, vernal pools are depressions or impoundments embedded within larger wetland systems. These vernal pool habitats are commonly referred to as "cryptic" vernal pools.

Several species of amphibians depend on vernal pools for reproduction and development. These species are referred to as indicator[1] vernal pool species, and their presence in a temporary wetland during the breeding season helps to identify that area as a vernal pool. Indicator species present in Connecticut include the following:

[1] Calhoun and Klemens (2002) argue that "indicator" species is a better word than the commonly used "obligate" species, as they will occasionally breed in roadside ditches and small ponds that are not vernal pools.

- Blue-spotted salamander (*Ambystoma laterale*);
- Wood frog (*Rana sylvatica*);
- Spotted salamander (*Ambystoma maculatum*);
- Jefferson salamander (*Ambystoma jeffersonianum*);
- Eastern spadefoot toad (*Scaphiopus holbrookii*);
- Marbled salamander (*Ambystoma opacum*); and
- Fairy shrimp (*Branchiopoda anostraca*).

Facultative vernal pool species are fauna that utilize but do not necessarily require vernal pools for reproductive success. Examples of facultative species include the spotted turtles (*Clemmys guttata*) and four-toed salamander (*Hemidactylium scutatum*). These species may breed or feed in vernal pools, but are also capable of carrying out all phases of their lifecycle in other types of wetlands or water bodies. Evidence of breeding by facultative species alone is not considered indicative of a vernal pool.

For the purpose of this report, a vernal pool is defined as an area that meets the physical characteristics described above and contains evidence of breeding activity of any of the indicator species listed above, including the presence of egg masses and larvae. This vernal pool assessment also makes an important distinction between wetlands in which indicator species may breed and those wetlands where they breed *and* successfully develop.

A common phenomena is for breeding (i.e., mating and egg laying) to occur in bodies of water such as road ruts or temporary puddles where development and metamorphosis of larvae is unsuccessful. Such areas are referred to as “decoy vernal pools” as reproductive efforts are unsuccessful in these areas. In the BDP Manual, Calhoun and Klemens specifically note the negative impact associated with ruts:

“*Site clearing can cause water-filled ruts. These ruts intercept amphibians moving toward the vernal pool and may induce egg deposition. Often these ruts do not hold water long enough to allow development of amphibians and therefore acts as “sinks” that result in populations declines*”.

In addition to road rutting, other anthropogenic activities can create decoy vernal pools, including road crossings that create temporary pools often resulting from undersized or elevated culverts. Several decoy pools are present within the Project area, as discussed in Section 5.4. Unlike “classic” or “cryptic” vernal pools, these areas often suffer recurring disturbance and generally contain little vegetation to which egg masses can be attached. Small numbers of vernal pool obligate species such as wood frog and spotted salamander may breed in these ephemeral pools, though larval survivorship is expected to be low.

Section 4
Vernal Pool Field Assessment

On April 13, 18, 19, 24, 29, May 2 and May 9, 2015, biologist Eric Davison of Davison Environmental, LLC conducted field surveys of the wetlands within the Project area in order to identify vernal pools. Field surveys were conducted to identify both species richness and abundance of indicator species. Survey methods used included visual surveys to identify adults, larvae and egg masses, audial surveys to record breeding choruses and dip-net surveys to identify amphibian larvae.

Field surveys began in April, shortly after vernal pool amphibians had emerged from hibernation and were beginning breeding activity. During this period, chorusing wood frogs and spring peepers were heard, spotted salamander spermataphore (a protein capsule containing a mass of spermatozoa) were observed, and adult amphibians were observed in amplexus (the mating position of frogs and toads in which the male clasps the female about the back). A number of pools remained iced covered during early April, particularly those pools that were deeply shaded. At some pools, adult wood frogs were observed hopping across iced covered portions of the pools in search of open water. Surveys continued throughout April and into early May as temperatures began to warm. Multiple visits to each pool were conducted to document breeding productivity via egg mass counts. This was done on sunny days where visual detection of egg masses is optimized. A fine-mesh dipnet was used throughout the survey period to search for larval amphibians and cover searching (turning of rocks, logs and debris) around the margins of the pools was conducted to search for adult amphibians.

In order to assess these pools qualitatively, the methodology described in the BDP Manual was used. This assessment methodology utilizes a three-tiered rating system, with the tier designation determined by examining the biological value of the pool in conjunction with the condition of the habitat surrounding the pool, which is the area used by vernal pool amphibians during the non-breeding season. The higher the species diversity and abundance coupled with an undeveloped and forested landscape surrounding the pool, the higher the tier rating. Tier 1 pools are considered the highest quality pools, while Tier 3 are the lowest. Analysis of the landscape condition within 750 feet of the pools is required to complete the full BDP analysis, and this was not conducted as it was beyond the scope of this assessment. For this assessment, the potential tier rating was assessed based on the *biological value* of each pool which considers both species richness and species abundance. Per the BDP Manual, Tier 1 and 2 pools are those pools that meet at least one of the following *biological* criteria:

1. The presence of a breeding state-listed species;
2. Two or more indicator species breeding; or
3. 25 or more egg masses of a vernal pool indicator species.

A pools tier rating is based on which of the above *biological* criteria are met coupled with an analysis of the level of development within two landscape management zones surrounding the pools, the Vernal Pool Envelope (VPE, 0-100 feet from the pool) and the Critical Terrestrial Habitat (CTH, 100-750 feet from the pool).

A Tier 1 Pool must meet one of the above *biological* criteria *and* have at least 75% undeveloped land within the Vernal Pool Envelope (VPE, 0-100 feet from the pool) and at least 50% undeveloped land within the Critical Terrestrial Habitat (CTH, 100-750 feet from the pool).

A Tier 2 pool must meet one of the above *biological* criteria along with one of the landscape criteria, either 75% undeveloped land within the VPE *or* 50% undeveloped land within the CTH.

A Tier 3 pool is a pool that either has high *biological* value coupled with a high percentage of developed land within the VPE and CTH *or* low biological value coupled with one of the landscape criteria being met (either 75% undeveloped land within the VPE *or* 50% undeveloped land within the CTH). Typical, Tier 3 pools exhibit low species diversity and abundance.

Section 5
Results

Twenty-two vernal pools were identified within the Project area (see Table 1, Vernal Pool Summary Attachment A). Fifteen of these pools (68%) are potential Tier 1 pools due to the fact that they had significant numbers of egg masses (i.e., >25) or they had two or more indicator species breeding. Three vernal pool indicator species were observed breeding in the Project area, wood frog, spotted salamander, and marbled salamander.

Brief descriptions of the vernal pools observed in each transmission line segment are provided below. Note that an effort is made to distinguish between low value pools, or potential decoy pools, and high value pools.

5.1 Frost Bridge Substation to Purgatory Junction

Four vernal pools were identified in this section. North of Echo Lake Road in Watertown within Mattatuck State Forest lie pools MSF-1 and MSF-2. These pools lie adjacent to a potential off ROW access road from Echo Lake Road into the Project ROW. Pool MSF-1 is a classic vernal pool that lies within a heavily forested landscape protected by Mattatuck State Forest. The pool contained robust populations of wood frog and the largest number of spotted salamander egg masses within the study area (108 masses). MSF-2 is a very small classic pool also located along this existing access road. The pool contained very low numbers of both wood frog and spotted salamander (1 egg mass and two egg masses, respectively). Furthermore, the pool is shallow in depth and was completely dry when surveyed on May 9th. Although this pool can technically meet the criteria of a Tier 1 pool due to the presence of two indicator species, the low population levels and marginal hydrology make this a pool of low significance.

Pools B2-1 and B4-1 lie in close proximity to one another west of Park Road in Watertown. These pools are cryptic pools that lie within Wetland B2. Pool B2-1 is a small depression within the maintained ROW. Pool B4-1 is wooded but lies at the edge of the maintained ROW. Its hydrology appears to have been enhanced by the ROW maintenance road which has increased the hydroperiod[2] by impounding water.

5.2 Purgatory Junction to Walnut Hill Junction

Nine vernal pools were identified in this section. Several notable classic vernal pools occur in the irregular bedrock-controlled topography typical for this section of the ROW. Of particular note is VP C21-1, a very productive vernal pool situated in rugged terrain and shaded by a hemlock overstory in Black Rock State Park. This pool contained the largest number of wood frog egg masses in the Project area (293 masses). VP D4-1, located on land of the Thomaston Fish and Game Club, had several large rafts of wood frog egg masses (totaling 292 masses) and contained larval marbled salamander.

[2] Hydroperiod refers to the depth and duration of standing water within a wetland.

Other notable pools that contained large numbers of both wood frog and spotted salamander include C12-1, C15-1 and D15-1. All pools met the biological criteria of Tier 1 pools. While Pools C12-1 and C15-1 appear to be natural pools, their hydroperiod appears to have been enhanced a result of the water impounding behind the road embankment.

This ROW section also included several low-value vernal pools. Pools C4-1 (a decoy pool, see Section 5.4) and C20-1 were both hydrologically altered as a result of impounded water from the maintenance road and contained only a small number of egg masses from single indicator species, the wood frog.

5.3 Walnut Hill Junction to Campville Substation

This section contained nine vernal pools. Notable pools include F14-1 which contained modest numbers of wood frog and spotted salamander egg masses (50 and 15, respectively) and F15-1 which contained a spotted turtle (*Clemmys guttata*). The spotted turtle is an uncommon facultative vernal pool species which is currently being considered for special concern listing status under the CT-ESA.

This section of the Project area contained a number of low-value anthropogenically altered pools including E2-1 (a decoy pool, see Section 5.4) created by a culvert outlet scour hole, E2-2 (a decoy pool, see Section 5.4) which was created by impounded water from the maintenance road, F9-1 which is a small borrow pit within the Naugatuck River floodplain and F13-1 (a decoy pool, see Section 5.4) which is a road rut within an intermittent watercourse.

VP E9-1 is a cryptic vernal pool located immediately adjacent to Hopkins Road in Litchfield and only hosted wood frog egg masses (total less than 25), so it was assigned a Tier 3 rating.

5.4 Decoy Vernal Pools

Pools C4-1, E2-1, E2-2 and F13-1 are considered decoy vernal pools. All of these pools are associated with on-ROW access road activities which have created small ponded areas associated with rutting, culvert inlets (i.e., backwater pool) or culvert outlets (i.e. scour pool). All four of these pools are embedded within larger wetlands. These wetlands in their adjacent undisturbed condition all had a seasonally-saturated (as opposed to seasonally-flooded) hydrology. Therefore, is presumed that these areas were not functioning vernal pools prior to road development. These breeding sites were all areas of enhanced hydroperiod resulting from the above-noted anthropogenic activities.

The hydrology of these decoy pools was not tracked beyond early May. Therefore, the duration of ponding and larval survivorship was not directly observed. However, based on a variety of factors, including: (1) proximity to the access road; (2) lack of canopy cover; and (3) shallow depth and limited size; the likelihood of significant amphibian survivorship, particularly over multiple years, is very low.

5.5 Additional Amphibians and Reptiles Observed

Other amphibian and reptile species observed within or adjacent to vernal pools include garter snake (*Thamnophis sirtalis*), spring peeper (*Pseudacris crucifer*), gray treefrog (*Hyla versicolor*), bullfrog (*Lithobates catesbeiana*), green frog (*Lithobates clamitans*), two-lined salamander (*Eurycea bislineata*), dusky salamander (*Desmognathus fuscus*), redback salamander (*Plethodon cinereus*), red-spotted newt (*Notopthalmus viridescens*), painted turtle (*Chrysemys picta*) and spotted turtle.

Section 6
Discussion

6.1 Potential Impacts to Vernal Pools

Within the Project area, field investigations identified a total of 22 vernal pools which, in total, supported three vernal pool indicator species - wood frog, spotted salamander and marbled salamander. Fifteen of these pools (68%) are potential Tier I pools due to the fact that they had significant numbers of egg masses (i.e., 25 or more) or they had two or more indicator species breeding.

Pools C4-1, E2-1, E2-2 and F13-1 are all associated with access road activities, which have created small ponded areas associated with rutting, culvert inlets (i.e., backwater pool) or culvert outlets (i.e. scour pool). These pools are of low ecological significance, and can reasonably be classified as decoy pools as defined by the BDP Manual.

Several noteworthy pools were observed within the Project area. These include pools MSF-1, C12-1, C15-1, C21-1, D4-1 and D15-1; all of which contained large numbers of both spotted salamander and wood frog. Pool D4-1 was noteworthy as it contained the only record of marbled salamander within the Project area. Marbled salamander are uncommon in Connecticut particularly at higher elevations, and this pool represents the only documented breeding location of the species from the Town of Thomaston.

Based on the proximity of vernal pools to the proposed new transmission line, both direct and indirect adverse impacts to vernal pools are anticipated. The principal construction activities that could affect vernal pools include:

- The removal of vegetation within or the tree canopy above vernal pools;
- The improvement of existing access roads through vernal pool envelopes and / or critical terrestrial habitat;
- The movement of vehicles and equipment through amphibian migratory routes;
- The potential for erosion and sedimentation into vernal pools;
- The destruction of fossorial habitat through soil compaction and grading; and
- The placement of structures or use of equipment within pools that could directly impact egg deposition areas or negatively affect the hydrologic regime of the pool.

6.2 Mitigation Measures

The potential for adverse impacts on vernal pools may be minimized by implementing a variety of Best Management Practices (BMPs) aimed at mitigating the effects of both permanent and temporary construction related activities. Potential BMPs, as may be

considered for minimization of impacts to each vernal pool, are provided in Table 2 in Appendix A.

As planning for the Project continues, the specific measures that would be implemented to protect vernal pool amphibians during construction will be further defined in consultation with the applicable regulatory agencies (CSC, CT DEEP, and USACE) and would be incorporated into the D&M Plans for the Project. The following summarizes the types of measures that may be implemented to minimize potential adverse impacts to vernal pools:

1) For Project activities that must occur adjacent to vernal pools during amphibian migration periods, implement measures on a site-specific basis as necessary to facilitate unencumbered amphibian access to and from vernal pools, such as elevated construction matting. Mitigation measures will be identified after considering site-specific conditions, including the type of construction activity in proximity to a vernal pool, the amphibian species known to occur in the vernal pool, and seasonal conditions.

2) Minimize the removal of low-growing vegetation surrounding vernal pools. If low growing woody vegetation (trees and shrubs) will be removed, the cut vegetation (slash) should be left in place to provide cover and promote the development of coarse woody debris and detritus.

3) Where possible, the stumps of cut woody debris should be left in place to minimize soil disturbance.

4) Felling of trees into vernal pools should be avoided where possible.

5) Where tree clearing within and adjacent to vernal pools occurs, woody shrub cover should remain intact to the maximum extent practicable.

Erosion and Sedimentation Controls

6) Erosion control measures should be designed in a manner that allows unencumbered amphibian access to vernal pools and migratory pathways. Such measures may include, but not be limited to; syncopated silt fencing and/or straw wattles in the immediate vicinity of vernal pools, and aligning erosion and sedimentation controls to avoid bifurcating vernal pool habitat.

7) Install appropriate erosion and sediment controls around distinct work sites and access roads to minimize the potential for sediment deposition into vernal pools, and remove such controls promptly after final site stabilization.

8) Avoid utilizing plastic netting, which may be found in a variety of erosion control products (e.g., erosion control blankets, straw wattles, and reinforced silt fence).

Restoration of Temporary Construction Areas

9) Evaluate the use of temporary timber mat access roads in lieu of constructing new gravel access roads in order to minimize the loss of vegetated areas within the Vernal Pool Envelope (0-100 feet).

10) Where feasible, minimize the use of gravel fill associated with construction work pads or pull pads within vernal pool envelopes (0-100 feet).

Section 7
References

Calhoun, A.J.K. and M.W. Klemens. 2002. *Best development practices: Conserving pool-breeding amphibians in residential and commercial developments in the northeastern United States.* MCA Technical Paper No. 5 Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York. 57 p.

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Cowardin, L.M., V. Carter, F.C. Golet and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service. FWS/OBS-79/31. Washington, D.C. 103 p.

APPENDIX A:

TABLE 1: 2015 VERNAL POOL SUMMARY TABLE

TABLE 2: POTENTIAL PROJECT EFFECTS TO AND BMPS FOR VERNAL POOLS

Table 1: Frost Bridge to Campville 115-kV Project, 2015 Vernal Pool Summary Table

Pool	Egg Mass Totals		Other Indicator or Facultative species Observed	Highest Potential Tier Status (based on biological value only)	Cover Type	Pool Type	Volume 5, 100 Scale Mapsheet No.
	Wood Frog	Spotted Salamander					
VP MSF-1	50	108	--	1	PFO	CL	3A
VP MSF-2	1	2	--	1	PFO	CL	3A
VP B2-1	12	0	--	3	PEM	CR	6
VP B4-1	1	2	--	1	PSS/PFO	CR(A)	7
DVP C4-1	4	0	--	3	PEM	D	11
VP C10-1	2	0	--	3	PFO	CL	11
VP C12-1	75	45	--	1	PSS/PFO	CR(A)	12
VP C15-1	152	28	--	1	PSS	CR(A)	13
VP C20-1	6	0	--	3	PEM	CR(A)	14
VP C21-1	293	41	--	1	PFO	CL	15
VP D4-1	292	23	Marbled Salamander	1	PFO	CR	19
VP D5-1	4	0	--	3	PEM/PSS	CL	19-20
VP D15-1	246	27	--	1	PFO	CL	21
VP D12-1	33	0	--	1	PEM/PSS	CR(HEX)	22
DVP E2-1	6	5	--	1	PEM	D	26
DVP E2-2	22	0	--	3	PEM	D	26
VP E9-1	24	0	--	3	PFO	CR	28
VP F9-1	7	10	--	1	PEM	CR(HEX)	31
VP F10-1	1	2	--	1	PFO	CR	31
DVP F13-1	3	14	--	1	PEM	D	-
VP F14-1	50	15	--	1	PSS/PFO	CR	34
VP F15-1	14	6	Spotted Turtle	1	PSS/PEM	CR(HEX)	34

LEGEND

Tier status as defined by Calhoun and Klemens (2002): The table indicates those pools that had either 25 or more egg masses and/or two or more indicator species present as potential Tier 1 pools. Depending on the landscape condition surrounding these pools, the Tier status could be 1, 2 or 3. The landscape analysis was not performed as part of this assessment. Tier 3 pools are those pools that did not meet any of the biological criteria as discussed in Section 4.0.

Cover Type

PFO – palustrine forested wetland (a.k.a. wooded swamp)
PSS – palustrine scrub-shrub wetland (a.k.a. shrub swamp)
PEM – palustrine emergent wetland (a.k.a. marsh)

Pool Type

CR – cryptic; CL – classic; CR(A) – cryptic with hydroperiod modified by access road; CL(A) – classic with hydroperiod modified by access road; D – decoy; CL(HEX) – classic, historically excavated; CR(HEX) – cryptic, historically excavated

Table 2: Potential Project Effects to and BMPs for Vernal Pools

Municipality / Volume 5, 100 Scale Mapsheet No.	Vernal Pool	Work in Vernal Pool Envelope (from vernal pool edge to 100 feet)	Proposed Project Facilities and Vegetation Removal		
			Proposed Work in Vernal Pool Depression	New Vegetation Removal in Vernal Pool Depression (acres)	Potential BMPs
Watertown					
3	VP MSF-2	Access Road Improvements			Syncopated silt fence and/or straw wattles
3A	VP MSF-1	Access Road Improvements			Syncopated silt fence and/or straw wattles
6	VP B2-1	Work Pad			Syncopated silt fence and/or straw wattles
7	VP B4-1	Access Road Improvements			Syncopated silt fence and/or straw wattles
11	DVP C4-1	Access Road Improvements			None, vernal pool is a decoy pool
11	VP C10-1	Tree Clearing, New Access Road, Work Pad			Where feasible, minimize new gravel fill within 100 feet of vernal pool Syncopated silt fence and/or straw wattles
12	VP C12-1	Access Road Improvements			Syncopated silt fence and/or straw wattles
13	VP C15-1	Access Road Improvements			Syncopated silt fence and/or straw wattles
14	VP C20-1	Access Road Improvements	Work Pad		If feasible, reconfigure work pad to avoid vernal pool Syncopated silt fence and/or straw wattles
15	VP C21-1	Tree Clearing, Access Road Improvements, Work Pad	Tree Clearing	.054	Minimize the removal of shrub cover around vernal pool Where feasible, minimize new gravel fill within 100 feet of vernal pool Syncopated silt fence and/or straw wattles

Table 2: Potential Project Effects to and BMPs for Vernal Pools

Municipality / Volume 5, 100 Scale Mapsheet No.	Vernal Pool	Work in Vernal Pool Envelope (from vernal pool edge to 100 feet)	Proposed Project Facilities and Vegetation Removal		
			Proposed Work in Vernal Pool Depression	New Vegetation Removal in Vernal Pool Depression (acres)	Potential BMPs
Thomaston					
19	VP D4-1	Potential Pull Pad, Access Road Improvements, Tree Clearing	Tree Clearing	.021	Minimize the removal of shrub cover around vernal pool Where feasible, minimize new gravel fill within 100 feet of vernal pool Syncopated silt fence and/or straw wattles
20	VP D5-1	Access Road Improvements, Tree Clearing			Syncopated silt fence and/or straw wattles
22	VP D12-1	Work Pad, Tree Clearing, Access Road Improvements			Minimize the removal of shrub cover around vernal pool Where construction options allow, provide amphibian access to vernal pool in breeding season
21	VP D15-1				No activities are proposed in proximity to vernal pool
Litchfield					
26	DVP E2-1/E2-2	Access Road Improvements, Tree Clearing			Syncopated silt fence and/or straw wattles Minimize the removal of shrub cover around vernal pool E2-2
28	VP E9-1	Work Pad, Tree Clearing	Tree Clearing	.17	Minimize the removal of shrub cover around vernal pool
Harwinton					
31	VP F9-1				No activities are proposed in proximity to vernal pool
31	VP F10-1	Tree Clearing, Potential Guard Structure Pad	Tree Clearing	.002	Felling of trees into vernal pool should be avoided

Table 2: Potential Project Effects to and BMPs for Vernal Pools

Municipality / Volume 5, 100 Scale Mapsheet No.	Vernal Pool	Work in Vernal Pool Envelope (from vernal pool edge to 100 feet)	Proposed Project Facilities and Vegetation Removal		
			Proposed Work in Vernal Pool Depression	New Vegetation Removal in Vernal Pool Depression (acres)	Potential BMPs
34	VP F14-1	Work Pad			Minimize the removal of shrub cover around vernal pool
34	VP F15-1	Work Pad			Minimize the removal of shrub cover around vernal pool

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APPENDIX B:

2015 VERNAL POOL PHOTOGRAPHS

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Photo 1: MSF-1; classic vernal pool in Mattatuck State Forest

Photo 2: MSF-2 (pool was dry on 5/9/15)

Photo 3: B2-1 is a flooded marsh

Photo 4: B4-1 (road embankment forms edge of pool)

Photo 5: C4-1 is formed by the maintenance road embankment

Photo 6: C10-1; classic pool in bedrock-controlled topography

Photo 7: C12-1 hydrology is enhanced by the road embankment

Photo 8: C15-1 is a dense shrub swamp

Photo 9: C20-1 is formed by the maintenance road embankment

Photo 10: C21-1 is a large classic pool in bedrock topography

Photo 11: D4-1 contains marbled salamander

Photo 12: D5-1 is small with a short hydroperiod

Photo 13: D15-1 is deeply ponded in bedrock controlled topography

Photo 14: D12-1 is an old farm pond

Photo 15: E2-1 is created by the road embankment outlet

Photo 16: E2-2 is formed by the maintenance road embankment

Photo 17: E9-1 lies along Hopkins Road in Litchfield

Photo 18: F9-1 is a borrow pit in the Naugatuck River floodplain

Photo 19: F10-1 lies in an old excavated wetland

Photo 20: F13-1 is a road rut within a headwater stream

Photo 21: F14-1 lies at the edge of managed ROW

Photo 22: F15-1; note headwall for driveway crossing; a spotted turtle was observed at this location

Photo 23: Marbled salamander larvae from VP D14-1

Photo 24: wood frog communal egg mass raft, VP D14-1

EXHIBIT 2: INVENTORY AND ASSESSMENT OF BREEDING BIRDS

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Inventory and Assessment of Breeding Birds

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Section 1
Introduction

This report provides an inventory and assessment of breeding birds and bird habitat conducted for Frost Bridge to Campville 115-kilovolt (kV) Project (the Project), which is proposed by The Connecticut Light and Power Company, doing business as Eversource Energy (Eversource). For the Project, Eversource proposes to construct a new 10.4-mile 115-kV overhead electric transmission line between its existing Frost Bridge Substation in the Town of Watertown and Campville Substation in the Town of Harwinton, and to make related improvements to both substations. The new 115-kV transmission line would be located within an existing Eversource right-of-way (ROW), which varies in width from approximately 250 to 400 feet.

1.1 Project Location

The proposed new 115-kV transmission line would cross portions of four towns in Litchfield County: Watertown, Thomaston, Litchfield, and Harwinton. The Project area lies within the Naugatuck River regional drainage basin and the Steel Brook, Branch Brook and Northfield Brook sub-regional drainage basins. Biogeographically, the site lies within Northwest Hills Ecoregion as defined by Dowhan and Craig and characterized by moderately hilly glacial till dominated landscapes of intermediate elevation with narrow glacial outwash valleys and local areas of steep and rugged terrain. Elevations are generally 750 feet -1000 feet above sea level.

1.2 Project Description

Along the ROW, within which the new 115-kV line would be located, the width of the currently managed areas varies, depending on the number and configuration of the existing transmission lines that occupy each ROW segment. Along the 2.2 miles from the vicinity of Frost Bridge Substation to Purgatory Junction, virtually all of the 400-foot-wide ROW is currently managed for low growth vegetative communities. Eversource performs vegetation management within this ROW segment consistent with the safe operation of these transmission lines. As a result, the overall width of the managed ROW would not be expanded along this segment. However, some areas of forested and other vegetation, located in the center of the ROW, would have to be removed.

Along the majority of the remaining 8.2 miles of the Project area, the new 115-kV line would be located within a typical 250-foot-wide ROW. Along these ROW segments, Eversource presently manages (on average) a 95-140-foot-wide area beneath and adjacent to the existing lines as low-growth vegetative communities. An additional 40-to-70 feet for new vegetation removal is required for construction and subsequent management of the new facilities.

Section 2
Regulations

There are a number of state and federal regulations that protect birds, as well as address regulatory requirements pertaining specifically to birds and transmission projects.

2.1 Migratory Bird Treaty Act

One of the earliest federal statutes enacted to protect birds was the Migratory Bird Treaty Act (MBTA) of 1918. This act prohibits the taking, including possession, hunting, capturing, killing, and transporting, of migratory birds, their nests, and eggs, unless permitted by regulation. The MBTA is meant to protect all native birds from unregulated acquisition regardless of an individual species' abundance or distribution.

2.2 Federal Endangered Species Act

The Endangered Species Act of 1973 (ESA) is a federal act that provides a program for the conservation of nationally endangered and threatened animal and plant species and their ecosystems.

2.3 Connecticut Endangered Species Act

Similarly, the Connecticut Endangered Species Act (CT-ESA), passed in 1989 (Chapter 495 Sections 26-303 through 26-316 of the Connecticut General Statues), was designed to conserve, protect, restore, and enhance Connecticut's endangered or threatened species and their essential habitats. Under both the ESA and CT-ESA, species are listed according to their level of risk. Risk levels for the federal ESA include endangered and threatened, while the CT-ESA also includes a third category called species of special concern. The status of CT-ESA species is reviewed every five years.

As described in the CT-ESA, an endangered species is any native species currently in danger of being extirpated from much or all of the state. Endangered species have no more than five known occurrences in the state. Threatened species in Connecticut are native species that are likely to become endangered species in the near future and have no more than nine occurrences within the State. Species of special concern in Connecticut are native species that have a restricted range or habitat in the state, have low population levels, or are otherwise in danger of becoming threatened.

Section 26-310 of the CT-ESA requires state agencies (including the Connecticut Department of Energy and Environmental Protection [CT DEEP]) that provide recommendations for actions that affect terrestrial or aquatic habitats to ensure that the actions authorized by said agencies do not threaten the continued existence of any endangered or threatened species or adversely modify the habitat essential to the species. The statute requires that the best scientific data available be used to make this determination. In addition, agencies must ensure that the recommendations are consistent with the entire CT-ESA. In the event that a proposed action violates these sections but does not appreciably reduce the likelihood of the survival or recovery of an

endangered or threatened species – an "incidental taking" – the agency may file for an exemption, provided there are no prudent and feasible alternatives.

An exemption for a taking, or takings, can be granted provided: (1) the agency did not make an irreversible commitment of resources that excludes the opportunity for feasible and prudent alternatives, (2) the benefits of the action clearly outweigh the benefits of alternative courses of action and the action is in the public interest, (3) the action is of regional or state-wide significance, and (4) the agency plans to take reasonable mitigation and enhancement measures to minimize the adverse impacts of the action upon the species or essential habitat.

2.4 Connecticut Natural Diversity Data Base

CT DEEP has developed the Natural Diversity Data Base (NDDB) as a pre-screening tool to help applicants requesting regulatory permits from state agencies to determine if proposed projects may affect species listed as endangered, threatened, or special concern under the CT-ESA, or their habitats. Information about State-listed species in the data base is graphically depicted on NDDB maps, which consist of maps that display shaded polygons representing the approximate locations of federally and State-listed species and significant natural communities. The maps are updated every six months. CT DEEP states that if a proposed project is outside of any shaded polygon than an impact to any known occurrence of an endangered or threatened species or significant natural community is not likely to result from the action.

2.5 Connecticut Sitting Council

The Connecticut Siting Council (Council) published an application guide *Electric and Fuel Transmission Line Facility* in April 2010. Section VIII of the application guide provides an outline of the contents for an application to the Council. Specifically, Section VI(H)(1)(iv) requires an inventory of breeding birds and their habitats.

Section 3
Methods

In accordance with the Council's guidance, wildlife biologist Eric Davison of Davison Environmental, LLC developed an inventory of breeding birds and their habitats in the Project vicinity (refer to the Inventory of Breeding Birds in Attachment A). The inventory lists all breeding birds that are reasonably expected to occur in the Project area, as well as the habitat(s) that each species utilizes.

The inventory includes birds observed during habitat assessment work conducted along the Project ROW during April and May 2015. All birds seen or heard within suitable breeding habitat were noted as observed in the inventory and are considered "possible" breeders[1] within the Project area. While these bird observations do not constitute a detailed breeding bird survey, many early to mid-spring arrivals were documented, and these species are expected to breed in the Project area.

In addition to the records of the birds observed during the spring 2015 field surveys of the ROW, the breeding bird inventory was compiled primarily by reviewing published data on the breeding birds of the state. These resources were analyzed and compiled in order to develop a list of all bird species known to breed in the vicinity of the Project. The primary source utilized was *The Atlas of Breeding Birds of Connecticut (Atlas)*, which is the result of a five-year study (1982-1986) of all bird species known to breed in the state. The study is the most comprehensive review to date of Connecticut's breeding birds. Additional resources utilized include DeGraaf and Yamasaki (2001) and others listed in the References section of this Report.

The initial inventory of breeding birds was generated solely based on the presence of suitable habitat. That list was then refined by considering such factors as bio-geographical distribution, the presence or absence of critical habitat features and minimum patch size requirements. The inventory is subdivided by habitat type. A species is listed under the habitat which represents its primary breeding type. However, a species should be considered to be potentially present within the ecotones associated with their primary habitat at any given time.

Tighe & Bond wetland scientists classified all of the habitat types within the Project ROW as well as within 200 feet on either side of the ROW, as depicted on the Volume 5 maps. Cover types were identified on aerial photographs and then verified during field investigations. The value of these habitat types for birds was then assessed during field visits conducted on April 13, 18, 19, 24, 29, May 2 and May 23, 2015.

Upland cover types identified include: upland forest, shrubland or old Field, agriculture, watercourses (streams and rivers) and developed categories including residential (house/yard) and commercial/industrial. Wetland habitats were classified based on the Cowardin system and include forested wetland, scrub-shrub wetland, emergent marsh, and open water. The habitat types that occur within the Project area are listed in the

[1] A "possible" breeder as defined by Bevier (1994) includes observation of bird (male, female or singing male) within suitable habitat during the breeding season.

Inventory of Breeding Birds in Attachment A, and described in the following sections. Representative photographs of the habitat types are provided in Attachment B.

3.1 Upland Forest

Upland forest contained within the Project area includes both deciduous and coniferous types. Forested portions of the ROW are not regularly maintained, and generally occur outside of a shrubland corridor that is periodically maintained by Eversource to ensure safe clearance to the overhead transmission line conductors.

Tree species found within mixed forest include deciduous species such as oak (*Quercus* spp.), maple (*Acer* spp.), and hickory (*Carya* spp.), as well as coniferous species such as eastern white pine (*Pinus strobus*) and eastern hemlock (*Tsuga canadensis*). The understory varies in composition and density, but often contains a mixture of saplings of canopy species and shrubs, along with variable ground cover species. Common understory species include black cherry (*Prunus serotina*), mountain laurel (*Kalmia latifolia*), Japanese barberry (*Berberis thungbergii*), green briar (*Smilax rotundifolia*), tree clubmoss (*Lycopodium obscurum*), hay-scented fern (*Dennstaedtia punctilobula*), and teaberry (*Gaultheria procumbens*).

3.2 Old Field / Shrubland

This upland habitat is characterized by shrubs, saplings, and a mixture of forbs and grasses. It is the dominant habitat in the managed portions of the ROW, where routine maintenance prevents trees from maturing and allows the vegetation to remain dominated by shrubs. This cover type has similar habitat characteristics associated with ecologically important "old field" habitats which develop due to agricultural abandonment and succession to shrub and young forest cover. Characteristic shrubs include witch hazel (*Hamamelis virginiana*), eastern red cedar (*Juniperus virginiana*), hazelnut (*Corylus americana*), elderberry (*Sambucus canadensis*), blackberry and raspberry species (*Rubus* spp.), and sweet fern (*Comptonia peregrina*). Because it is relatively slow growing eastern red cedar is selectively retained within these areas, so in some cases there are somewhat dense stands of this species found within some portions of the ROW. Invasive shrub and vine species such as Morrow's honeysuckle (*Lonicera morrowii*), autumn olive (*Elaeagnus umbellata*), multiflora rose (*Rosa multiflora*) and Asiatic bittersweet (*Celastrus orbiculatus*) are also common in old fields/shrublands throughout the ROW. Grasses, forbs, and ferns that commonly occur in this habitat include goldenrod (*Solidago* spp.), little blue stem (*Schizachyrium scoparium*), common mullein (*Verbascum thapsus*), hawkweed (*Hieracium* spp.), hay-scented fern (*Dennstaedtia punctilobula*) and bracken fern (*Pteridium aquilinum*).

3.3 Agricultural

Agricultural land refers to tilled cropland, hayfields, pastures, and nurseries which are compatible land uses under electric transmission lines. This habitat type occurs occasionally along the Project ROW.

3.4 Forested Wetland

Red maple (*Acer rubrum*) tends to be the dominant canopy species in forested wetlands on the ROW, but may include assemblages of other tree species that can tolerate wet conditions such as yellow birch (*Betula allegheniensis*), green ash (*Fraxinus pennsylvanicus*), white pine, eastern hemlock, and black gum (*Nyssa sylvatica*). The shrub stratum in forested wetlands varies depending on the associated soil conditions and water regime, but often includes spicebush (*Lindera benzoin*), northern arrow-wood (*Viburnum recognitum*), highbush blueberry (*Vaccinium corymbosum*), and winterberry (*Ilex verticillata*). Common herbaceous species include: skunk cabbage (*Symplocarpus foetidus*), cinnamon fern (*Osmunda cinnamomea*), and jewelweed (*Impatiens capensis*).

3.5 Scrub-Shrub Wetland

Scrub-shrub habitat, also referred to as shrub swamp or shrub wetland, is dominated by woody vegetation less than approximately 20 feet tall. This cover type may represent a successional stage leading to a forested wetland and include shrubs, saplings, and trees or shrubs that are small, and/or stunted due to saturated environmental conditions. Scrub-shrub habitat is the most prevalent wetland habitat in the managed portion of the ROW. Common species include winterberry, alder (*Alnus* spp.), highbush blueberry, silky dogwood (*Cornus amomum*), and maleberry (*Lyonia ligustrina*). Larger shrub swamps with wetter water regimes also support such shrubs as swamp azalea (*Rhododendron viscosum*), black chokeberry (*Aronia* sp.), poison sumac (*Toxicodenron vernix*), buttonbush (*Cephalanthus occidentalis*), and swamp rose (*Rosa palustris*). As with forested wetlands, herbaceous species are dependent on underlying soil conditions and wetland water regime. Herbaceous species may include sedges (*Carex* spp.), rushes (*Juncus* spp.), and ferns.

3.6 Emergent Marsh

Emergent marshes generally occur in low areas on the landscape that are permanently or semi-permanently flooded. These areas tend to contain deep organic soil layers, and can include a range of emergent plant species, depending on the water regime. Deeper marshes are often characterized by persistent emergents such as cattail (*Typha* spp.), or invasive species such as common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*). Rushes and sedges, including woolgrass (*Scirpus cyperinus*), threesquare (*Schoenoplectus pungens*), Canadian rush (*Juncus canadensis*), and tussock sedge (*Carex stricta*) predominate in shallower marshes.

3.7 Open Water/Pond

Open water/pond areas are permanent or semi-permanent open water bodies that may be manmade or natural, and may or may not include emergent and/or floating-leaved plants such as pondweed (*Potamogeton* spp.) and water lilies (*Nymphaea* spp.).

3.8 Stream / River (Riparian)

The Project area includes numerous streams, as well as the Naugatuck River. The floodplain habitat associated with these channelized waterbodies is the riparian zone, and can include forested, shrub, and herbaceous vegetation.

3.9 Developed (Commercial / Industrial, Residential

This category denotes commercial, industrial and residential land uses, including buildings, structures, landscaping and associated infrastructure. Residential, commercial, and industrial structures are precluded from the Eversource ROW pursuant to easement agreements, but do occur in the general Project area. In some locations, the ROW does encompass landscaping or managed lawn areas associated with these uses.

Section 4
Results

An inventory of breeding birds expected to occur within the Project area was developed by reviewing the list of breeding birds known to occur in the region and for which suitable habitat is present in the Project area. The complete inventory is provided in Attachment A, and a summary of the inventory data is provided below. This inventory also includes birds observed during habitat assessment work, many of which are expected to breed in the Project area.

A total of 99 species were identified as potential breeders, of which 45 species were observed during field investigations. All observed species were found within suitable breeding habitat and are considered *possible* breeders based on the criteria described in Section 3.0.

In order to evaluate the Project area's value for species of high-conservation priority as opposed to common species and habitat generalists, the inventory of birds was prioritized based on conservation status (refer to Attachment A). Species that are included either on *Connecticut's List of Endangered, Threatened and Special Concern Species* (2010) or classified as *Species of Greatest Conservation Need* (SGCN) by *Connecticut's Wildlife Action Plan*[2] (WAP, in preparation.) were considered to be species of high conservation priority. The WAP was created to establish a framework for proactively conserving Connecticut's fish and wildlife, including their habitats.

The WAP designates birds of high-conservation priority as SGCN. SGCN fall into three categories in descending order of significance from *most important* to *very important* to *important*.

A total of six state-listed species were considered potentially present and are discussed in detail in Section 4.1. A total of 35 species (or 35% of the 99 total species) are SGCN. Of those 35 species, seven are classified as *most important*, 16 as *very important* and 12 as *important*.

Of the 35 SGCN identified, 15 are associated with managed early-successional ROW vegetation (i.e., shrubland and PSS wetlands) and 13 are associated with forested habitats (i.e., upland forest and PFO wetlands). The remaining seven SGCN species are associated with edge habitats or agricultural lands. A greater percentage of the seven SGCN classified as *most important* are associated with managed early-successional ROW vegetation (i.e., shrubland and PSS wetlands) as opposed to forested habitats (five species versus two species).

[2] *Connecticut's Wildlife Action Plan*, formerly known as *Connecticut's Comprehensive Wildlife Conservation Strategy* (2005) is currently under revision by the CTDEEP. Portions of the plan, such as the SGCN list, have been released in draft form and have been used in this report.

Summary Breeding Bird Inventory Data - Frost Bridge to Campville 115-kV Project

Category	Total Species	Percentage of Category
Total potential breeding birds	99	100%
Total bird species observed	45	46%
State-listed species (observed and potentially present)	6	6%
State-listed species associated with early-successional habitats (grassland, shrubland, or PSS)	6	100%
Total potential WAP SGCN	35	35%
SGCN that are early-succesional specialists (shrubland and PSS species)	15	43%
SGCN that are forest specialists (upland forest and PFO species)	13	37%
SGCN "Most Important" early-succesional specialists (shrubland and PSS species)	5	71%
SGCN "Most Important" forest specialists (upland forest and PFO species)	2	29%

The prevalence of forested and shrubland habitats in the Project area is reflected in the composition of breeding bird species expected to occur. The majority of bird species in the inventory are forest-breeding songbirds and woodpeckers, shrubland and shrub swamp-breeding songbirds, species that utilize forest edges, and habitat generalists. Several species of raptors that breed in forests but use open, early successional habitats for hunting can also be expected to occur.

Waterbirds, including ducks, wading birds, shorebirds, gulls, and terns, make up a relatively small percentage of breeding birds in the Project area despite the abundance of wetlands. This is primarily because many species of water birds, particularly ducks, do not breed in Connecticut, but rather breed in more northerly latitudes such as northern New England and Canada. Many water birds that do breed in Connecticut tend to concentrate in coastal areas. Waterbirds included in the inventory include those species associated with freshwater wetlands (e.g., wood duck) and rivers (e.g., common merganser).

Birds that require grassland or agricultural habitats are not expected to be prevalent within the Project area due to a significantly lower percentage of these cover types available as compared to shrubland or forest. Some grassland species that are known to breed in the region are not included in the inventory because they have minimum area requirements that are not met by habitats occurring in the Project area. For example, upland sandpiper (*Bartramia longicauda*), an endangered species in Connecticut, is a grassland bird species that requires a minimum of 150 acres of grassland for nesting.

4.1 State-listed Species

The inventory includes six state-listed species, one of which, the broad-winged hawk *(Buteo platypterus*), was observed within the Project area. The other five species, American kestrel *(Falco sparverius*), brown thrasher *(Toxostoma rufum*), savannah sparrow, bobolink *(Dolichonyx oryzivorus*) and alder flycatcher (*Empidonax alnorum*), are potential Project area inhabitants based on the presence of suitable habitat. Their habitat requirements and potential Project area use are described in the following sections.

4.1 Broad-winged Hawk *(Buteo platypterus*)

The Broad-winged Hawk inhabits deciduous or mixed forest types often near a lake, pond or wetland. Bevier (1994:102) noted that "the Broad-winged Hawk exhibits a diversified nest site habitat selection". A single male broad-winged hawk was observed on May 2nd calling from a perch along the forest edge adjacent to a wetland in Harwinton. The area consisted of upland forest edge adjacent to wetlands and represents suitable breeding habitat.

4.2 American Kestrel *(Falco sparverius)*

A wide variety of open to semi-open habitats including meadows, grasslands, deserts, early old field successional communities, open parkland, agricultural fields, and both urban and suburban areas; regardless of dominant vegetation form present. The breeding territories are characterized by either large or small patches covered by short ground vegetation, with taller woody vegetation either sparsely distributed or lacking altogether. Suitable nest trees and perches required. Typical breeding habitat in the northeast or midwest is large (>62 acres) pasture or recently fallowed field, with 1 or few isolated large dead trees for nesting and several potential perches[3].

For the most part there is limited suitable habitat available for American kestrel within the Project area due to the narrow linear configuration of early-successional habitats available and the limited graminoid dominated areas. The agricultural fields located on the east side of Park Road in Watertown represent the only area potentially suitable for American kestrel

4.3 Brown Thrasher *(Toxostoma rufum)*

Brown thrasher inhabit thickets, brushy hillsides and woodland edges in suburban and rural areas (Bevier, 1994). Maturation of forest and other factors causing loss of early successional habitat are driving the decline in this species. Although more information is needed to adequately assess the population trend of this species in Connecticut, Breeding Bird Survey data shows a steady decline of 3.5% annually over the last four decades. The species is considered a stewardship species of continental importance by Partners in Flight[4]. Shrubland-dominated portions of the ROW represent suitable breeding habitat for thrasher. Suitable habitat occurs throughout the managed shrubland portions of the ROW.

[3] Smallwood, John A. and David M. Bird. 2002. *American Kestrel (Falco sparverius), The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/602

[4] Leenders, A. A. (Ed.). 2009. *Connecticut State of the Birds*. Connecticut Audubon Society. Fairfield, CT. 52 p.

4.4 Grassland Birds - Savannah Sparrow *(Passerculus sandwichensis)* and Bobolink *(Dolichonyx oryzivorus)*

The savannah sparrow and bobolink are grassland specialists that inhabit early old field habitat, managed grasslands (i.e., airport runway fields) or hayfields. Generally larger contiguous fields are favored, with a minimum area requirement of 5-10 acres for bobolink and 20-40 acres for savannah sparrow(Comins, Hanisek, & Oresman, 2003). As was noted regarding the American kestrel, the hayfields on the east side of Park Road in Watertown, totaling approximately 25 acres, represent the only potentially suitable nesting habitat for these grassland species within the Project area.

Both species are ground nesting birds. Therefore, a delayed mowing regime (late June-August) would be required to allow for successful nesting. If the subject field is managed solely for the production of forage hay, which is presumably the case, such a management regime would not be compatible with these species' nesting requirements.

4.4 Alder Flycatcher *(Empidonax alnorum)*

The alder flycatcher occurs in habitats with an interspersion of low vegetation including shrubs with trees over eight feet high in the vicinity of streams or other open water (Bevier 1994). Suitable nesting habitat occurs in the managed early-successional portions of the ROW that include streams, wetlands or open water.

Section 5
Discussion

5.1 Importance of Transmission Line Corridors for Shrubland Birds

Shrublands in the northeastern United States are primarily disturbance-dependent and are typically ephemeral. Left unmanaged, these areas would naturally revert to forest. Despite the transient nature of shrublands and other early successional habitats, many species of birds and other wildlife require these habitats.

In the Northeast, shrublands and other forms of early successional vegetation were historically created by catastrophic events such as hurricanes and fires, flooding associated with beaver (*Castor canadensis*) activity, or other natural phenomena that alter landscape composition (Askins 2000). In the 18th and 19th century, farming contributed greatly to the amount of early successional habitat in the Northeast.

In the 20th century, however, the widespread abandonment of farms, loss of land due to development, and suppression of fire significantly reduced the amount of early successional cover types found in the Northeast (Litvaitis 1993). Today these habitats are almost exclusively associated with anthropogenic activities such as silviculture and managed transmission line corridors which favor the establishment and persistence of shrub-dominated vegetation.

The decline of shrublands and other early-successional cover types in the Northeast has had considerable impacts on the populations of associated wildlife. In particular, many bird species have experienced statistically significant population declines due to the loss of suitable breeding habitat (Witham & Hunter 1992). By some estimates, at least 45 percent of all shrubland birds in the Northeast experienced statistically significant population declines between 1966 and 2000 (Dettmers 2003).

Because transmission line corridors are one of the few sources of persistent early-successional habitat in the Northeast, they play an important role in supporting a variety of bird and wildlife species. This critical role in maintaining essential habitat and wildlife biodiversity has been widely acknowledged, not only for birds but for a number of reptile and invertebrate species.

Statewide, transmission corridors remain critical habitat for shrubland and other early-successional birds. Vegetation management of transmission line corridors is recommended as part of the regional and national conservation strategy to reverse declines of priority shrubland birds in the eastern region. Askins notes that shrubland birds today are largely dependent on clearcuts and transmission line corridors, and that the latter typically supports a rich diversity of shrubland birds (Askins 2000). In the Connecticut Audubon Society's 2009 *State of the Birds* report (p.44), it was noted that "*…shrubland birds are benefitting from maintenance of powerline corridors by utility companies which remove tall-growing trees from the vicinity of wires, creating a habitat dominated by shrubs, grass and herbs."*

The Project proposes to widen existing managed transmission ROWs, which will require the conversion of adjacent upland or wetland forests to shrubland or scrub-shrub cover types. This will ultimately increase suitable habitat for shrubland birds that are already using the existing transmission line corridor, which in turn may boost local breeding populations of many of these species. Of the 35 SGCN species identified as potentially present, approximately 15 species (43%) can be expected to benefit from an increase in suitable habitat resulting from this project.

5.2 Potential Project Impacts to Forest Birds

While the expansion of the managed utility corridor will have a net positive benefit on shrubland birds, it has the potential to negatively affect forest-dwelling birds due to a loss of habitat resulting from the additional forest clearing. Of the 35 SGCN identified as potential site inhabitants, 13 of those (37%) utilize forested uplands or wetlands.

The greatest potential for negative effects on high-conservation priority species are on those birds that are considered forest-interior birds (e.g., scarlet tanager, wood thrush). Forest-interior birds favor the interior of the forest or "forest core" away from non-forested "edge" habitat. In particular, forest interior birds may find edge habitat detrimental as it creates conditions favorable to predators such as raccoons and nest parasites such as brown-headed cowbird. Forest interior birds have become the focus of conservation efforts region-wide due to long-term population declines of many of these species due to forest fragmentation.

Given that the corridor is pre-existing, the forest bordering the managed ROW is categorized as edge forest as opposed to interior forest. This edge forest is favored by ecotone specialists or forest generalists, and is not optimal breeding habitat for forest-interior birds. Although the Project will not *directly* impact core forest, it will indirectly impact core forest as the additional clearing along the edge of the forest patch will result in reduced core forest within the overall forest patch. The width of the edge forest effect can vary by region or species.

In order to determine potential Project effects on forest-interior birds (and core forest habitat), the methodology described in the Center for Land Use Education and Research's (CLEAR) Forest Fragmentation Study[5] was used. The CLEAR study designates a forest as core if it is greater than 300 feet away from non-forested areas with the 300-foot zone representing edge forest that is considered sub-optimal breeding habitat for forest-interior birds.

The CLEAR study, along with many other studies, have suggested that forest patch size is a critical factor for successful breeding by forest-interior birds (Environment Canada 2004). The CLEAR study suggests that 250 acres should be considered the *absolute minimum* forest patch size needed to support area-sensitive edge-intolerant species, with a recommended minimum forest patch size of 500 acres. At that scale, a forest is presumed to provide enough suitable habitat to support more diversity of interior forest species. Therefore, not all of the forest areas impacted by the Project will constitute high-

[5] CLEAR's Forest Fragmentation Study can be found at: http://clear.uconn.edu/projects/landscape/forestfrag/forestfrag_public%20summary.pdf

value forest. The CLEAR forest fragmentation data is illustrated on Figure 1, attached. This data identifies three categories to indicate the viability of the core patches with respect to the size of the patch, small (< 250 acres), medium (250-500 acres), and large (>500 acres).

As depicted in Figure 1, the Project area is dominated by small core (<250 acres) forest, non-forest, or forest fragments (patch or perforated forests) as opposed to large forest patches. These small core forests and forest fragments may provide some breeding habitat for forest-interior species but are generally considered sub-optimal, and may serve as population sinks. Significant core forest patches are not abundant within the Project area. Only one medium core forest patch (Mattatuck State Forest and Black Rock State Park in Watertown and Thomaston) and one large core forest patch (Mattatuck State Forest in Watertown) occur in proximity to the Project area. Furthermore, the single large core forest patch is located within a segment of Project area where minimal additional forest clearing will be required within the interior of the maintained ROW.

Section 6
Conclusion

The Project area is dominated by two habitat types, shrubland located within the managed portion of the ROW and forest, which predominately occurs along the unmanaged edges of the ROW. Breeding bird species that can be expected to occur in the Project area generally reflect this vegetative composition.

There are several potential consequences to avian biodiversity related to the proposed Project. These effects can be categorized as temporary (construction-related) and permanent (permanent habitat loss).

Temporary effects are associated with Project activities such as vegetation removal or construction activities associated with the new transmission line. These disturbances may drive birds from the work areas or generally disrupt nesting, feeding, or other activities. If conducted during the breeding season, such activities may result in inadvertent takings of nests and young. Once construction is complete, avian utilization of the Project area is anticipated to resume to pre-construction levels. Temporary impacts to birds resulting from vegetation removal can be minimized if this work is conducted from approximately mid-August through late March (outside of the breeding season). Such a restriction would not disrupt breeding birds, but may temporarily displace some wintering or migrating birds.

Permanent effects associated with the proposed Project are related to the conversion of forested habitats to shrubland or scrub-shrub wetland. Because the proposed Project capitalizes on an existing managed transmission line ROW, the Project does not contribute to the new fragmentation of forest interior habitats, minimizing the potential impact to forest-interior birds. Furthermore, significant areas of un-fragmented forest will not be impacted, as the Project area contains only one large core forest patch within which no additional forest removal is required. Forest loss will be restricted to one medium core forest patch (Mattatuck State Forest/Black Rock State Park) and several small core forest patches only.

Shrubland and other early-successional bird species will benefit from the conversion, however. These include a number of species of high-conservation priority including the prairie warbler, blue-winged warbler and field sparrow. Seven *most important* SGCN species were identified as potentially occurring within the Project area. A greater percentage of the seven SGCN classified as *most important* are associated with managed early-successional ROW vegetation (i.e., shrubland and PSS wetlands) as opposed to forested habitats (five species versus two species).

Six state-listed species were identified within the Project area as potential or confirmed breeders (five potential, one confirmed). All six of these species are associated within open or early-successional habitats or forest edge habitats as opposed to forest-interior. Therefore, there will not be a reduction in suitable habitat for these species. For two of the listed species, the alder flycatcher and brown thrasher, suitable habitat will increase as a result of the additional forest conversion to shrubland.

Section 7
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http://bna.birds.cornell.edu/bna/species/602

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FIGURE 1: CORE FOREST MAP

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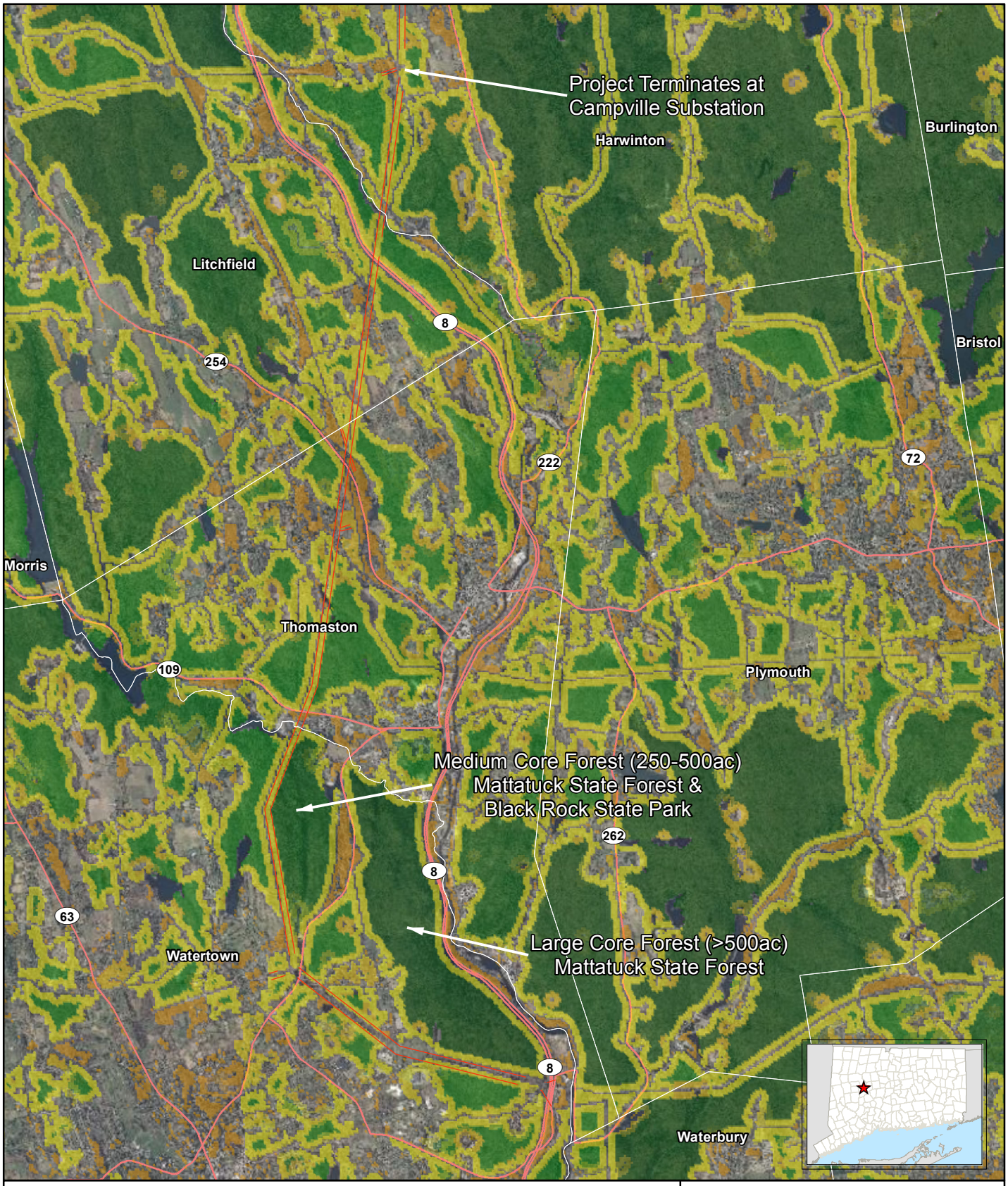

Legend

- Project Area

Forest Patch Types

- Core Forest (250-500 ac)
- Core Forest (<250 ac)
- Core Forest (>500 ac)
- Edge Forest
- Patch Forest
- Perforated Forest

Tighe&Bond
Consulting Engineers
Environmental Specialists

Map Description:
Map illustrating CLEAR's Forest Fragmentation Study mapping which shows three categories of core forest, small core (<250ac), medium core (250ac-500ac) and large core (>500ac).

Source: Forest Fragmentation Data, UConn CLEAR; UConn 2012 tiled Orthos

1 in = 6,000 ft
0 3,000 6,000
Feet

N

FIGURE 1
CORE FOREST MAP

Frost Bridge to Campville
115-kV Project

December 2015

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APPENDIX A:

INVENTORY OF BREEDING BIRDS

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Frost Bridge to Campville 115-kV Project - Inventory of Breeding Birds

Common Name	Scientific Name	Habitats	Conservation Status	Observed
Acadian Flycatcher	*Empidonax virescens*	WC		
Alder Flycatcher	*Empidonax alnorum*	PSS, WC	SC, I	
American Crow	*Corvus brachyrhynchos*	UF, SH		
American Goldfinch	*Carduelis tristis*	SH		X
American Kestrel	*Falco sparverius*	SH,AG	T, MI	
American Redstart	*Setophaga ruticilla*	UF		
American Robin	*Turdus migratorius*	UF,SH,DV		X
American Woodcock	*Scolopax minor*	PSS, PEM, SH	MI	
Barred Owl	*Strix varia*	UF, SH		
Belted Kingfisher	*Ceryle alcyon*	WC		
Black-and-white Warbler	*Mniotilta varia*	UF	I	X
Black-billed Cuckoo	*Coccyzus erythropthalmus*	UF, SH	VI	
Blackburnian Warbler	*Dendroica fusca*	UF	I	
Black-capped Chickadee	*Parus atricapillus*	UF		X
Black-throated Blue Warbler	*Dendroica caerulescens*	UF	VI	
Black-throated Green Warbler	*Dendroica virens*	UF		X
Blue Jay	*Cyanocitta cristata*	UF, SH, DV		X
Blue-gray Gnatcatcher	*Polioptila caerulea*	UF, DV		
Blue-winged Warbler	*Vermivora pinus*	SH	MI	X
Bobolink	*Dolichonyx oryzivorus*	AG	SC, VI	
Broad-winged Hawk	*Buteo platypterus*	UP, SH	SC, VI	X
Brown Creeper	*Certhia americana*	PFO	I	
Brown Thrasher	*Toxostoma rufum*	SH	SC, VI	
Brown-headed Cowbird	*Molothrus ater*	UF, SH, AG, DV		X
Canada Goose	*Branta canadensis*	POW		
Canada Warbler	*Wilsonia canadensis*	UF, WC	VI	
Cedar Waxwing	*Bombycilla cedrorum*	SH, AG		

Common Name	Scientific Name	Habitats	Conservation Status	Observed
Cerulean Warbler	*Dendroica cerulea*	UF, WC	VI	
Chestnut-sided Warbler	*Dendroica pensylvanica*	UF, SH	VI	X
Chimney Swift	*Chaetura pelagica*	DV		
Chipping Sparrow	*Spizella passerina*	DV, UF		X
Common Grackle	*Quiscalus quiscula*	PSS, POW, PEM, SH, DV		
Common Merganser	*Mergus merganser*	WC		X
Common Yellowthroat	*Geothlypis trichas*	SH, PSS		
Cooper's Hawk	*Accipiter cooperii*	UF, SH		
Downy Woodpecker	*Picoides pubescens*	UF		X
Eastern Bluebird	*Sialia sialis*	AG		
Eastern Kingbird	*Tyrannus tyrannus*	SH, AG	I	
Eastern Phoebe	*Sayornis phoebe*	DV, UF, SH		X
Eastern Screech-Owl	*Otus asio*	UF		
Eastern Towhee	*Pipilo erythrophthalmus*	SH	VI	X
Eastern Wood-Pewee	*Contopus virens*	UF	I	X
European Starling	*Sturnus vulgaris*	DV, AG		
Field Sparrow	*Spizella pusilla*	SH	VI	X
Gray Catbird	*Dumetella carolinensis*	SH, PSS, UF		X
Great Crested Flycatcher	*Myiarchus crinitus*	UF, SH		X
Great Horned Owl	*Bubo virginianus*	UF		
Green Heron	*Butorides virescens*	POW		
Hairy Woodpecker	*Picoides villosus*	UF		
Hermit Thrush	*Catharus guttatus*	UF		
House Finch	*Carpodacus mexicanus*	DV		
House Sparrow	*Passer domesticus*	DV		
House Wren	*Troglodytes aedon*	SH, AG		
Indigo Bunting	*Passerina cyanea*	SH	VI	
Least Flycatcher	*Empidonax minimus*	PSS, PEM, SH	VI	

Common Name	Scientific Name	Habitats	Conservation Status	Observed
Louisiana Waterthrush	*Seiurus motacilla*	WC, UF	VI	X
Magnolia Warbler	*Dendroica magnolia*	UF		
Mallard	*Anas platyrhynchos*	POW, WC		
Mourning Dove	*Zenaida macroura*	DV, UF, SH		X
Northern Cardinal	*Cardinalis cardinalis*	DV, UF, SH		X
Northern Flicker	*Colaptes auratus*	UF, DV		X
Northern Goshawk	*Accipiter gentilis*	UF	MI	
Northern Mockingbird	*Mimus polyglottos*	AG, SH		X
Northern Oriole	*Icterus galbula*	UF, SH	I	X
Ovenbird	*Seiurus aurocapillus*	UF	I	X
Pileated Woodpecker	*Dryocopus pileatus*	UF		X
Pine Warbler	*Dendroica pinus*	UF		X
Prairie Warbler	*Dendroica discolor*	SH	MI	X
Purple Finch	*Carpodacus purpureus*	UF		
Red-bellied Woodpecker	*Melanerpes carolinus*	UF		X
Red-eyed Vireo	*Vireo olivaceus*	UF		
Red-shouldered Hawk	*Buteo lineatus*	UF, POW		X
Red-tailed Hawk	*Buteo jamaicensis*	UF, SH, AG		X
Red-winged Blackbird	*Agelaius phoeniceus*	PEM, PSS		X
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	UF, SH	I	X
Ruby-throated Hummingbird	*Archilochus colubris*	UF, SH, DV		
Savannah Sparrow	*Passerculus sandwichensis*	AG	SC, I	
Scarlet Tanager	*Piranga olivacea*	UF	VI	
Solitary Vireo	*Vireo solitarius*	UF		
Song Sparrow	*Melospiza Melodia*	SH		X
Swamp Sparrow	*Melospiza georgiana*	PEM, PSS		
Tufted Titmouse	*Parus bicolor*	UF		X
Turkey Vulture	*Cathartes aura*	SH, UF		X

Common Name	Scientific Name	Habitats	Conservation Status	Observed
Veery	*Catharus fuscescens*	UF		
Warbling Vireo	*Vireo gilvus*	UF, SH		
White-breasted Nuthatch	*Sitta carolinensis*	UF		X
White-eyed Vireo	*Vireo griseus*	SH	I	
White-throated Sparrow	*Zonotrichia albicollis*	SH, PSS, PEM		X
Wild Turkey	*Meleagris gallopavo*	UF		X
Willow Flycatcher	*Empidonax traillii*	PSS	I	X
Woodcock	*Scolopax minor*	SH	MI	
Wood Duck	*Aix sponsa*	PFO		X
Wood Thrush	*Hylocichla mustelina*	UF	MI	X
Worm-eating Warbler	*Helmitheros vermivorus*	UF	VI	
Yellow Warbler	*Dendroica petechia*	PSS, SH		X
Yellow-bellied Sapsucker	*Sphyrapicus varius*	UF		X
Yellow-billed Cuckoo	*Coccyzus americanus*	SH	VI	
Yellow-rumped Warbler	*Dendroica coronata*	UF		X
Yellow-throated Vireo	*Vireo flavifrons*	UF		

APPENDIX B:

REPRESENTATIVE HABITAT PHOTOGRPAHS

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Photo 1: small hayfield on Mason Hill Road in Northfield (agricultural habitat type).

Photo 2: view east of the managed hayfield on Park Road in Watertown with adjacent residential (agricultural/developed habitat types).

Photo 3: Lawn, landscaping and residential home beneath utility line (developed habitat type).

Photo 4: Tussock sedge wetland (PEM habitat type).

Photo 5: Forested wetland (PFO type, Wetland A7)

Photo 6: Jericho Brook Pond (POW habitat type).

Photo 7: scrub-shrub wetland (PSS habitat type).

Photo 8: scrub-shrub wetland (PSS habitat type).

Photo 9: Branch Brook below Branch Brook Reservoir.

Photo 10: Naugatuck River in Litchfield.

Photo 11: headwater stream (Stream D5) draining from Morton Pond in Thomaston.

Photo 12: headwater stream in Mattatuck SF, Thomaston.

Photo 13: mountain laurel dominated shrubland in the rugged uplands of Mattatuck State Forest in Thomaston.

Photo 14: shrubland/late old field habitat in Watertown looking east across the Naugatuck River Valley.

Photo 15: cedar-dominated shrubland/late old field habitat at Mattatuck SF in Watertown.

Photo 16: upland mixed hardwood forest, Thomaston.

Photo 17: upland mixed hardwood forest in bedrock-controlled topography, Watertown.

Photo 18: white pine dominated forest in Harwinton.

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EXHIBIT 3: RARE SPECIES REPORT

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Rare Species Report

Prepared For:

The Connecticut Light and Power Company doing business as Eversource Energy
107 Selden Street
Berlin, CT 06037

Prepared By:

Tighe & Bond
213 Court Street, Suite 1100
Middletown, CT 06457

This Report is not provided for general public review in order to protect the integrity of threatened and endangered species locations.

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EXHIBIT 4: PRELIMINARY ARCHAEOLOGICAL ASSESSMENT AND SCOPE OF WORK FOR COMPLETION OF CULTURAL RESOURCES RECONNAISSANCE SURVEY

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HERITAGE
CONSULTANTS, LLC

INTEGRATED HISTORIC PRESERVATION PLANNING

November 24, 2015

Mr. Justin Adams
Environmental Affairs
Eversource Energy
107 Selden Street
Berlin, CT 06037

RE: Preliminary Archeological Assessment of the Proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut

Mr. Adams:

Heritage Consultants, LLC, is pleased to have this opportunity to provide Tighe & Bond in support of Eversource Energy with the following preliminary archeological assessment of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut (Figure 1, Sheets 1 through 14). The current review entailed completion of an existing conditions cultural resources summary based on the examination of data obtained from the Connecticut State Historic Preservation Office, as well as GIS data and historic maps, aerial photographs, and topographic quadrangles maintained by Heritage Consultants, LLC. This investigation also entailed a review of the reports entitled *Archaeological Phase IA Assessment Survey for the Proposed Line Route of the Central Connecticut Reliability Project Overhead Electrical Transmission Right-of-Way, Frost Bridge Substation to North Bloomfield Substation* (UMass 2009) *and Archaeological Phase IB Intensive (Locational) Survey for the Proposed Line Route of the Central Connecticut Reliability Project Overhead Electrical Transmission Right-of-Way, Frost Bridge Substation to North Bloomfield Substation* (Umass 2010). These two reports were prepared by UMass Archaeological Services for Burns and McDonnell, Inc., in 2009 and 2010.

The current preliminary archaeological assessment is based in part upon project location information provided to Heritage Consultants, LLC by Tighe & Bond and Eversource Energy. The objectives of this study were: 1) to gather and present data regarding previously identified cultural resources situated within the vicinity of the proposed transmission line and its associated project items (i.e., structures, work pads, pull pads, and access roads); 2) to investigate the proposed project corridor in terms of its natural and historical characteristics; and 3) to evaluate the need for completing additional cultural resources investigations. At this time, no field investigation of the proposed project corridor has been conducted Heritage Consultants, LLC.

As seen in Figure 1; Sheets 1 through 14, the proposed project corridor extends from the Campville Substation in Harwinton, Connecticut in the north to the Frost Bridge Substation in Watertown, Connecticut in the south. From north to south, the corridor crosses through portions of Harwinton, Litchfield, Thomaston, and Watertown, Connecticut. This portion of Connecticut is highly variable in terms of both its settlement density and natural characteristics. As seen in Sheets 1 through 14 of Figure 1, the proposed corridor extends through areas that are rural to suburban in nature, with commercial

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zoning in some places. Moreover, the topography throughout the proposed project corridor is highly variable, ranging from lows of ca. 107 m (350 ft) NVGD to highs of ca. 275 m (900 ft) NGVD. Finally, Figure 1; Sheets 1 through 14 indicate that the proposed project corridor either crosses or is located in very close proximity to numerous freshwater sources, including the Naugatuck River, numerous named and unnamed brooks and streams, several natural and man-made lakes and ponds, and dozens of unnamed wetland areas.

As mentioned above, Heritage Consultants, LLC completed a review of previously recorded cultural resources on file with the Connecticut State Historic Preservation Office (Figure 2; Sheets 1 through 14; Figure 3; Sheets 1 through 14; and Figure 4; Sheets 1 through 14). Figure 2; Sheets 1 through 14 and Figure 3; Sheets 1 through 14 show that there are no previously identified archaeological sites or National Register of Historic Places properties on file with the Connecticut State Historic Preservation Office that are situated within 152 m (500 ft) of the proposed project corridor or in the general project region. However the absence of archaeological sites in the project region likely reflects a lack of professional archeological surveys in this part of Connecticut rather than an actual absence of site locations, as will be discussed in more detail below. Finally, Figure 4; Sheets 1 through 14 depicts previously identified historic structures and National Register of Historic Places eligible buildings situated within project region. Only two historic barns exist within 152 m (500 ft) of the proposed centerline (Figure 4; Sheet 6). These barns are typical New England types and they have not been assessed applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The proposed construction will have no impacts on the above-referenced barns. The other closest historic building, as seen in Figure 4; Sheet 6, is located just outside of the study corridor and approximately 200 m (656 ft) from the corridor centerline. This building consists of a typical two story vernacular residence that was constructed during the 1860s. The building has been modified to include new vinyl replacement windows and what appears to be aluminum siding. Due to these modifications, it is unlikely that this building would be eligible for listing to the National Register of Historic Places.

In addition to the review of previously identified cultural resources on file with the Connecticut State Historic Preservation Office, Heritage Consultants, LLC reviewed the Phase IA Cultural Resources Assessment Survey and Phase IB Cultural Resources Reconnaissance Survey reports produced by UMass Archaeological Services. These reports were entitled *Archaeological Phase IA Assessment Survey for the Proposed Line Route of the Central Connecticut Reliability Project Overhead Electrical Transmission Right-of-Way, Frost Bridge Substation to North Bloomfield Substation* (2009) and *Archaeological Phase IB Intensive (Locational) Survey for the Proposed Line Route of the Central Connecticut Reliability Project Overhead Electrical Transmission Right-of-Way, Frost Bridge Substation to North Bloomfield Substation* (2010). According to the Phase IA report, UMass Archaeological Services performed background research, an archaeological predictive model study, and a walkover of the proposed project corridor, which measured approximately 35 linear miles in extent. The current proposed project corridor represents only a portion of the entire area studied by UMass Archaeological Services. The recommendations put forth by UMass Archaeological services for the currently proposed study area in Harwinton, Litchfield, Thomaston, and Watertown included the designation of 26 archaeological "test areas" that were thought to retain a high probability for containing intact archaeological deposits (UMass 2009). The recommendation of the Phase IA also included excavation of a total of 539 shovel tests throughout the test areas, which combined totaled 2.3 miles in length between the Frost Bridge and Campville Substations.

During 2010 field season, UMass Archaeological Services completed 227 of the 539 (42 percent) of the shovel tests recommended as a result of the Phase IA investigations completed in 2009. Excavation of these shovel tests resulted in the identification of 14 named and six unnamed archaeological sites along

the right-of-way associated with the Frost Bridge to Campville 115-kV Project corridor. Table 1 lists the names of the 14 sites that were determined to be potentially eligible for inclusion in the National Register of Historic Places under Criterion D, which states that the site has yielded or is likely to yield information important to the understanding of prehistory or history. Figure 5; Sheets 1 through14 shows the locations of those 14 archaeological sites. UMass Archaeological Services further recommended that all 14 of the sites they thought were potentially eligible be subjected to Phase II National Register testing and evaluation of assess to determine their eligibility for listing to the National Register of Historic Places (UMass 2010).

In order to further refine the archaeological context of the project corridor and to evaluate the likelihood that additional archaeological sites may be encountered along the proposed project corridor in areas not examined during the Phase IB effort completed by UMass Archaeological Services, Heritage Consultants, LLC reviewed aerial photographs, historic mapping, slopes, aspect, distance to water, and soils distributions throughout the project corridor. Historic mapping and aerial images depicting the proposed project corridor indicate that these portions of Harwinton, Litchfield, Thomaston, and Watertown have been actively settled since the eighteenth century, and that farming and logging were a large part of the economic base of this region until the early to mid-twentieth century. While the project region has changed in recent decades to include commercial areas and much more suburban development, the aerial images still show that some portions of the proposed project corridor have not been disturbed to a large degree. These are places where archaeological sites may retain depositional integrity/research potential.

In addition, environmental characteristics frequently are used to predict the location of archeological sites. Typically distance to water, slope, and soil types are included as part of these predictive models. Favorable conditions for archaeological site locations are characterized by gently sloping, well-drained soils in close proximity to fresh water. While sections of the project corridor are comprised of these favorable conditions and have been characterized as retaining a moderate/high potential to produce intact cultural deposits, many areas also been impacted by modern development or are characterized by Urban Land or Udorthent soils. All of these latter areas lack depositional integrity; thus, they retain little, if any, potential to retain intact cultural deposits. As a result, these areas were designated as having a no/low probability for containing archeological resources. Finally, during the current investigation, those areas identified as containing moderate to extremely sloping areas also have been designated as no/low potential areas in terms of their likelihood to produce intact archaeological deposits.

Figure 6; Sheets 1 through 14 shows the locations of all areas deemed to retain a no/low archaeological potential; these areas contain very steep slopes, wetlands, mucky soils, and/or have been impacted by modern development to a large degree (e.g., roads, parking areas, substations, etc.). Conversely, those portions of the proposed project corridor that fall within areas of low slopes, in proximity to a freshwater source, and/or contain well drained soils have been identified as moderate/high potential areas. This approach of stratifying project areas into no/low versus moderate/high probability zones based on soil types, slope, and distance to water has been used by Connecticut archaeologists for decades and it is a proven method. Figure 6; Sheets 1 through 14 also depict all of the work pads, access roads, and pull pads that are subject to United States Army Corps of Engineers (USACE) permitting prior to construction of the transmission line. These items are documented in Table 2, and since they require permitting by the USACE, they are subject to Section 106 review.

Based on the distribution of previously identified archaeological sites by UMass Archaeological Services, data collected from historic maps and aerials, and the environmental nature of the area, it is the professional opinion of Heritage Consultants, LLC that, if possible, ground disturbance should be avoided in those work pad, access roads, and pull pad areas that are being permitted by the USACE and that are

characterized as having a moderate/high archaeological sensitivity as depicted in Figure 6; Sheets 1 through 14. If these areas cannot be avoided during construction, it is recommended that matting or some other protective measures should be taken during the construction process. If this is also not feasible, then Phase IB Reconnaissance Survey of the permitted project items situated within moderate/high sensitivity areas should be should be conducted prior to construction. Finally, it is recommended that the archaeological sites previously identified by UMass Archaeological Services should be relocated and subjected to more rigorous testing. These sites should be examined more thoroughly to determine if they are indeed potentially significant applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). Finally, no additional examination of the low sensitivity areas is recommended, as these areas no longer retain the potential to yield intact archaeological sites.

If you have any questions regarding this Technical Memorandum, or if we may be of additional assistance with this or any other projects you may have, please do not hesitate to call us at 860-667-3001 or email me at dgeorge@heritage-consultants.com. We are at your service.

Sincerely,

David R. George

David R. George, M.A., R.P.A.
Heritage Consultants, LLC

References Cited

UMass Archaeological Services

2009 *Archaeological Phase IA Assessment Survey for the Proposed Line Route of the Central Connecticut Reliability Project Overhead Electrical Transmission Right-of-Way, Frost Bridge Substation to North Bloomfield Substation.* Submitted to Burns & McDonnell, Inc.

2010 *Archaeological Phase IB Intensive (Locational) Survey for the Proposed Line Route of the Central Connecticut Reliability Project Overhead Electrical Transmission Right-of-Way, Frost Bridge Substation to North Bloomfield Substation*. Submitted to Burns & McDonnell, Inc.

Table 1. Cultural resources identified during Phase IB survey of the proposed project corridor by UMass Archaeological Services

Site Name	Test Area Designation	Cultural Affiliation	National Register Eligibility*
Frost Bridge Site	WT-1	Prehistoric/Historic	Potentially Eligible
Turkey Brook Site	WT-2	Prehistoric	Potentially Eligible
Park Road Site	WT-3	Prehistoric	Potentially Eligible
Unnamed	WT-4	Historic	Not Eligible
Mattatuck Site	WT-5	Historic	Potentially Eligible
Springhead Site	TH-6	Prehistoric	Potentially Eligible
Rod and Gun Club Site	TH-7	Prehistoric/Historic	Potentially Eligible
Five Dams Site	TH-8	Prehistoric/Historic	Potentially Eligible
Five Dams II Site	TH-8	Prehistoric	Potentially Eligible
Walnut Hill Road Site	TH-9	Prehistoric	Potentially Eligible
Unnamed	TH-10	N/A	N/A
Northfield Brook Site	TH-11	Prehistoric	Potentially Eligible
Unnamed	TH-12	N/A	N/A
Unnamed	LF-55	N/A	N/A
Unnamed	HW-13	N/A	N/A
Valley Road Site	HW-14	Prehistoric/Historic	Potentially Eligible
Unnamed	HW-15	N/A	N/A
Wildcat Hill Site	HW-16	Prehistoric	Potentially Eligible
Wildcat Hill II Site	HW-17	Prehistoric	Potentially Eligible
Campville Substation Site	HW-18	Prehistoric/Historic	Potentially Eligible

*note that UMass Archaeological Services made the above-referenced National Register eligibility determinations

Table 2. USACE permitted project items to be examined during Phase IB testing.

Figure-Sheet	Item	Approximate Size/Length in Meters	Number of Shovel Tests Required
1-13	Work Pad at Structure 9	30 x 30	5
1-12	Work Pad at Structure 15	30 x 30	5
1-11	Work Pad at Structure 18	30 x 30	5
1-9	Work Pad at Structure 35	30 x 30	5
1-9	Work Pad at Structure 39	100 x 200	5*
1-6	Potential Pull Pad at Structures 63/64	100 x 200	10
1-4	Work Pad at Structure 75	30 x 30	5*
1-4	Work Pad at Structure 76	30 x 30	4*
1-4	Work Pad at Structure 77	30 x 30	5
1-4	Work Pad at Structure 79	30 x 30	4*
1-2	Potential Pull Pad East of Structure 87	30 x 85	12
1-1	Work Pad at Structure 93	30 x 30	5

* Indicates that wetlands in the vicinity will preclude some shovel testing.

P.O. Box 310249 • Newington, Connecticut 06131
Phone (860) 667-3001 • Fax (860) 667-3008
Email: info@heritage-consultants.com

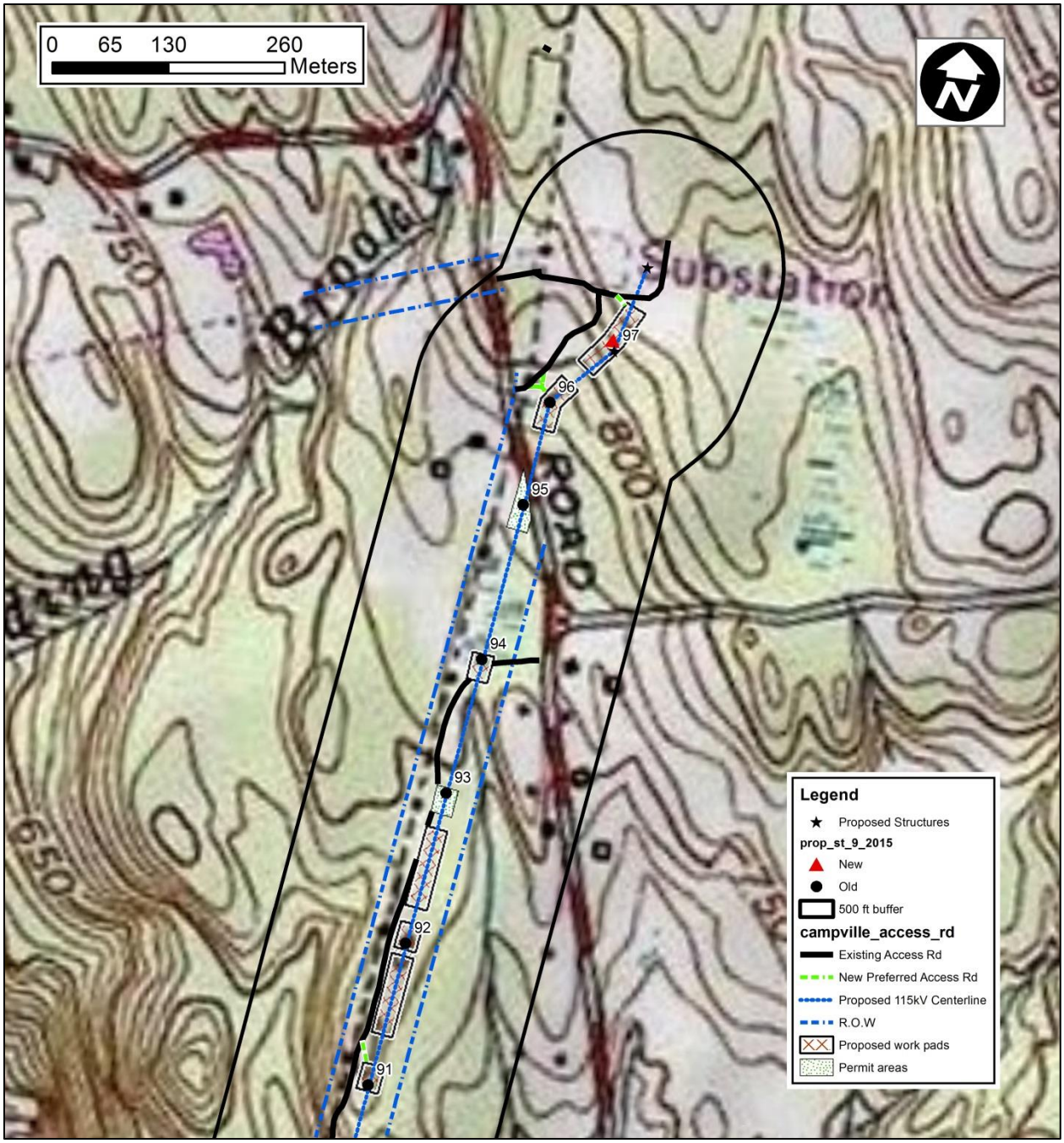


Figure 1, Sheet 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the route of the proposed Frost Bridge to Campville 115-kV Project.

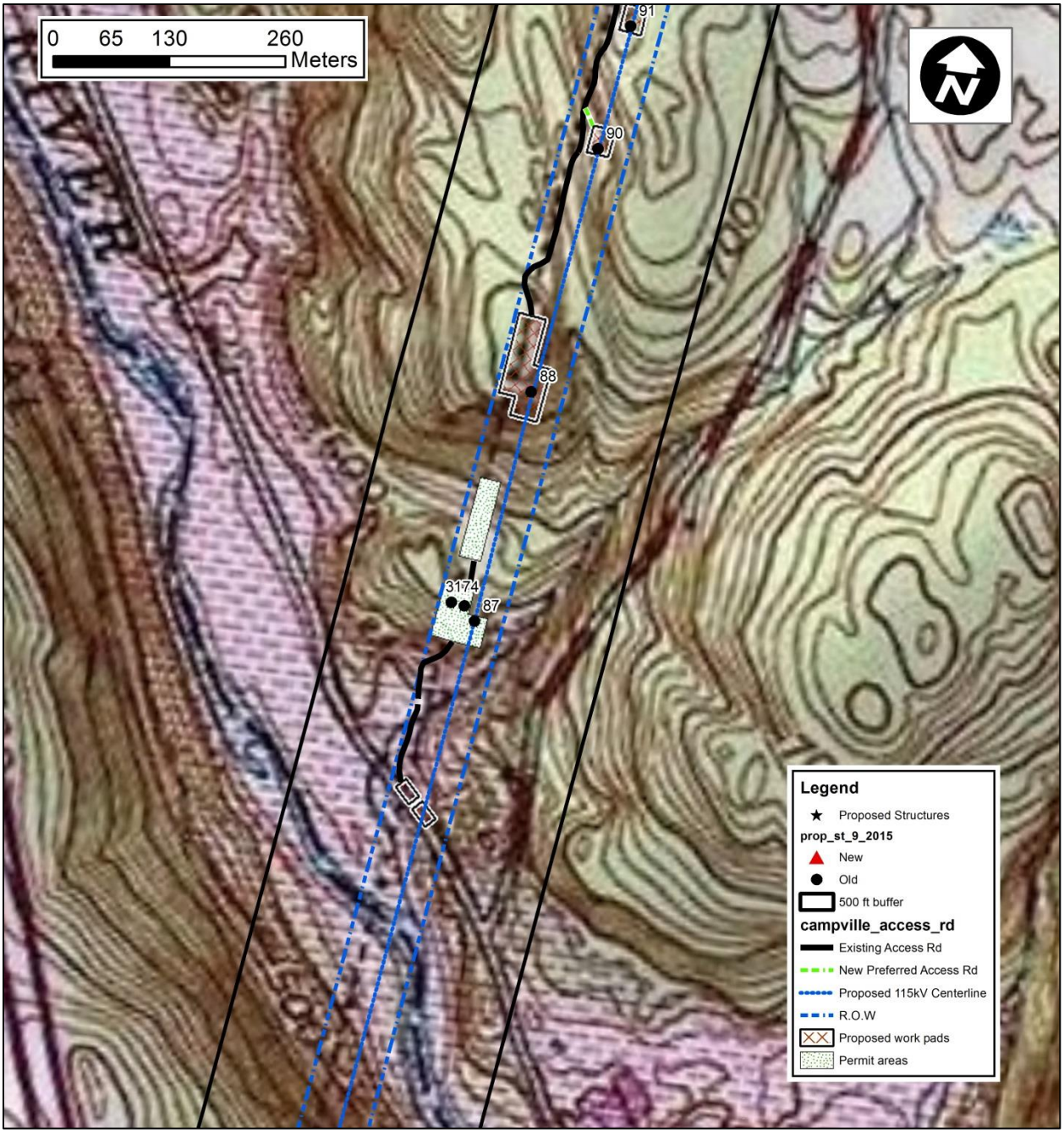


Figure 1, Sheet 2. Excerpt from a USGS 7.5' series topographic quadrangle image showing the route of the proposed Frost Bridge to Campville 115-kV Project.

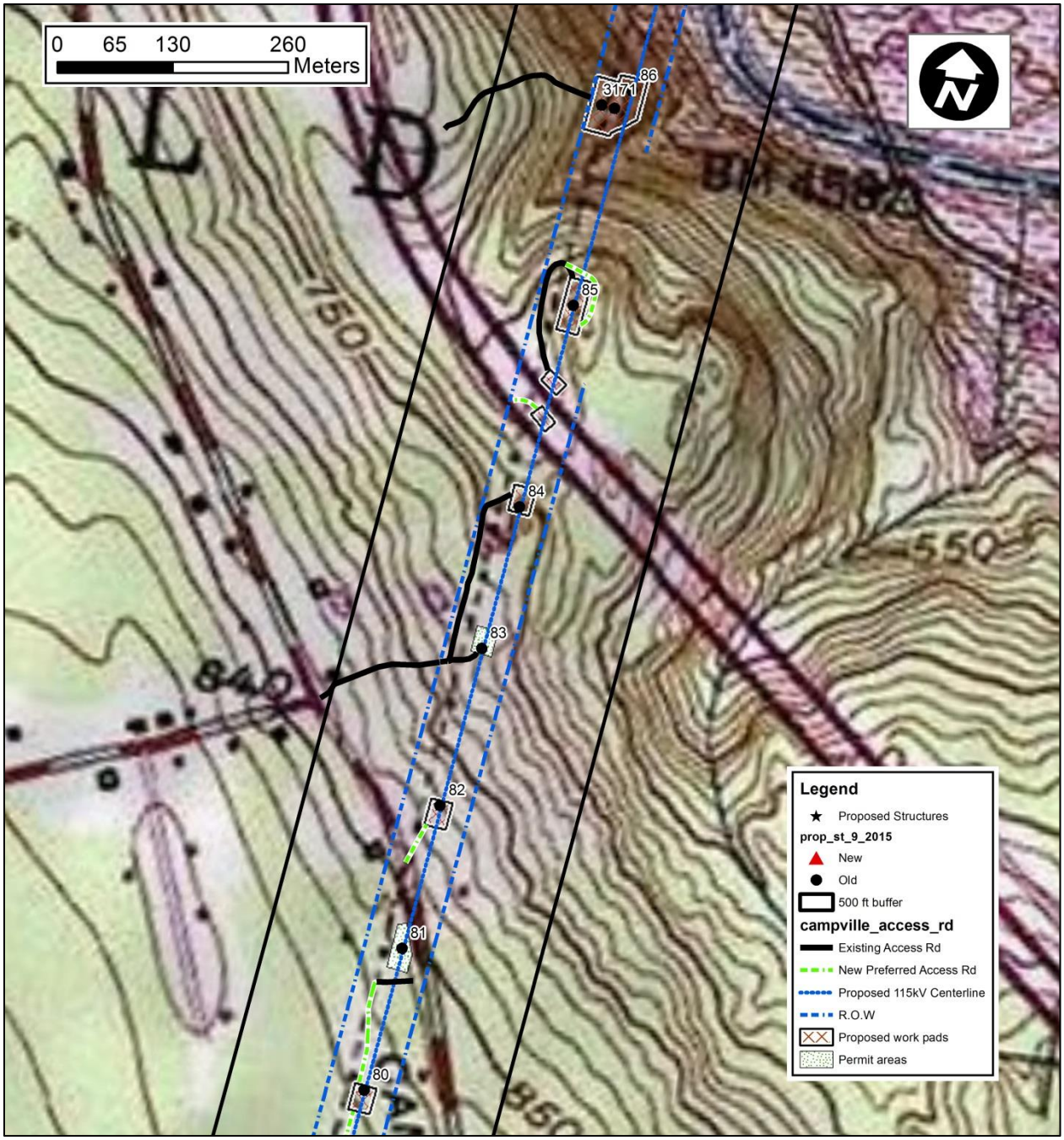


Figure 1, Sheet 3. Excerpt from a USGS 7.5' series topographic quadrangle image showing the route of the proposed Frost Bridge to Campville 115-kV Project.

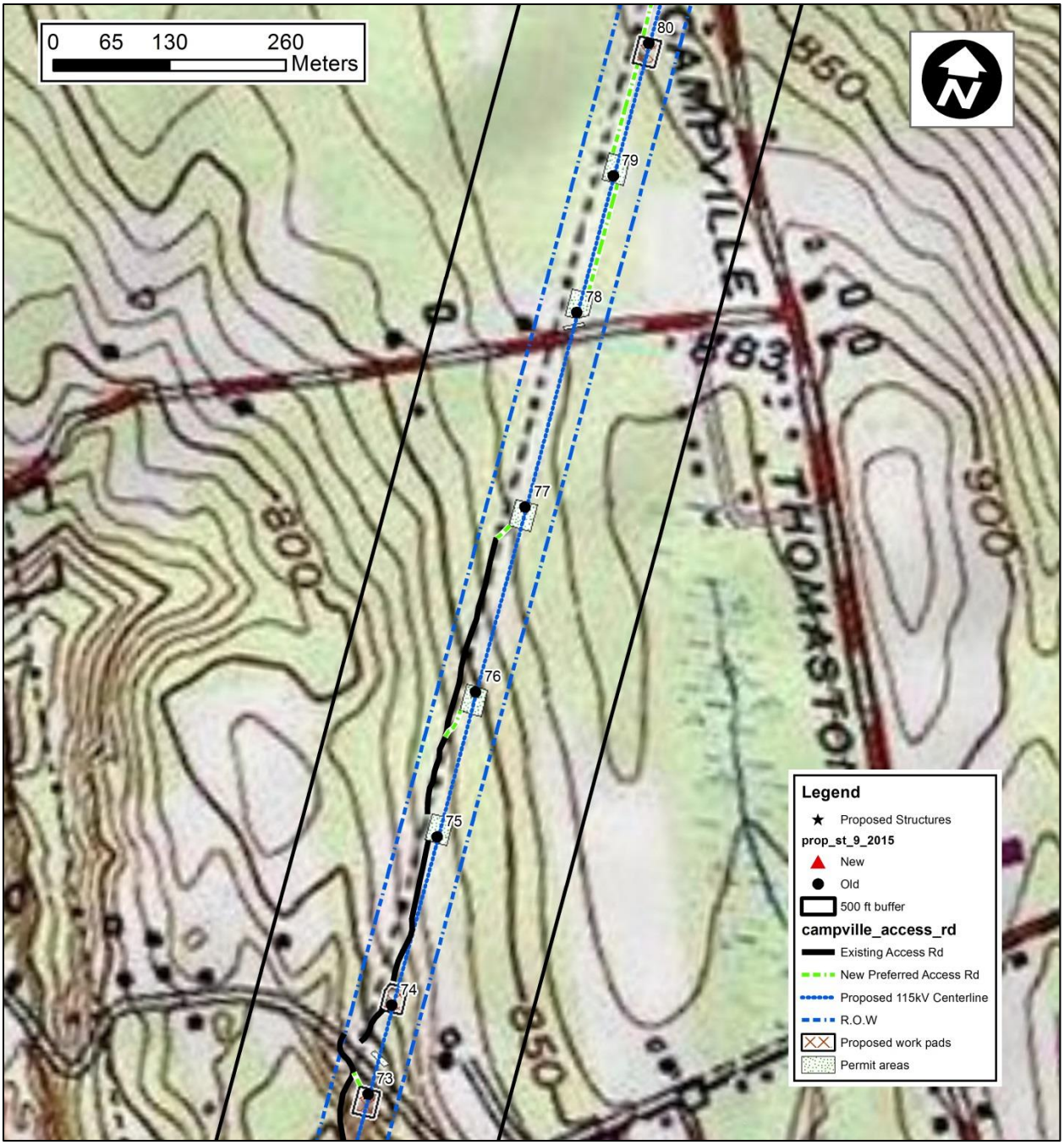


Figure 1, Sheet 4. Excerpt from a USGS 7.5' series topographic quadrangle image showing the route of the proposed Frost Bridge to Campville 115-kV Project.

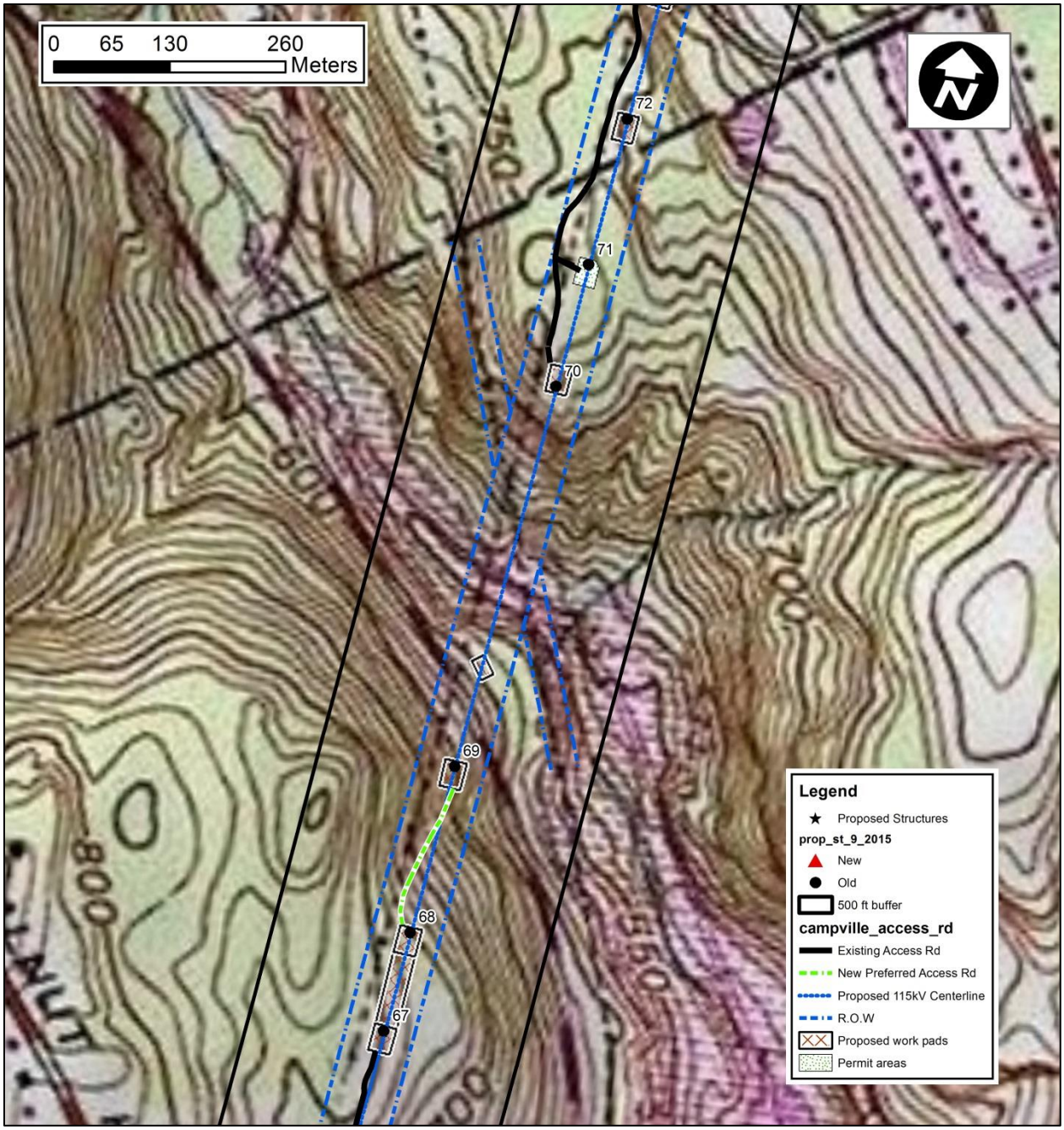


Figure 1, Sheet 5. Excerpt from a USGS 7.5' series topographic quadrangle image showing the route of the proposed Frost Bridge to Campville 115-kV Project.

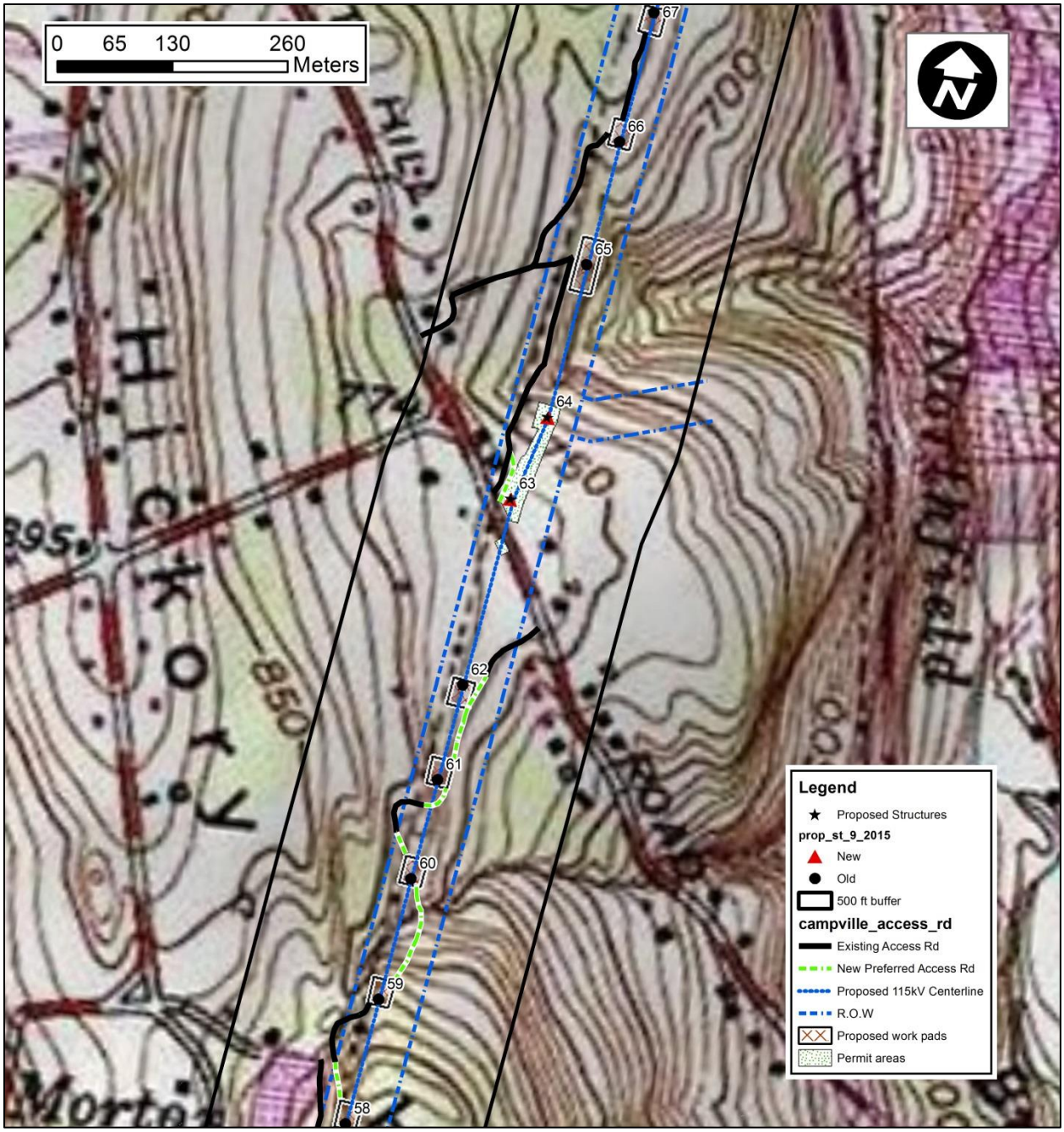
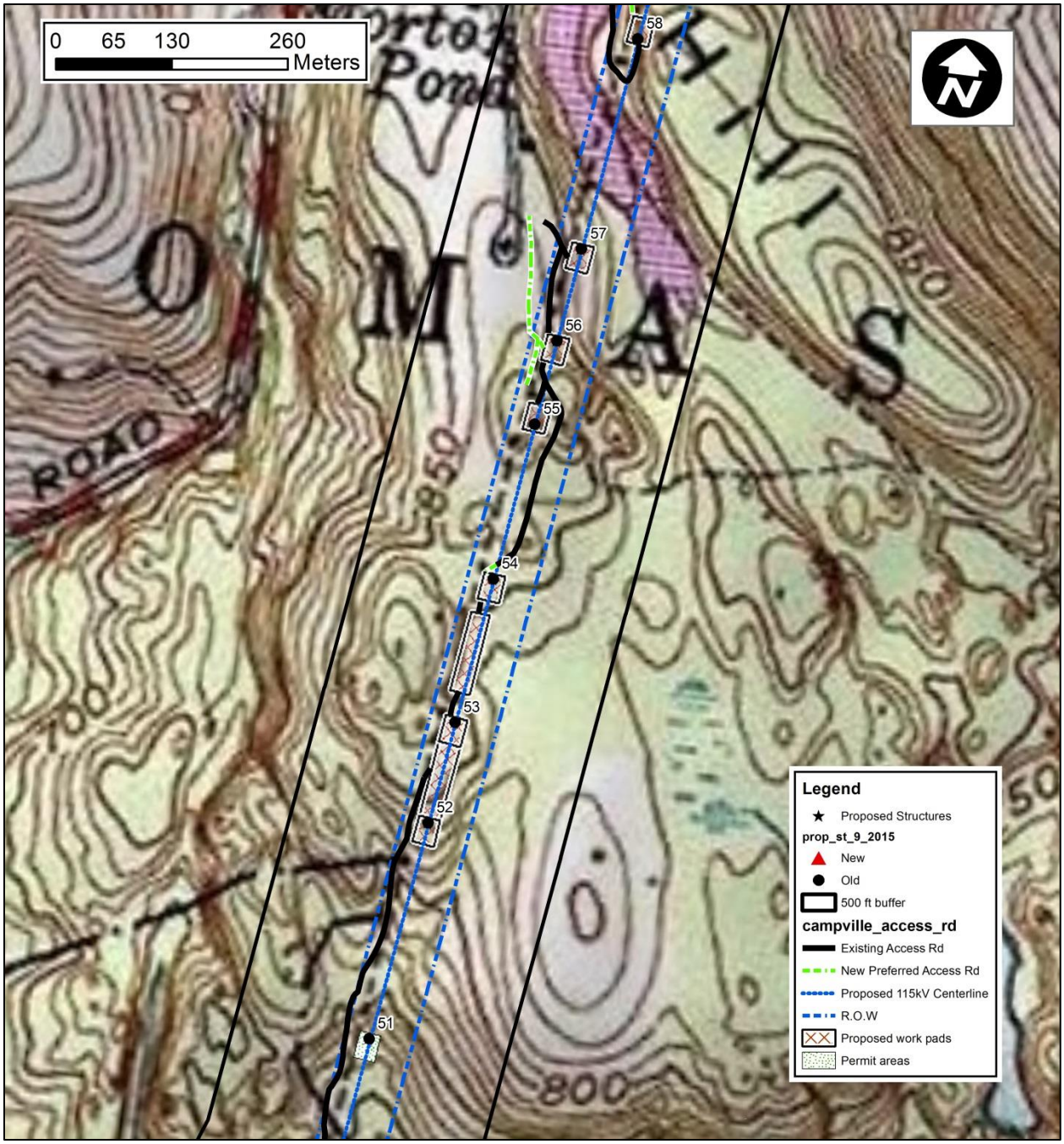


Figure 1, Sheet 6. Excerpt from a USGS 7.5' series topographic quadrangle image showing the route of the proposed Frost Bridge to Campville 115-kV Project.



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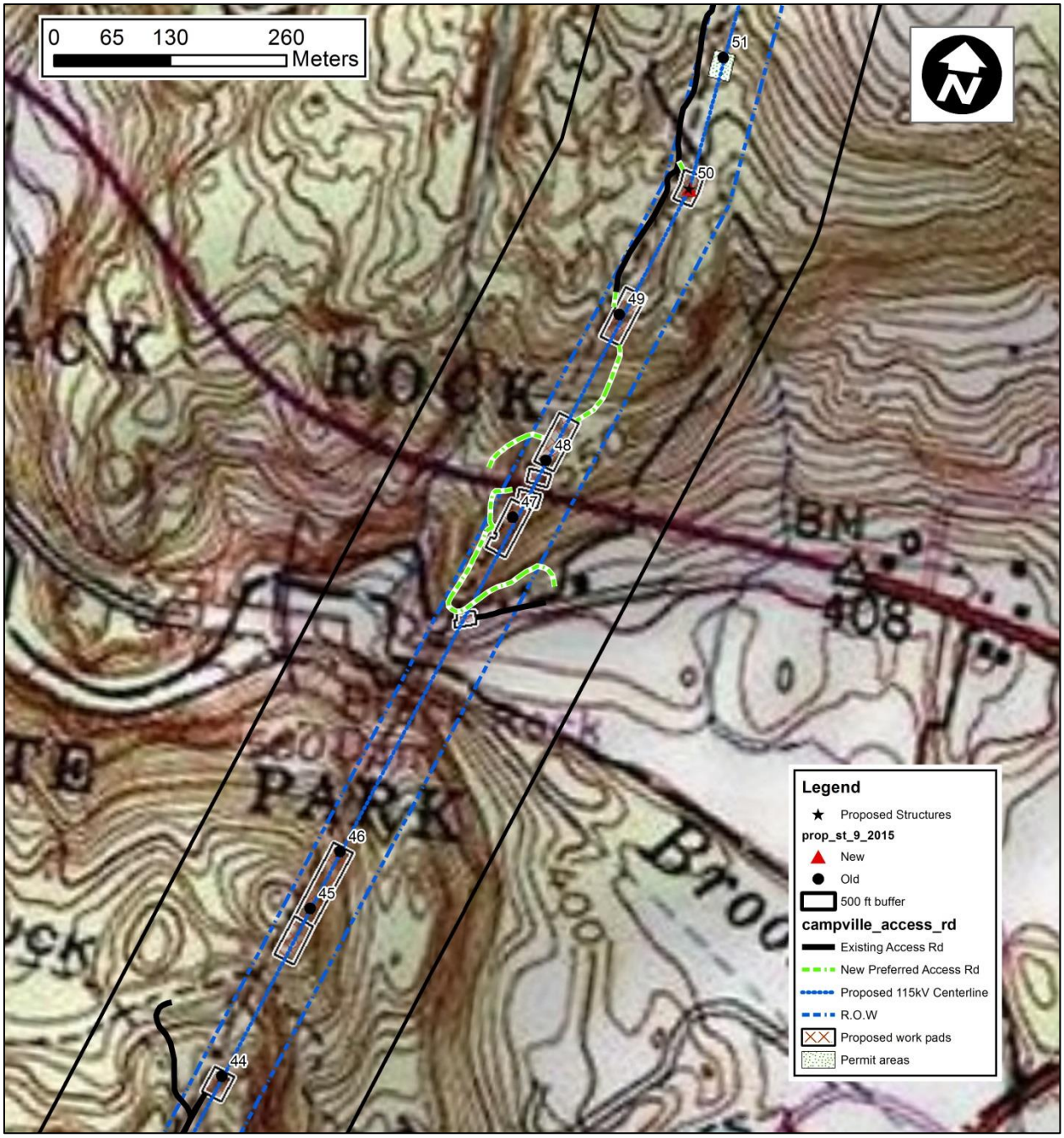

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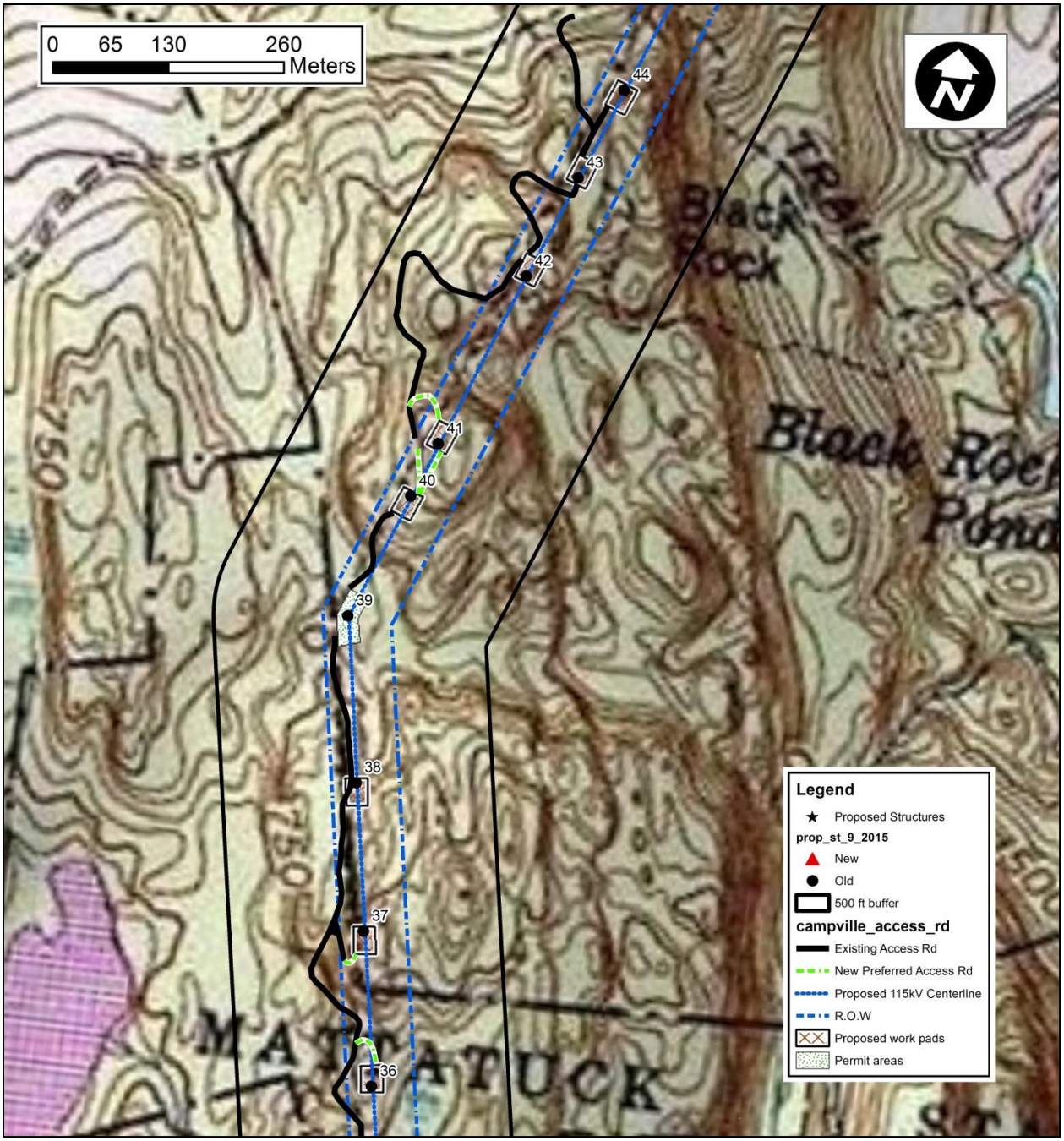


Figure 1, Sheet 9. Excerpt from a USGS 7.5' series topographic quadrangle image showing the route of the proposed Frost Bridge to Campville 115-kV Project.

Figure 1, Sheet 10. Excerpt from a USGS 7.5' series topographic quadrangle image showing the route of the proposed Frost Bridge to Campville 115-kV Project.

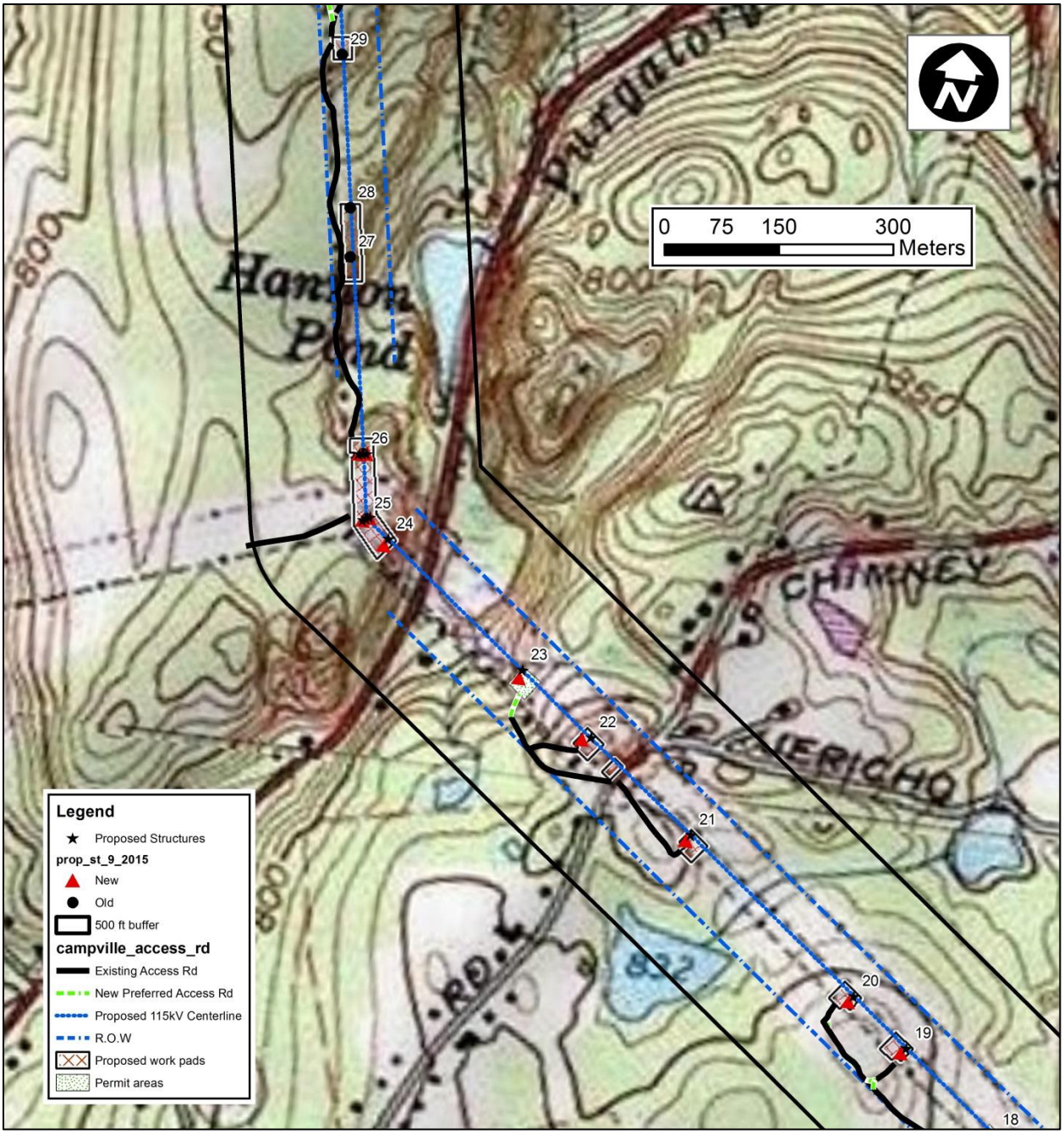


Figure 1, Sheet 11. Excerpt from a USGS 7.5' series topographic quadrangle image showing the route of the proposed Frost Bridge to Campville 115-kV Project.

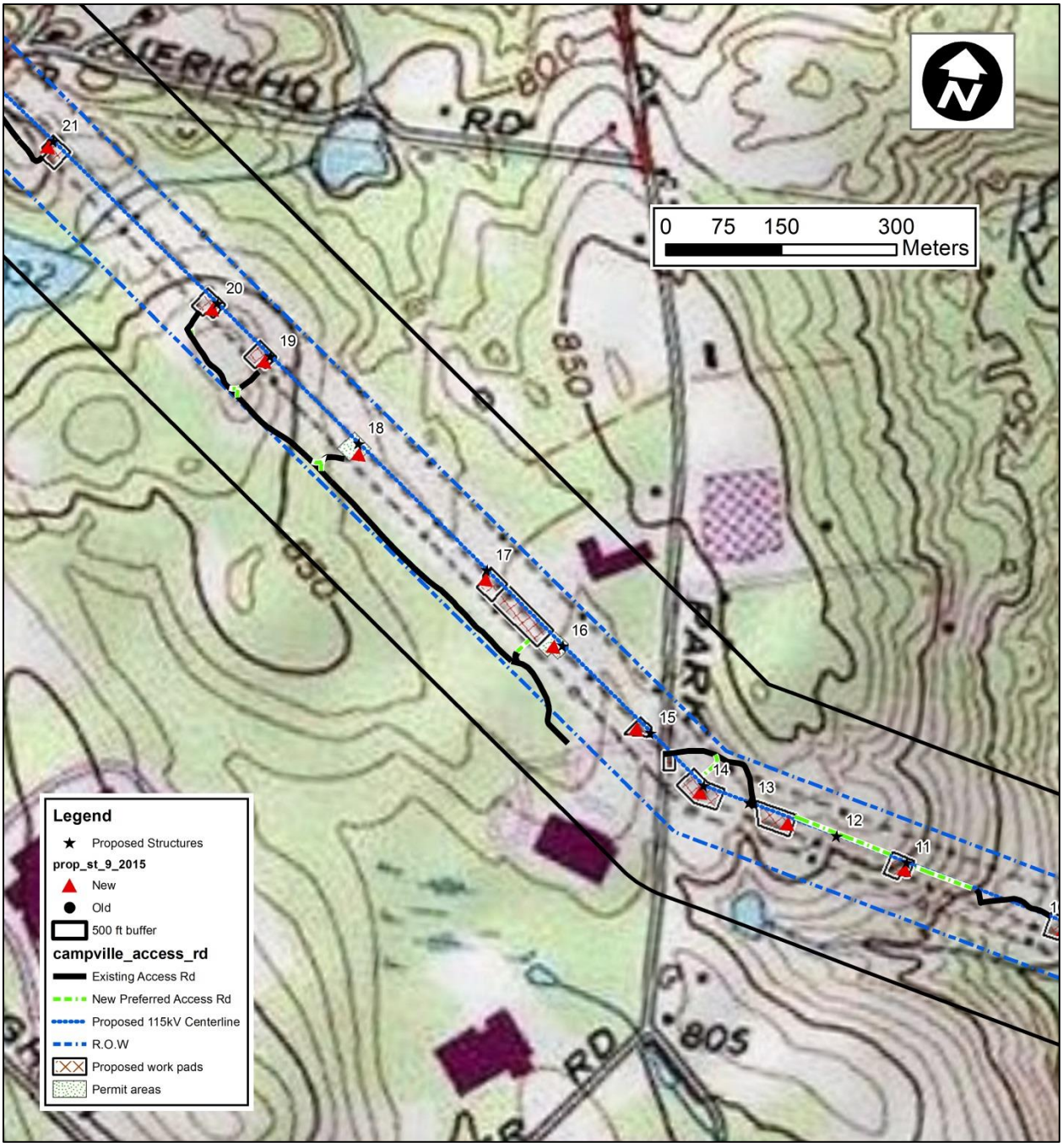


Figure 1, Sheet 12. Excerpt from a USGS 7.5' series topographic quadrangle image showing the route of the proposed Frost Bridge to Campville 115-kV Project.

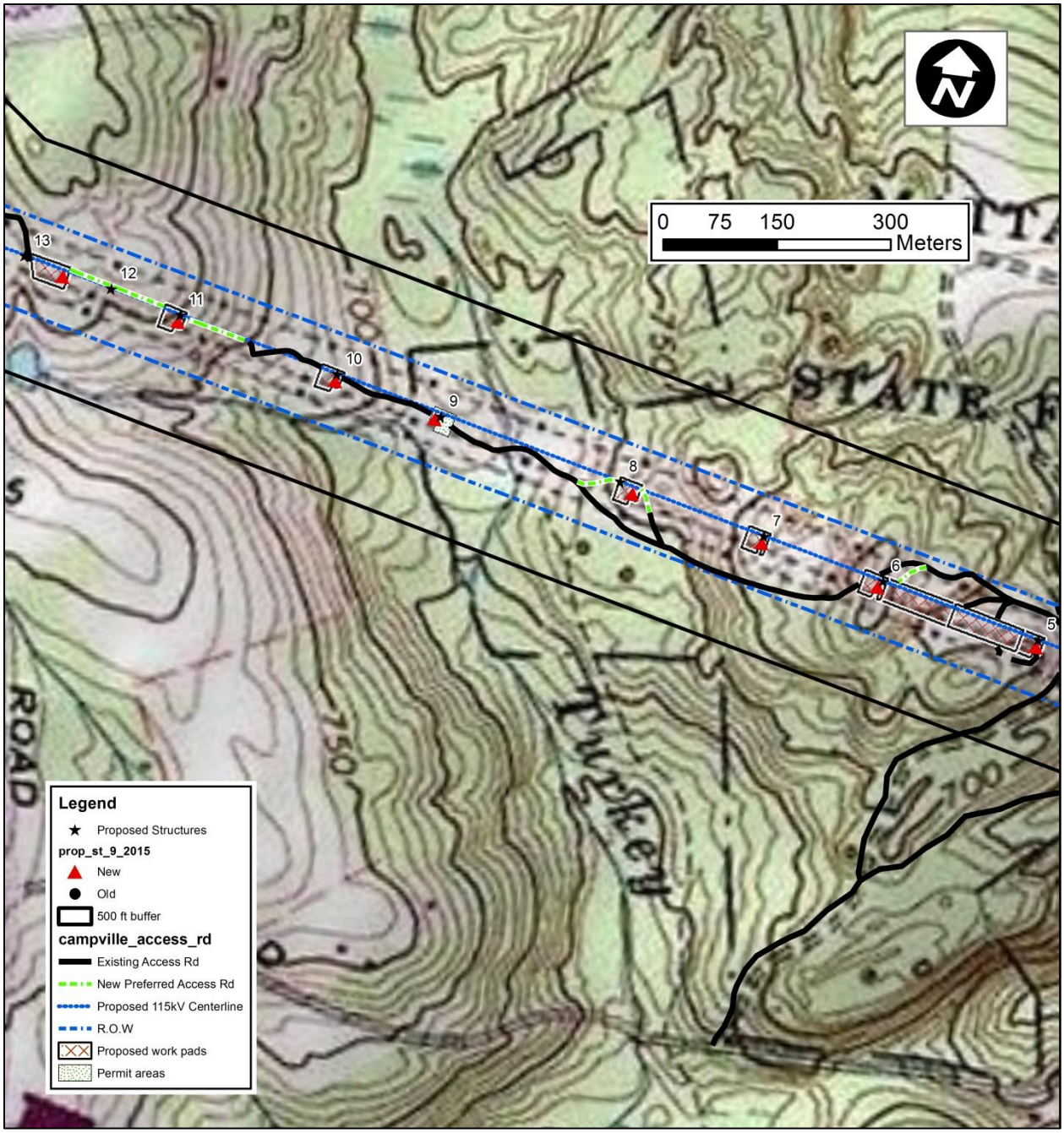


Figure 1, Sheet 13. Excerpt from a USGS 7.5' series topographic quadrangle image showing the route of the proposed Frost Bridge to Campville 115-kV Project.

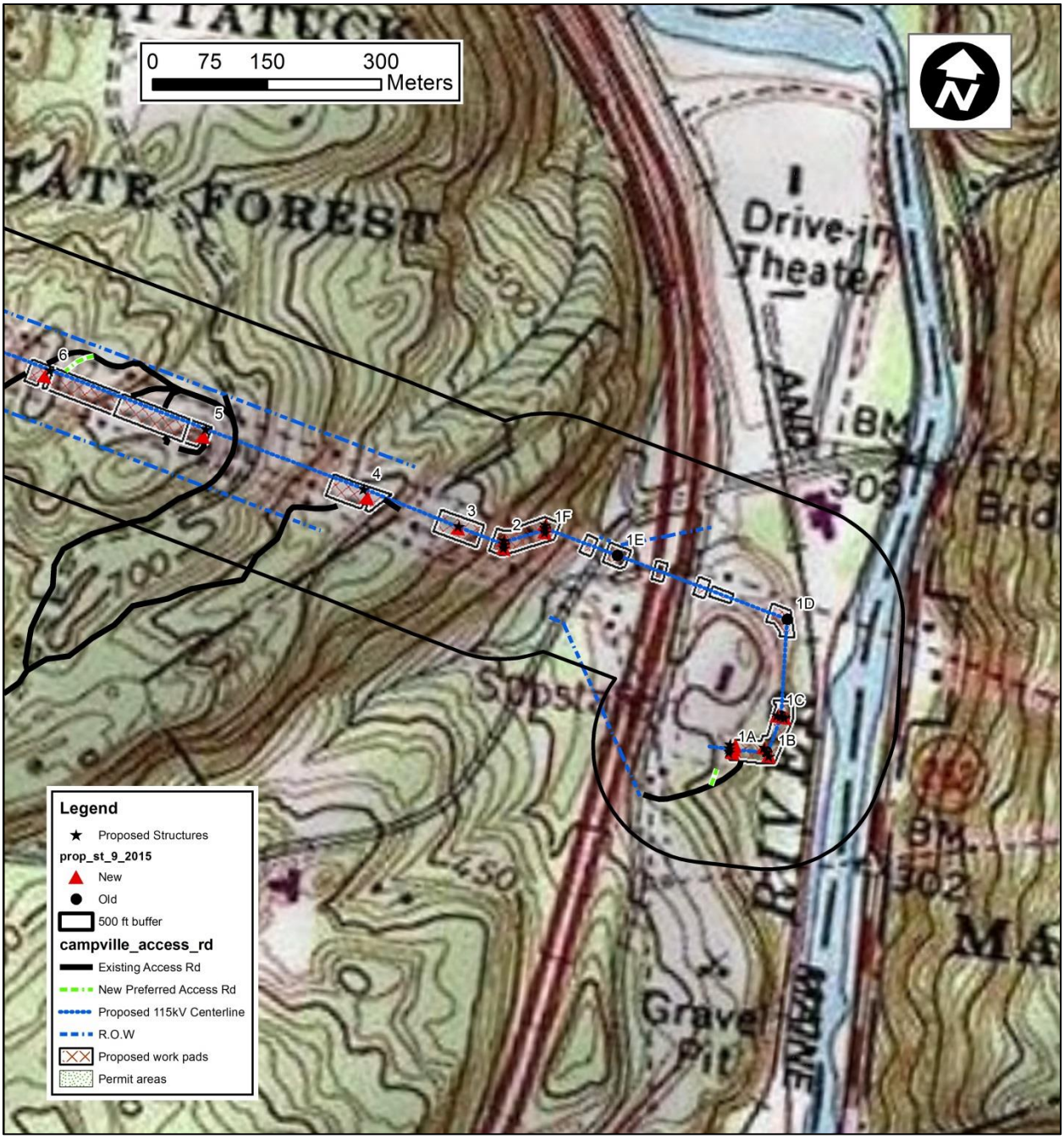


Figure 1, Sheet 14. Excerpt from a USGS 7.5' series topographic quadrangle image showing the route of the proposed Frost Bridge to Campville 115-kV Project.

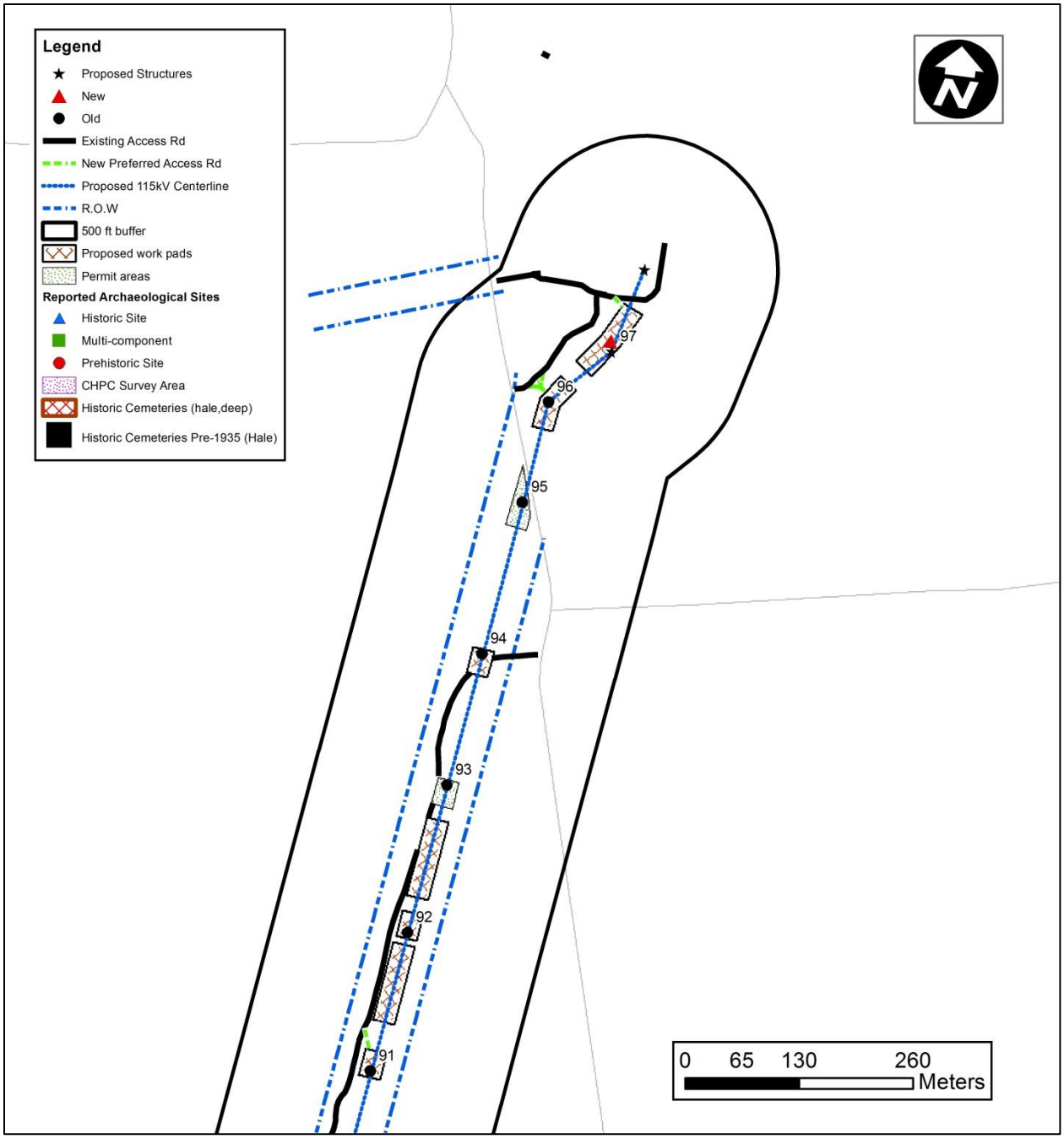
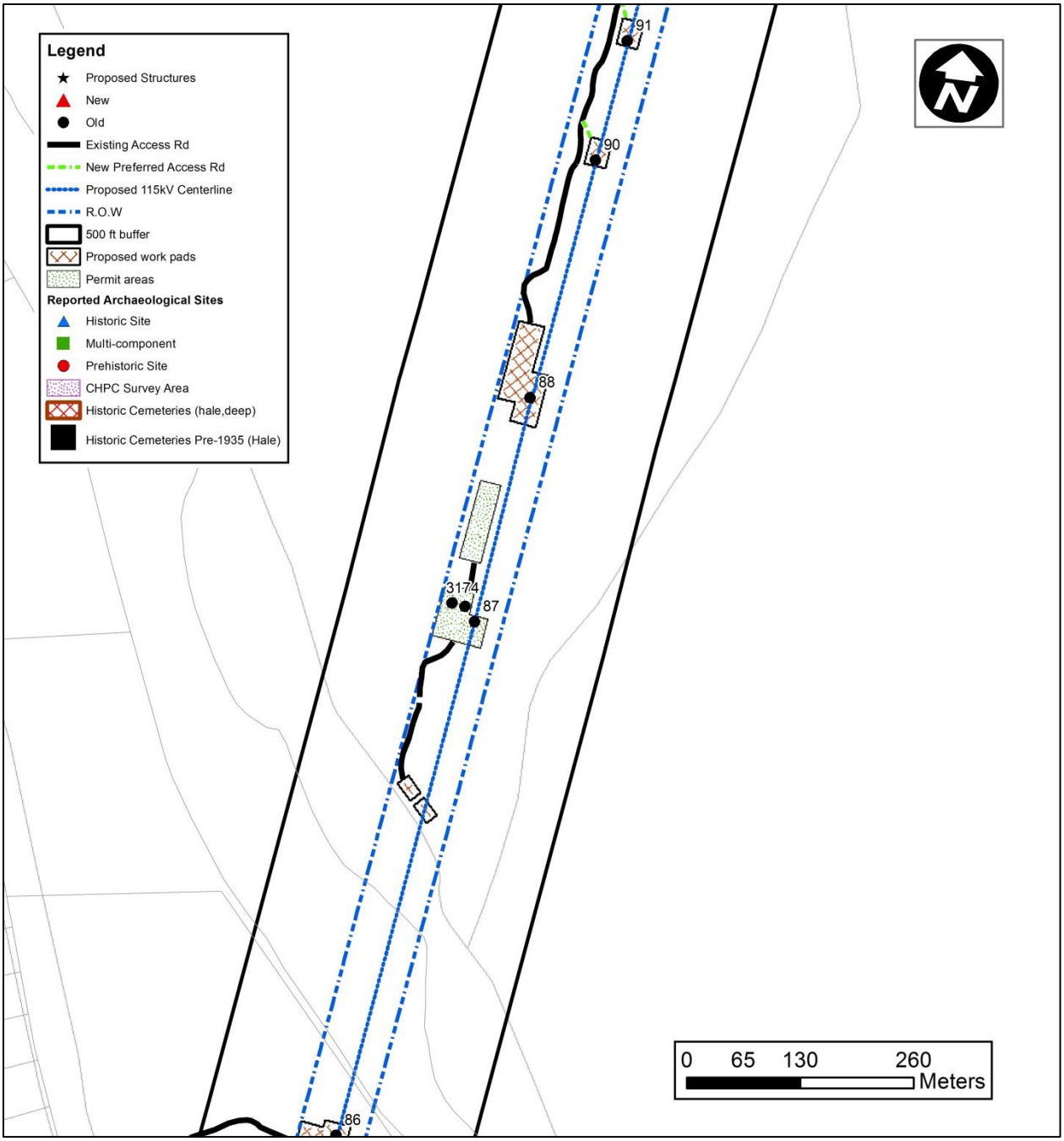


Figure 2, Sheet 1. Digital map showing the location of previously identified archaeological sites in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.



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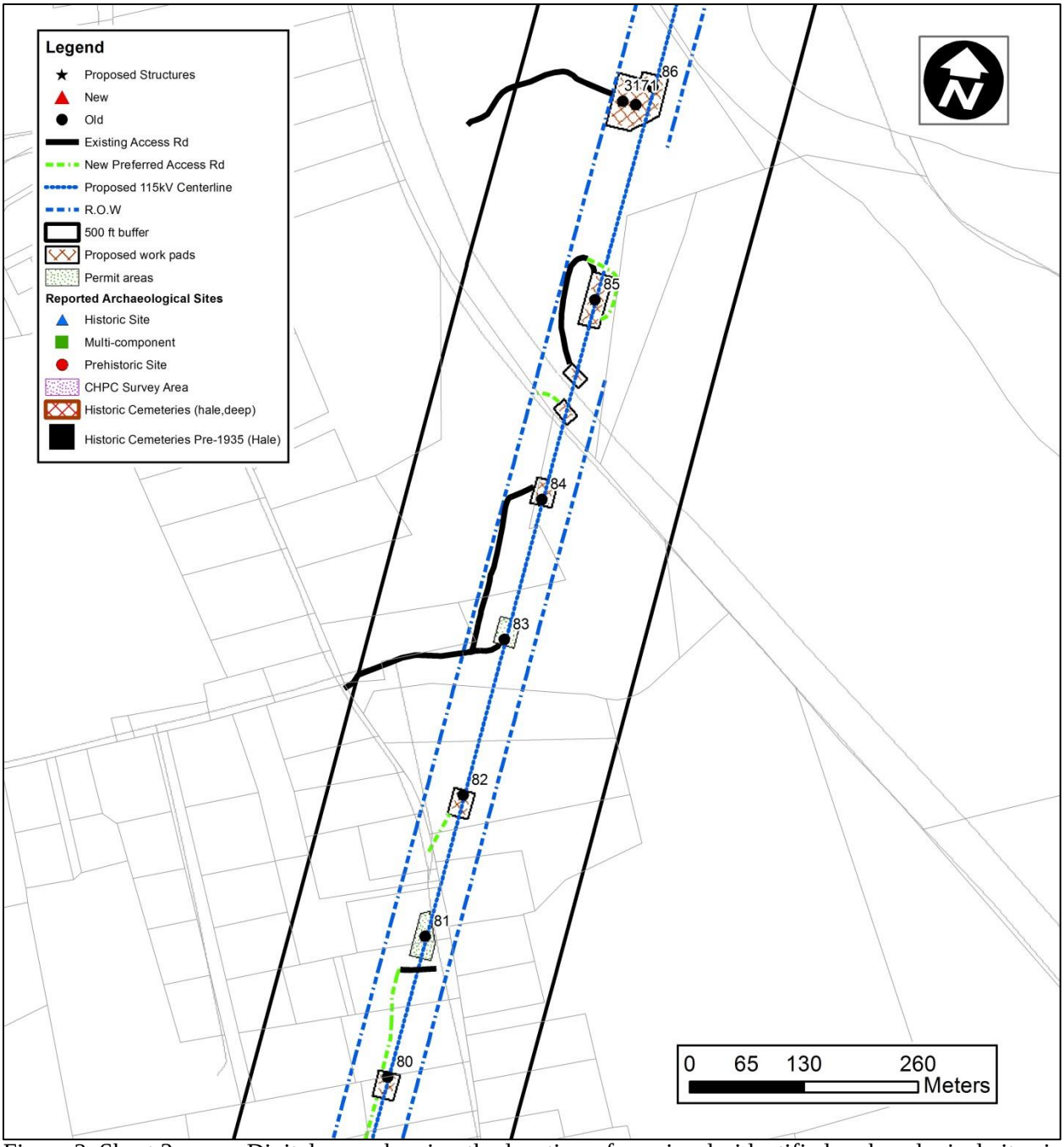
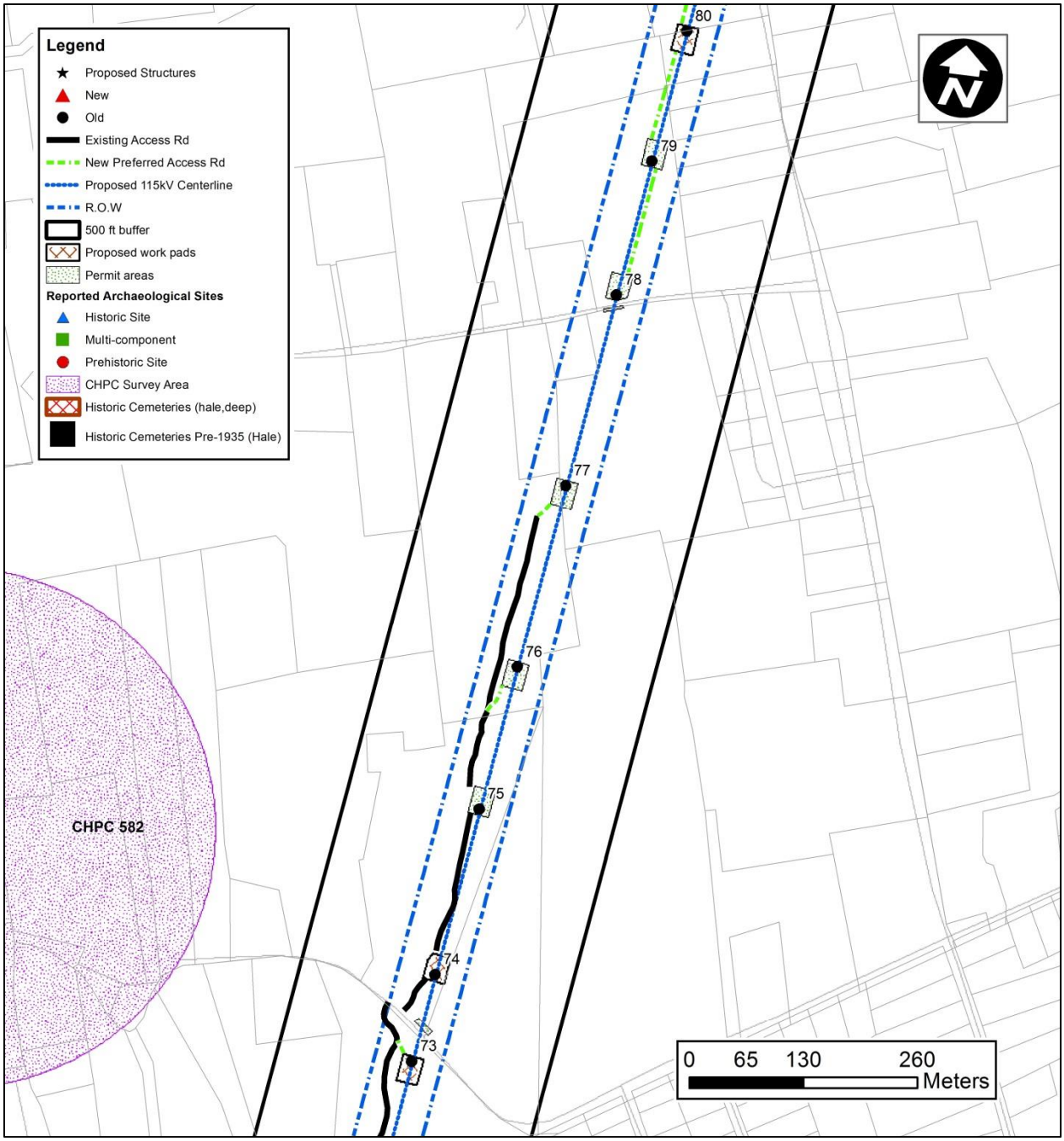


Figure 2, Sheet 3. Digital map showing the location of previously identified archaeological sites in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.



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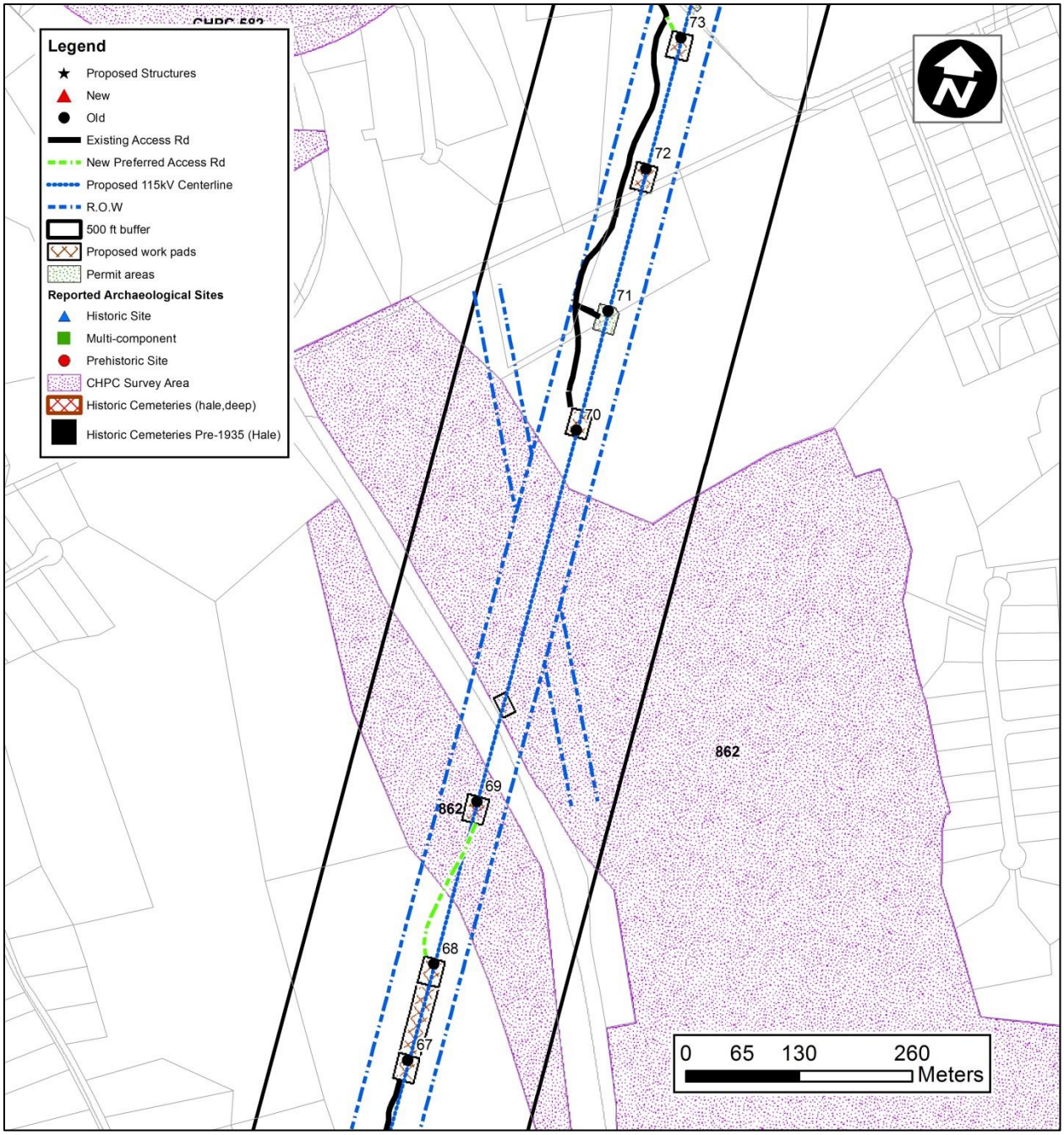


Figure 2, Sheet 5. Digital map showing the location of previously identified archaeological sites in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.

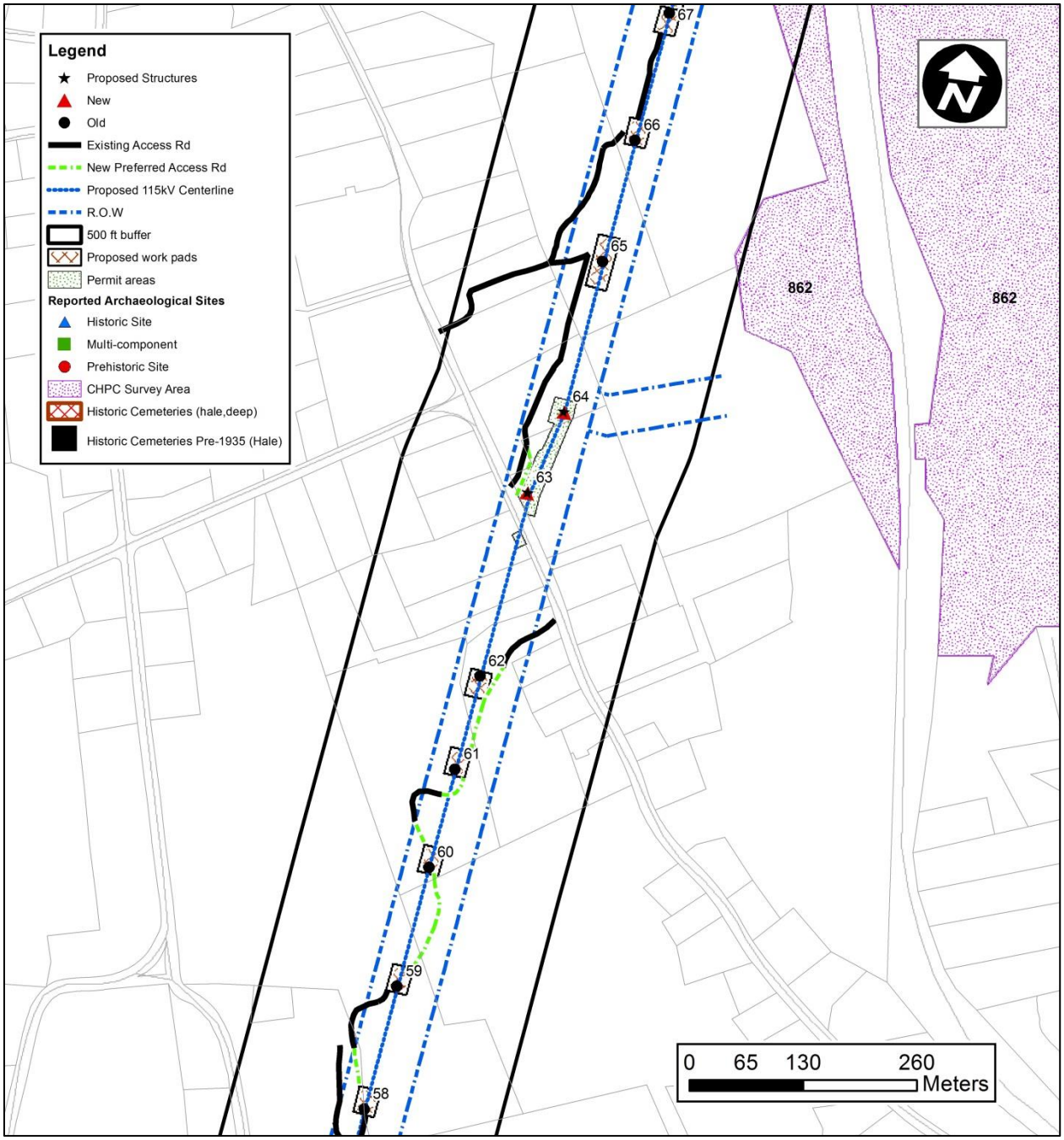


Figure 2, Sheet 6. Digital map showing the location of previously identified archaeological sites in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.

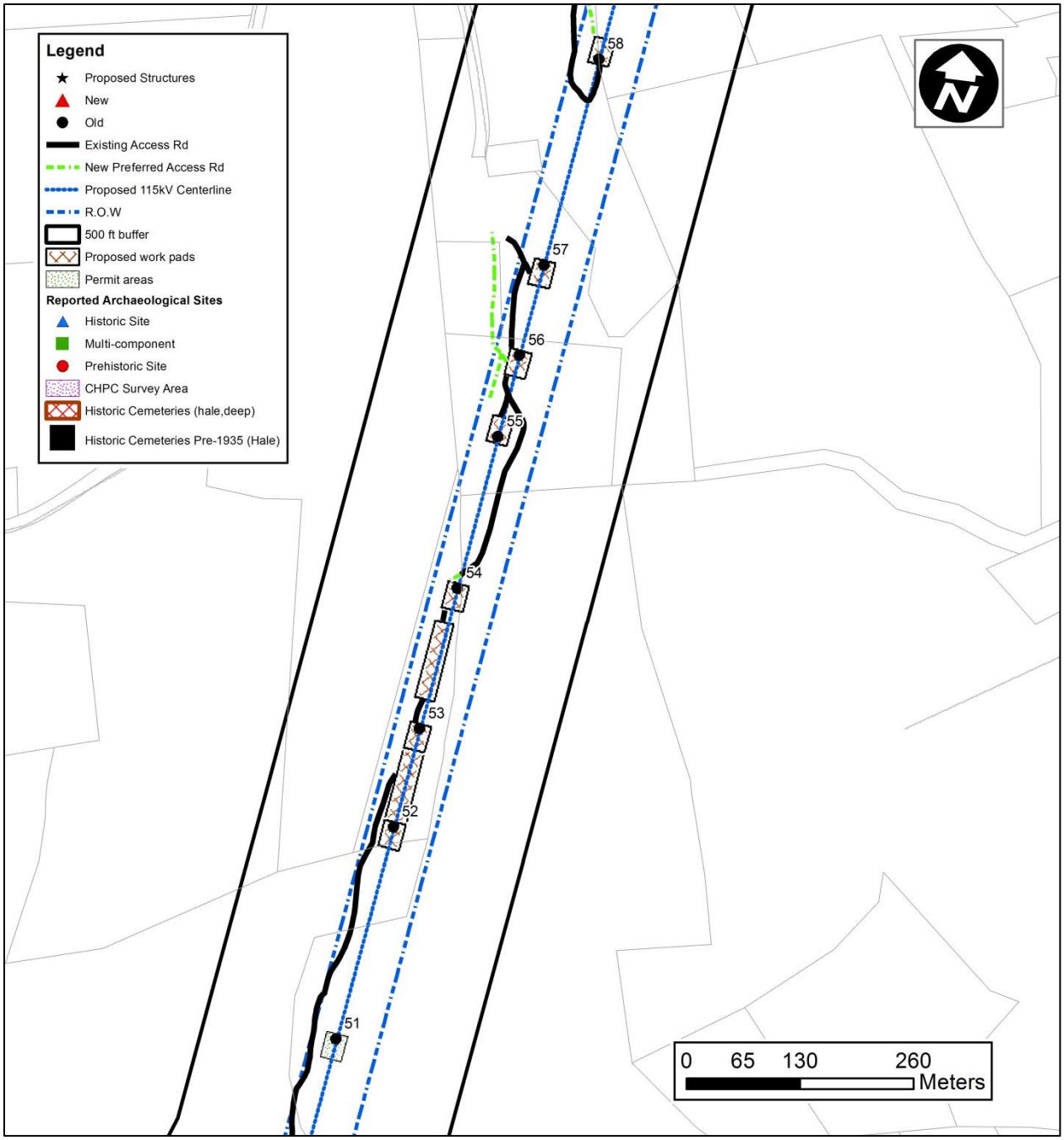


Figure 2, Sheet 7. Digital map showing the location of previously identified archaeological sites in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.

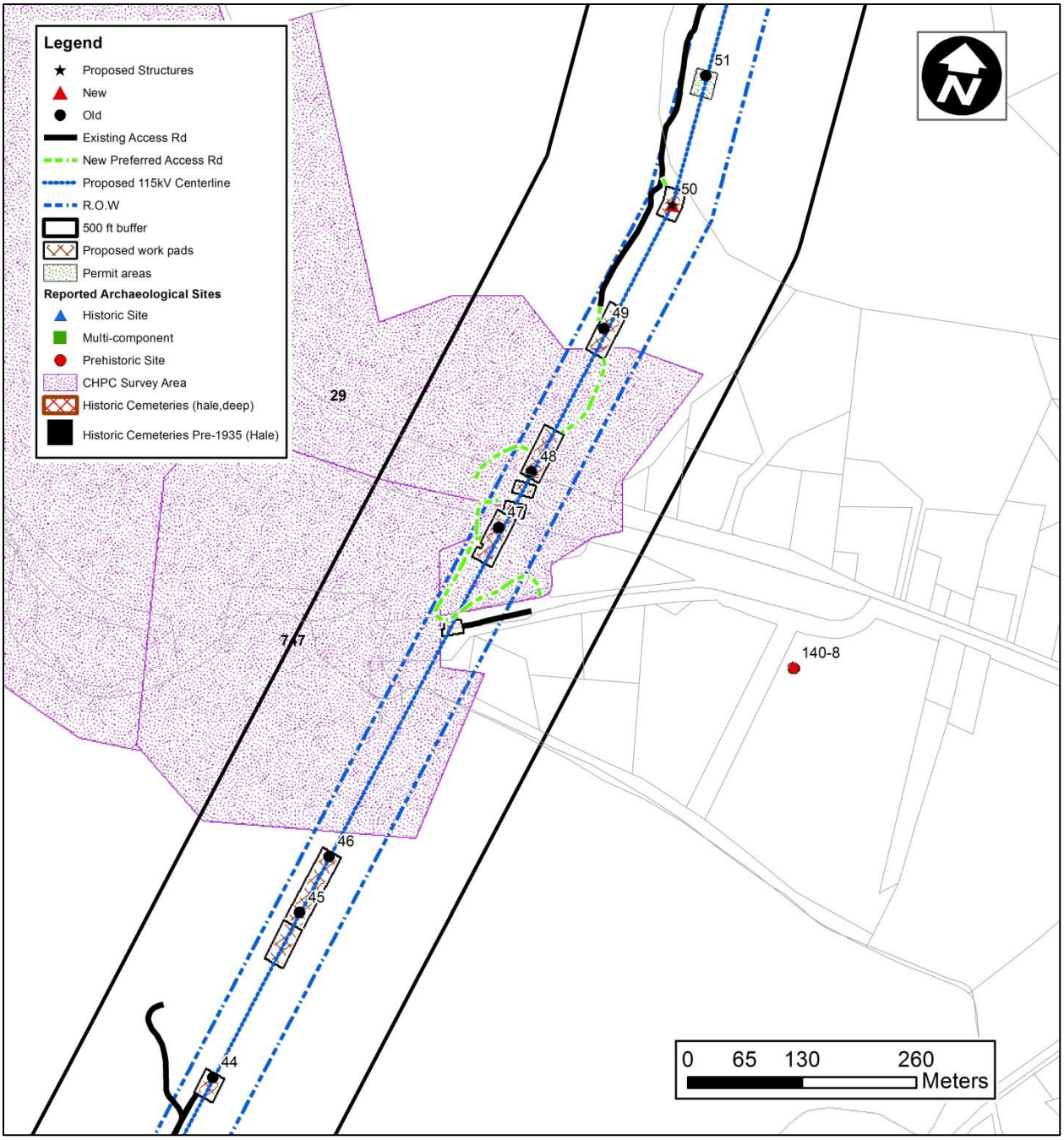


Figure 2, Sheet 8. Digital map showing the location of previously identified archaeological sites in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.

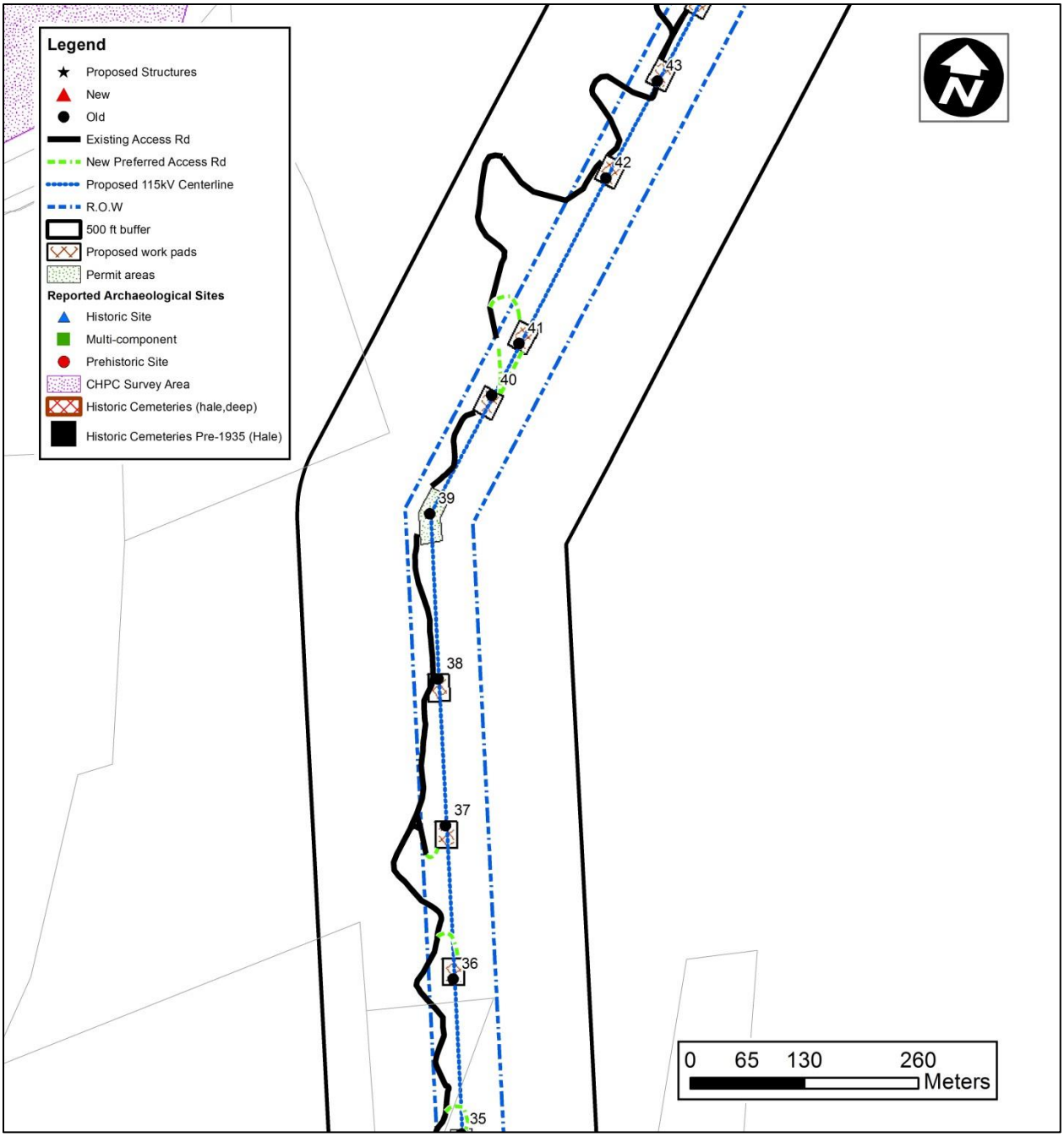


Figure 2, Sheet 9. Digital map showing the location of previously identified archaeological sites in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.

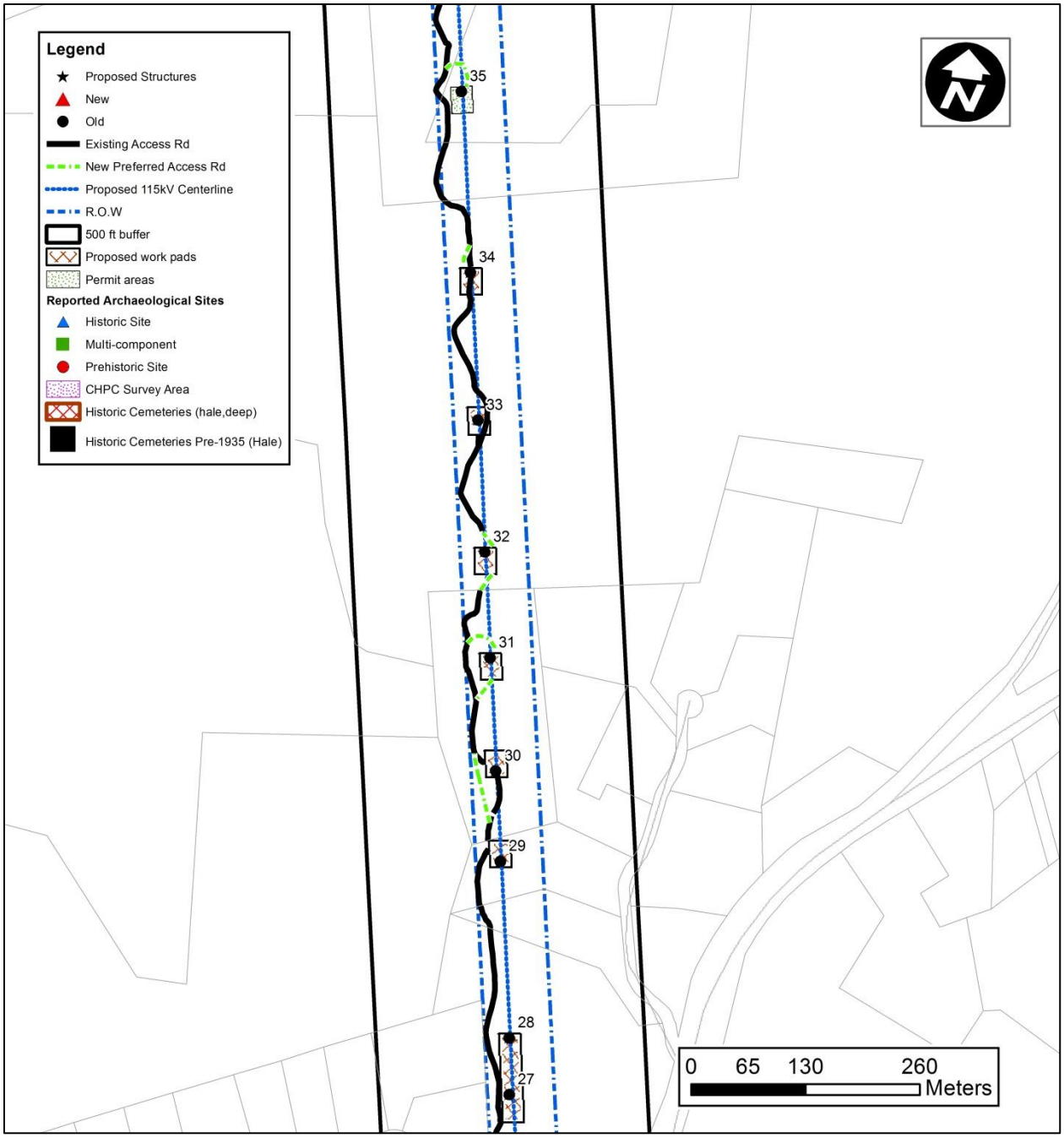
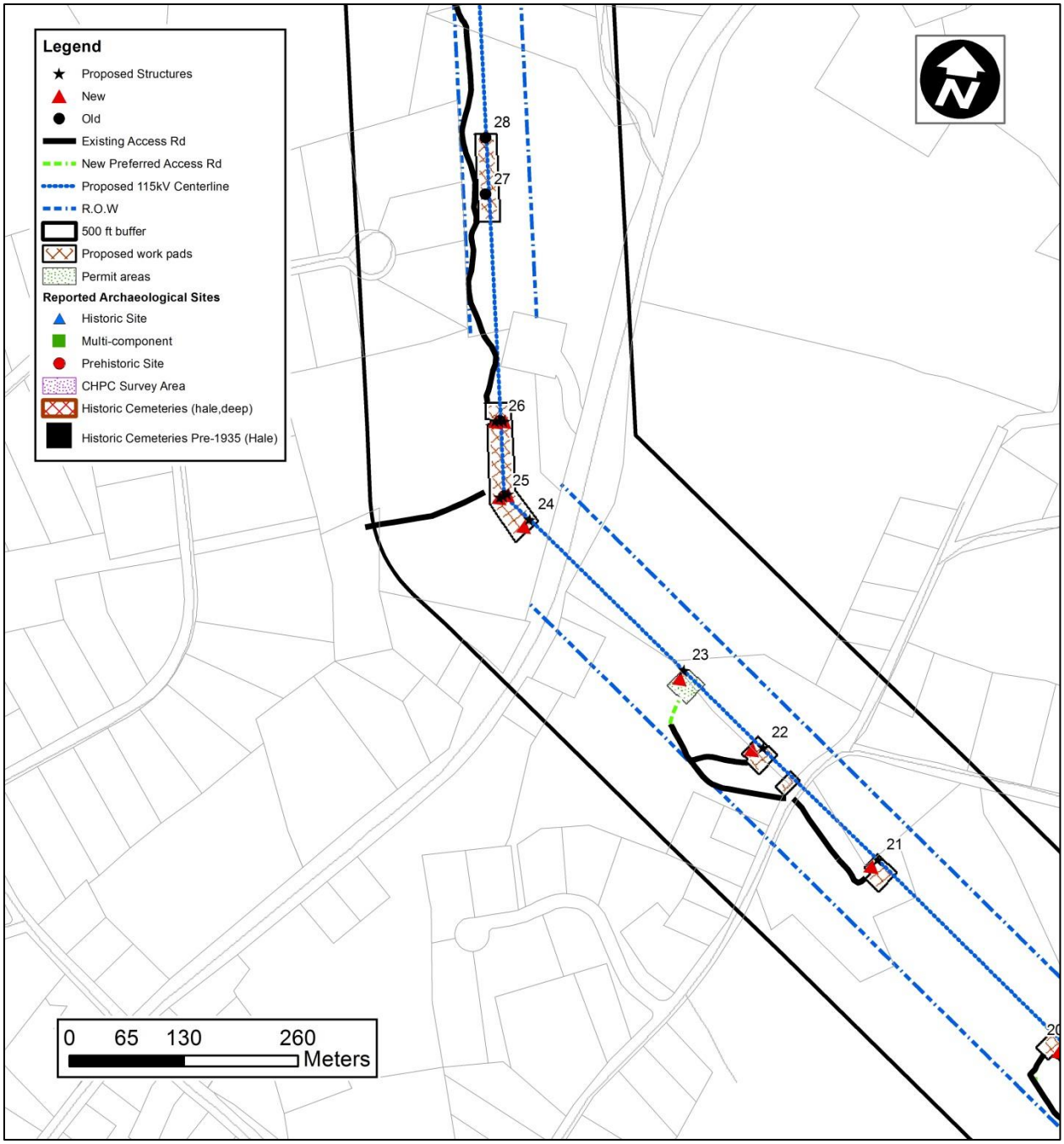


Figure 2, Sheet 10. Digital map showing the location of previously identified archaeological sites in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.



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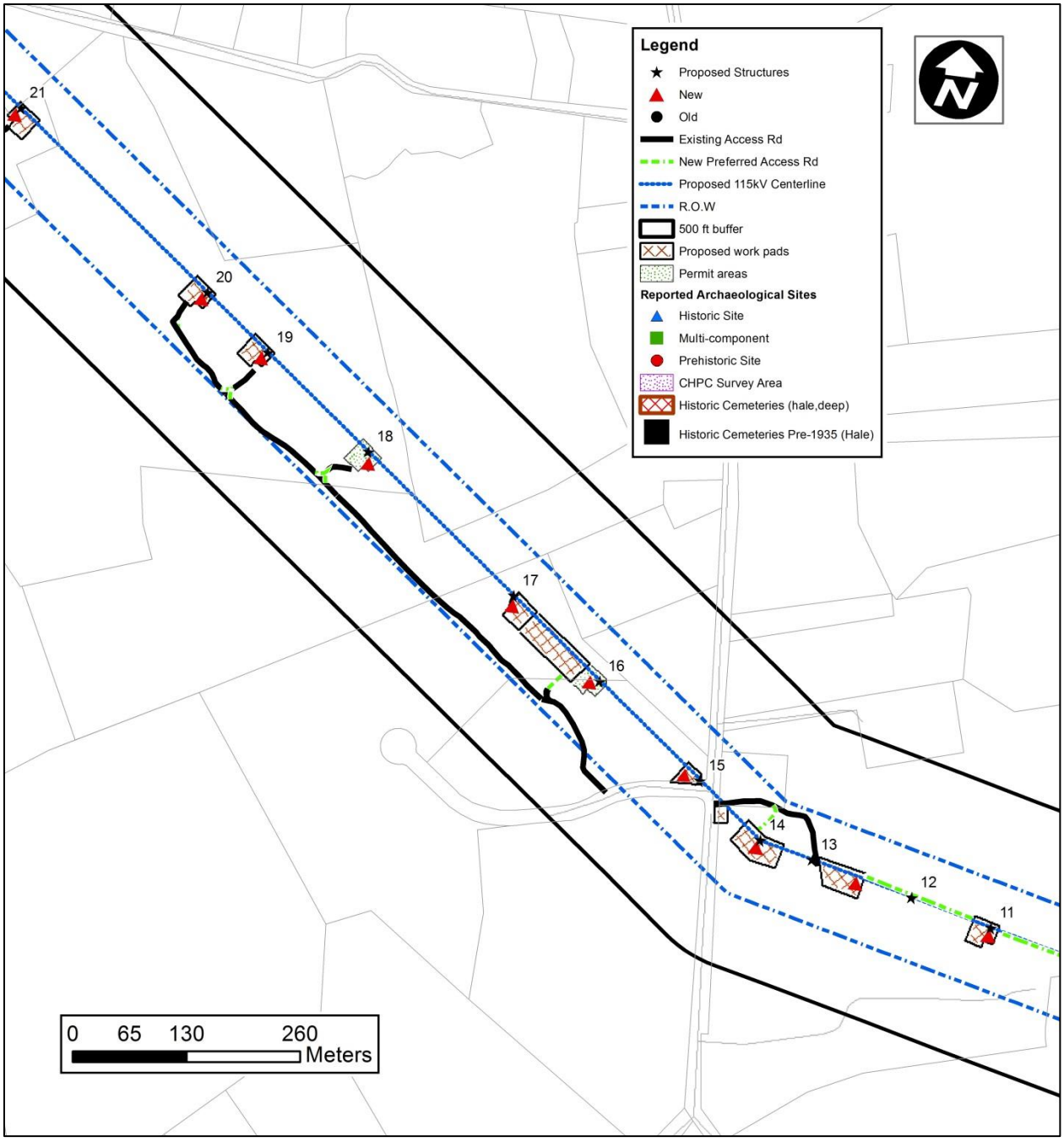

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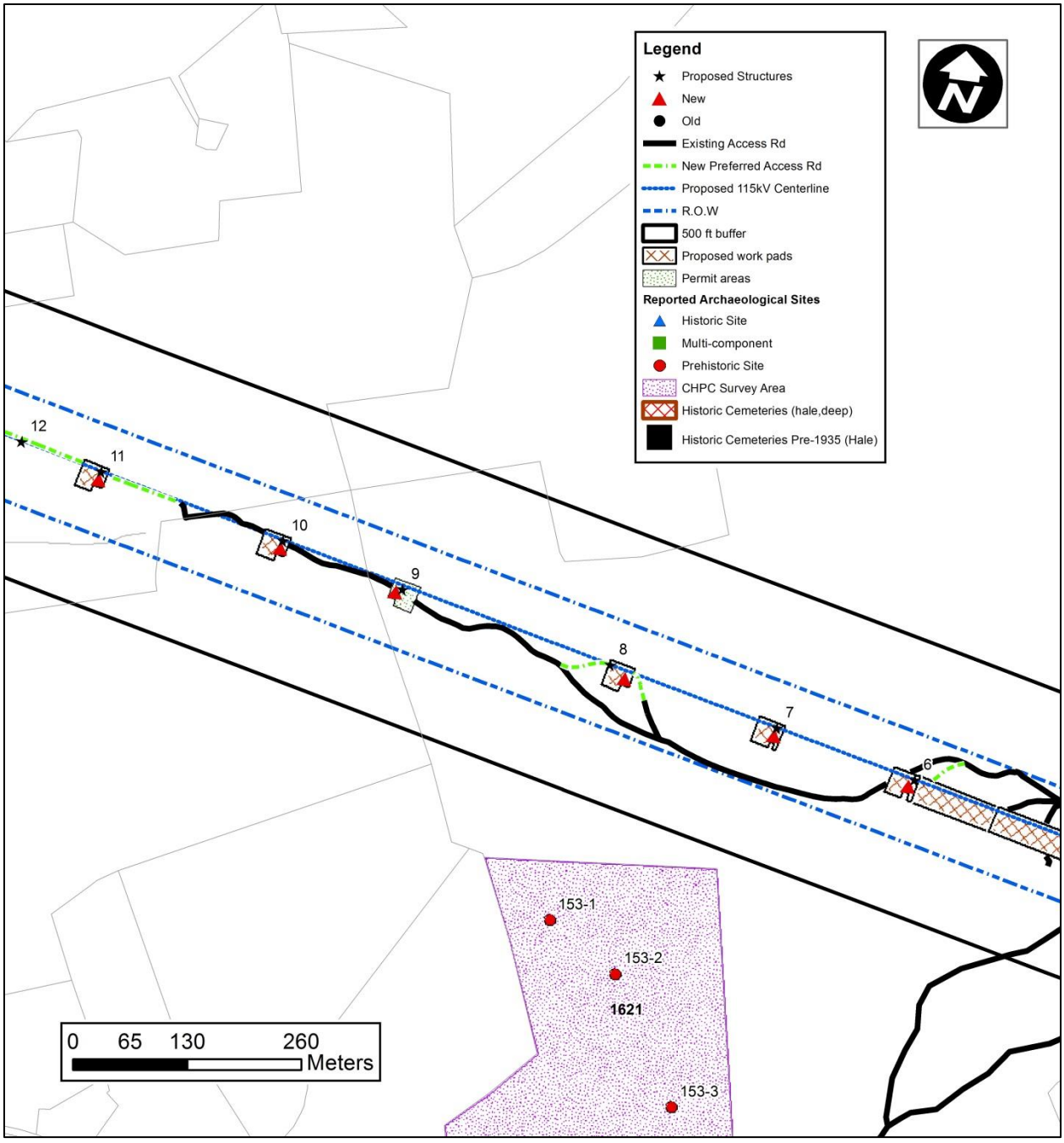

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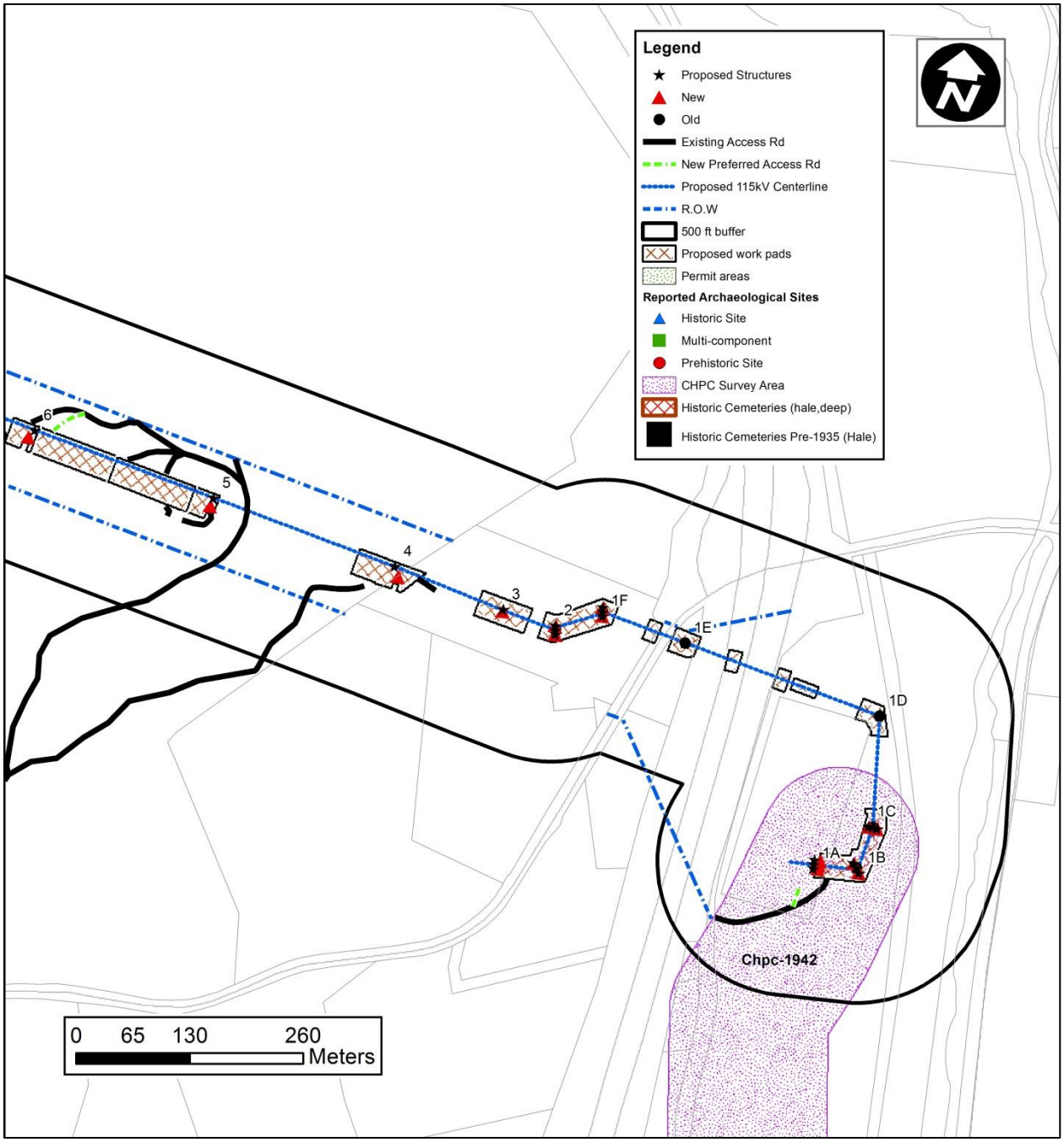


Figure 2, Sheet 14. Digital map showing the location of previously identified archaeological sites in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.

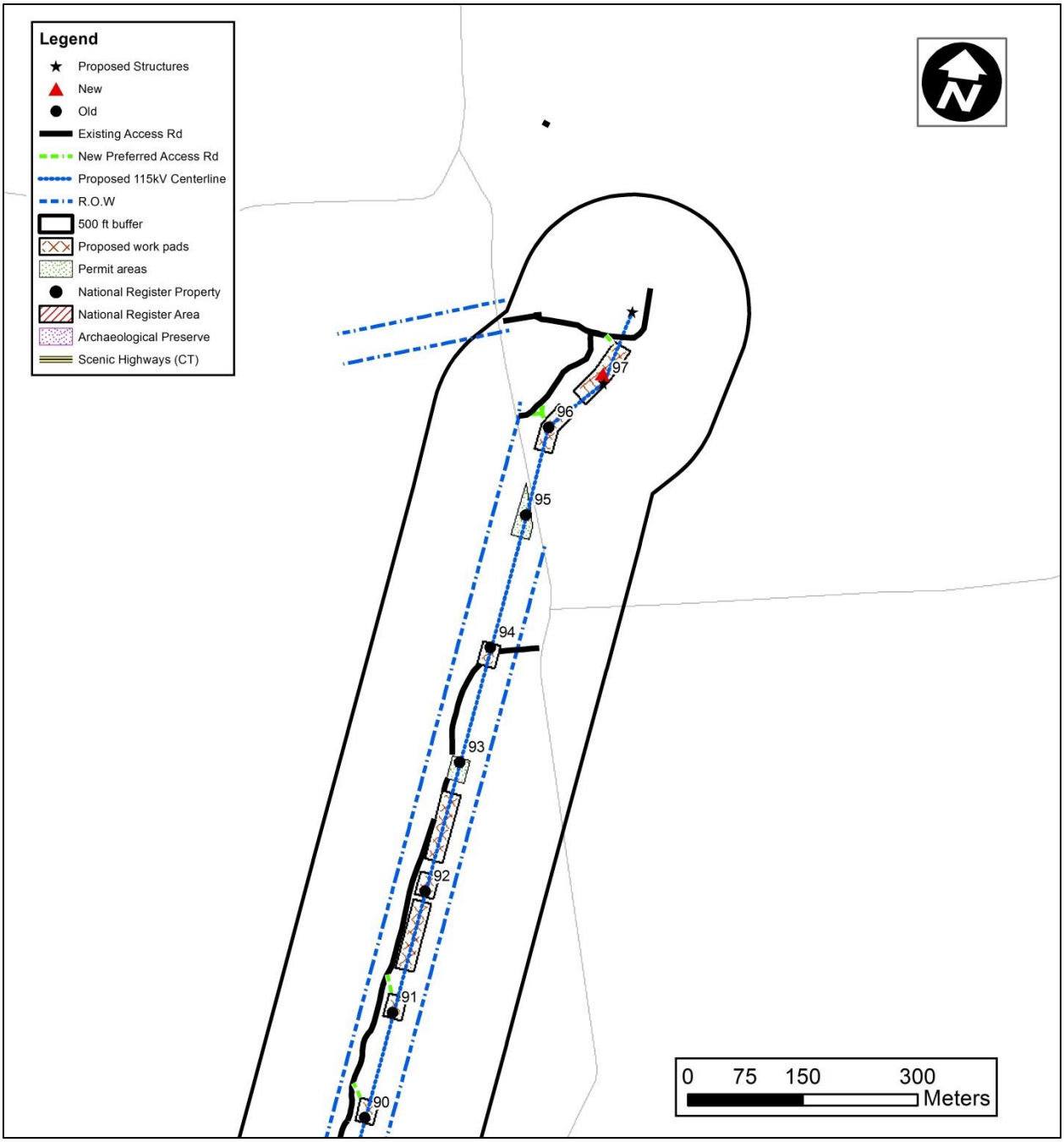


Figure 3, Sheet 1. Digital map depicting the locations of previously identified National Register of Historic Places properties in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.

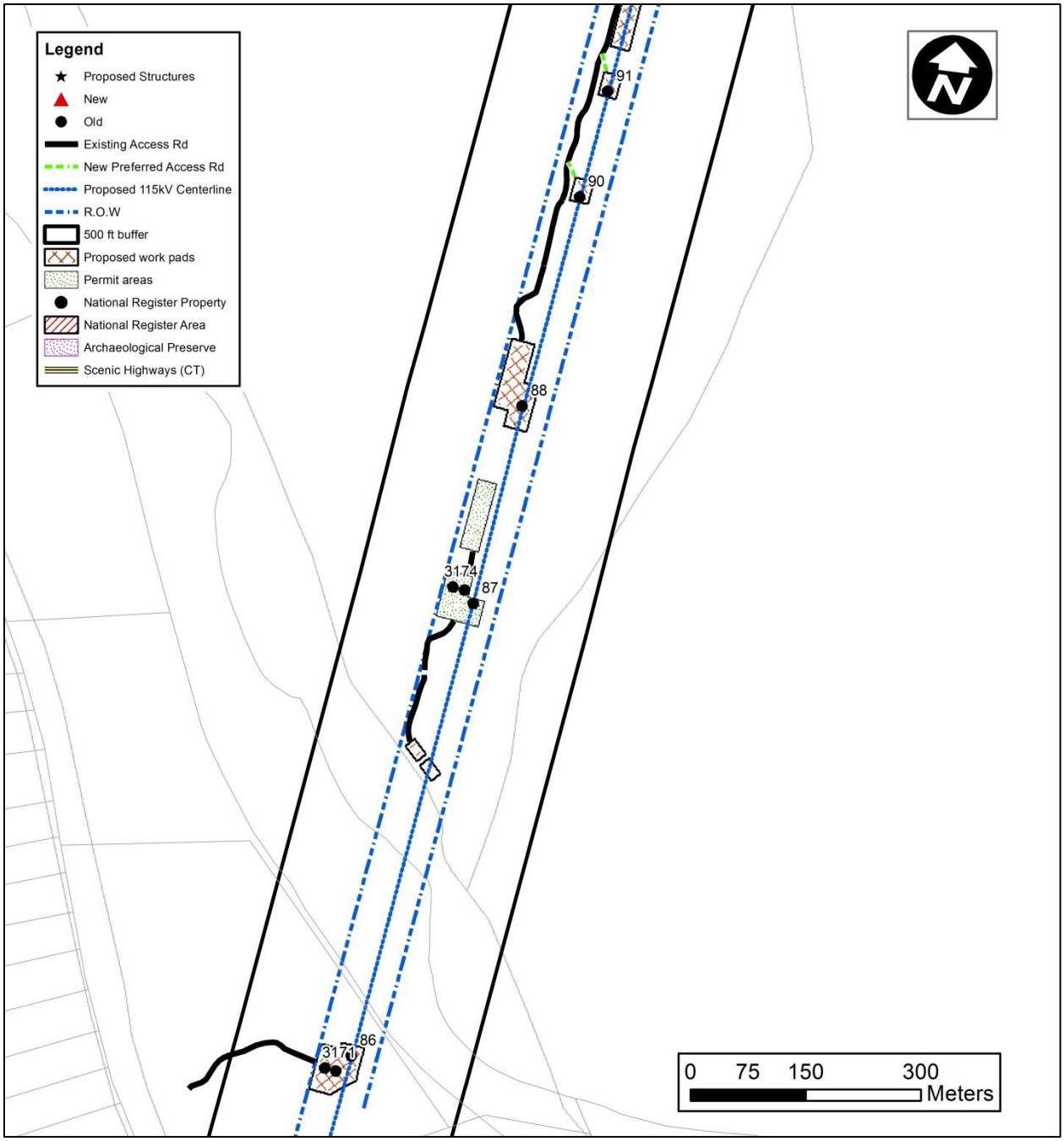
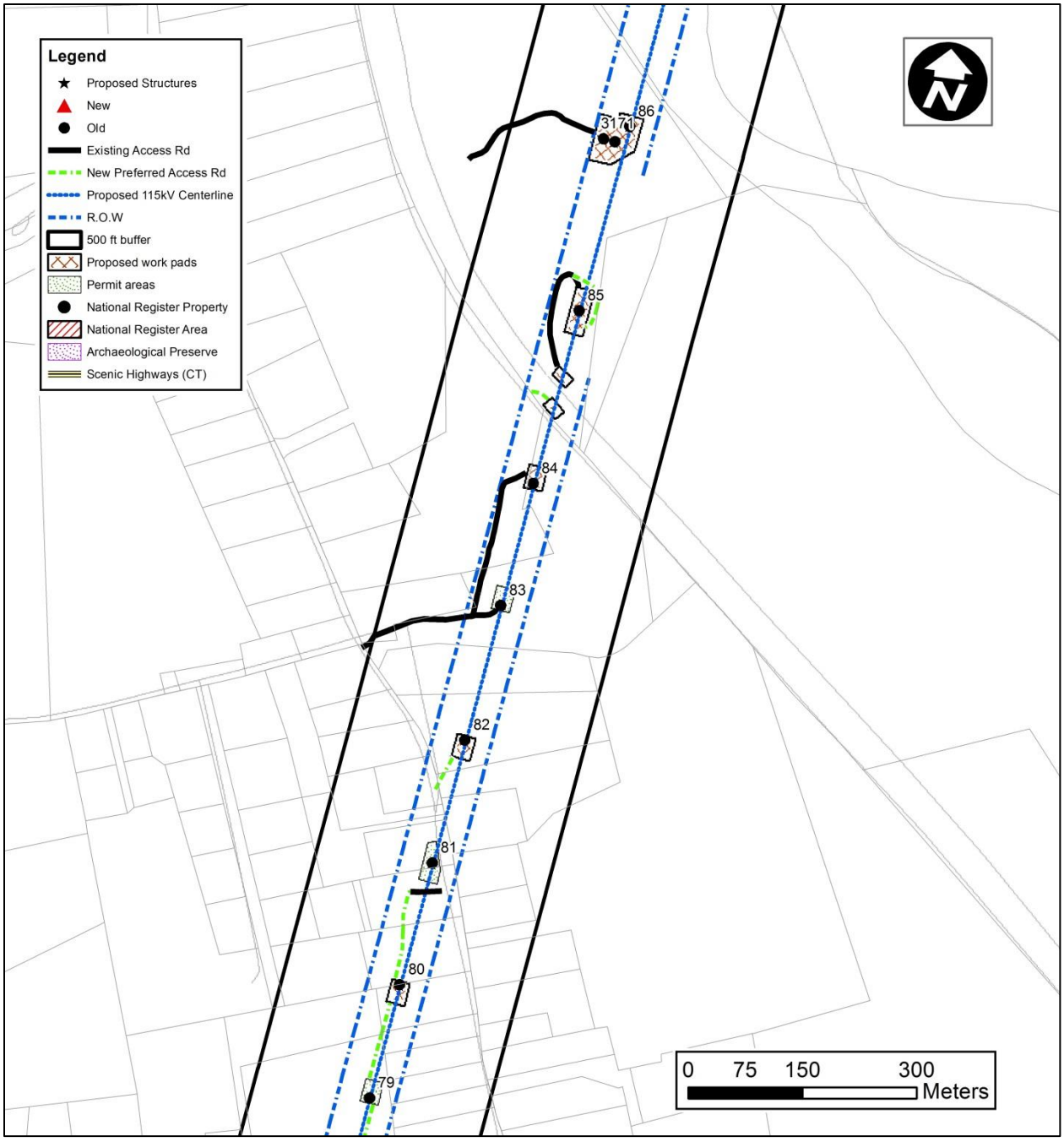


Figure 3, Sheet 2. Digital map depicting the locations of previously identified National Register of Historic Places properties in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.



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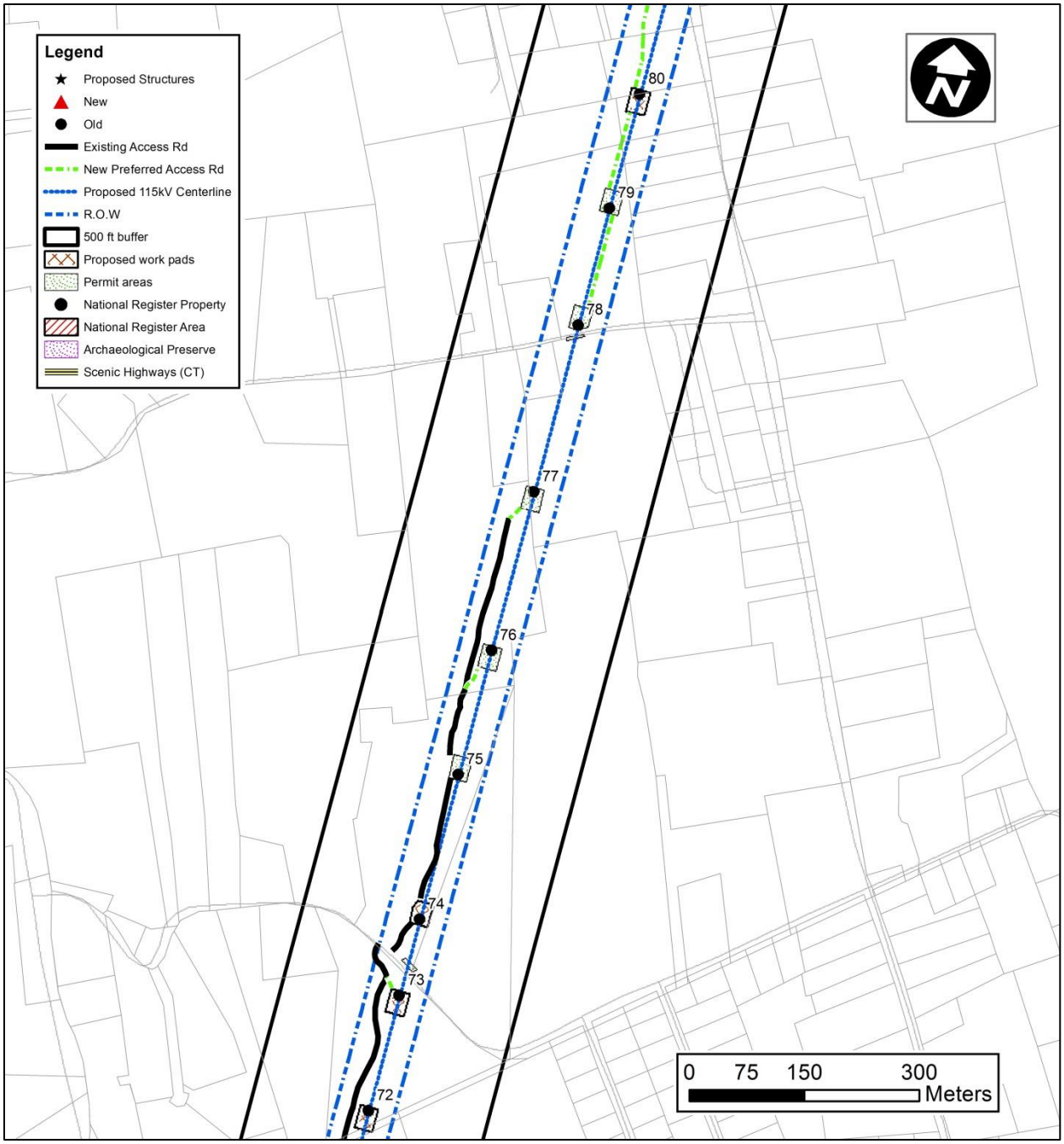

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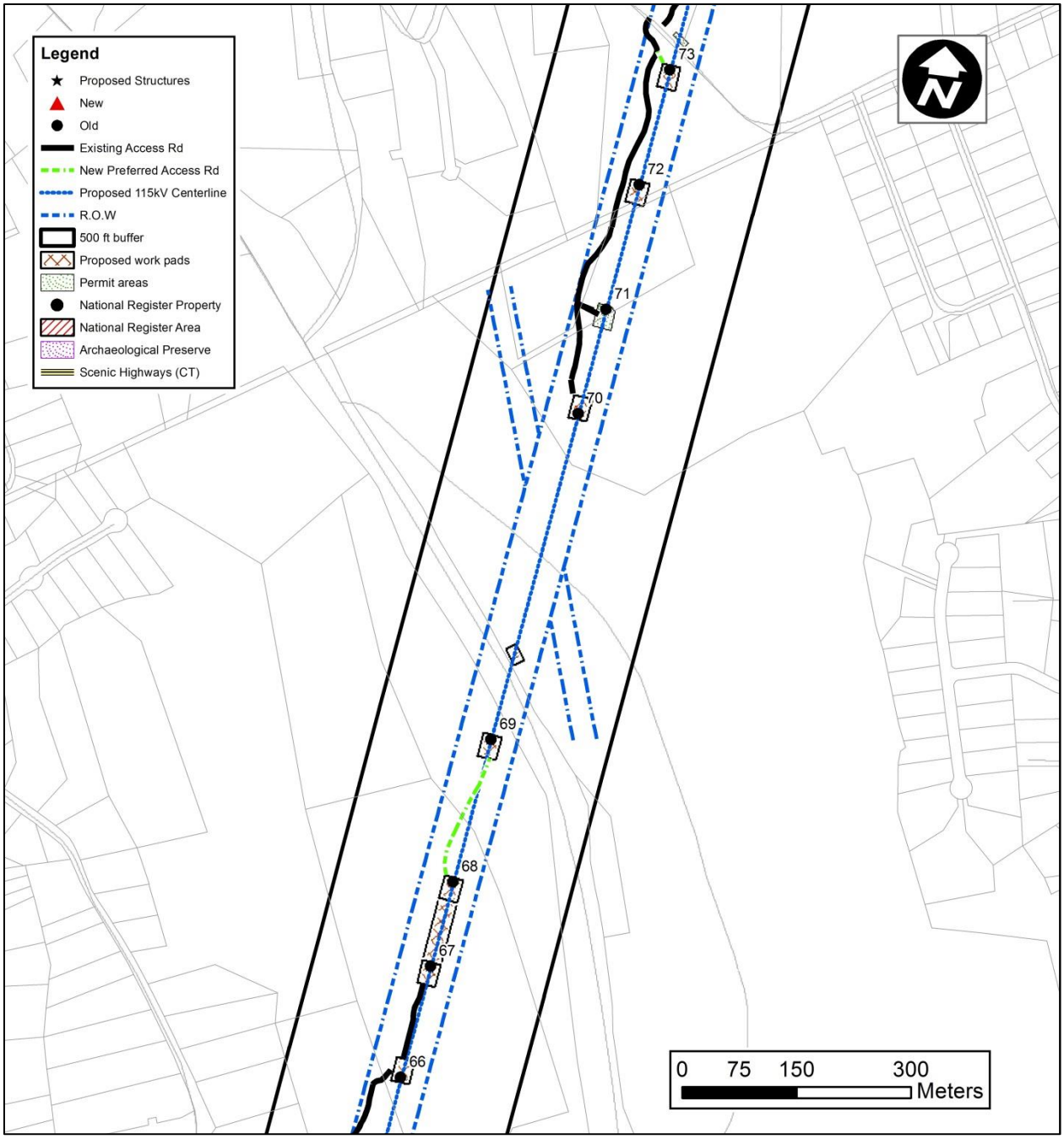


Figure 3, Sheet 5. Digital map depicting the locations of previously identified National Register of Historic Places properties in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.

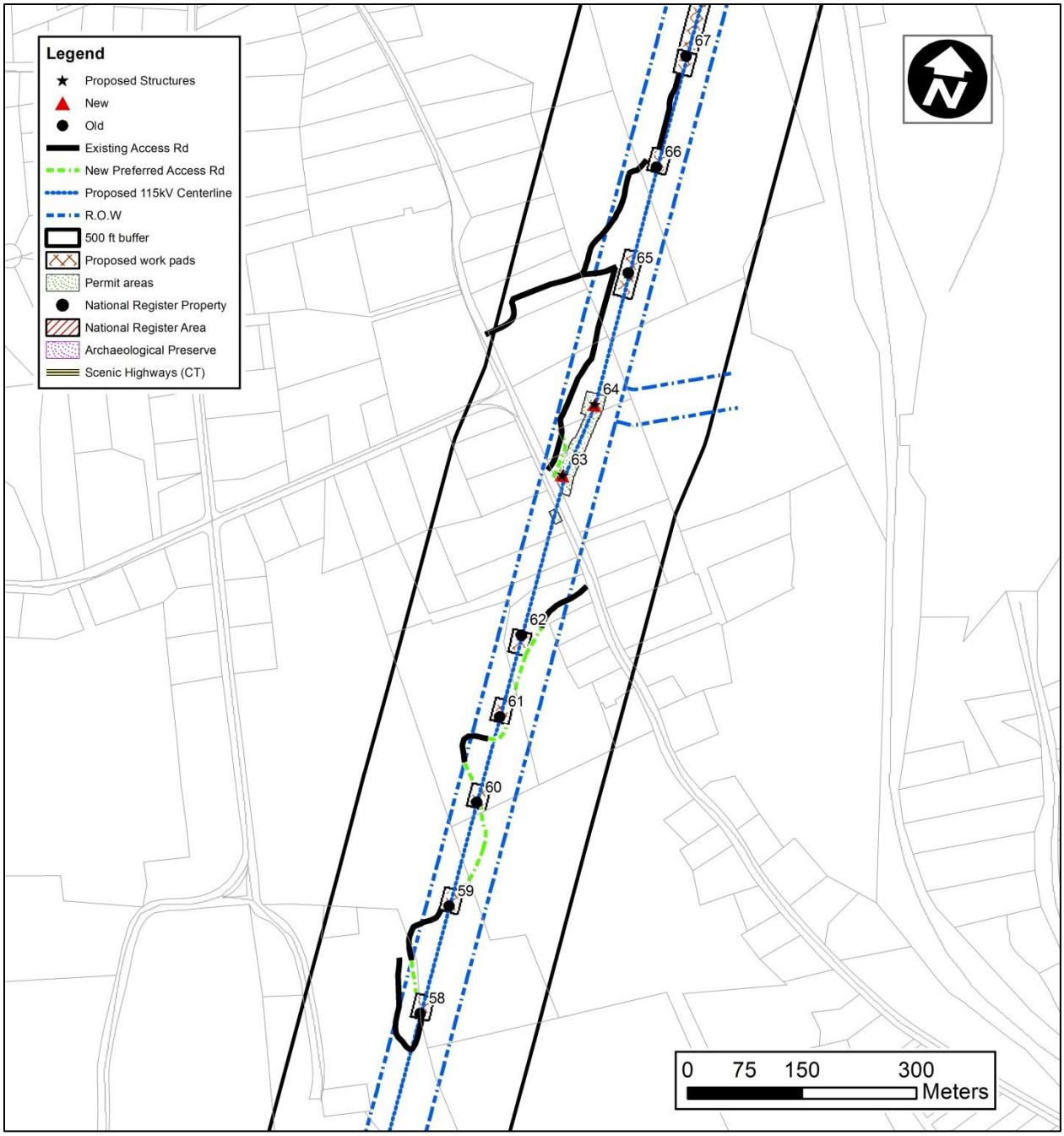


Figure 3, Sheet 6. Digital map depicting the locations of previously identified National Register of Historic Places properties in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.

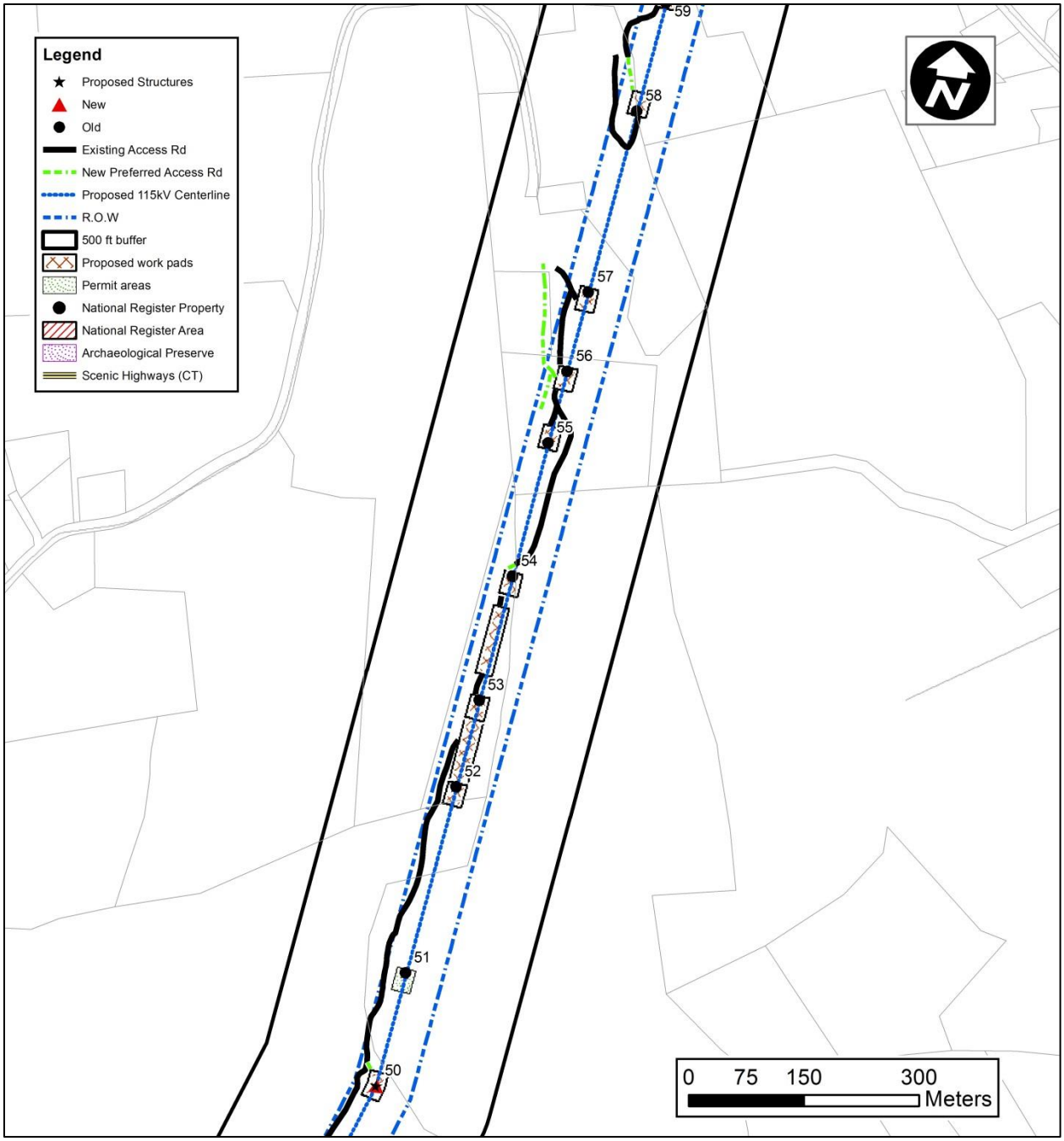
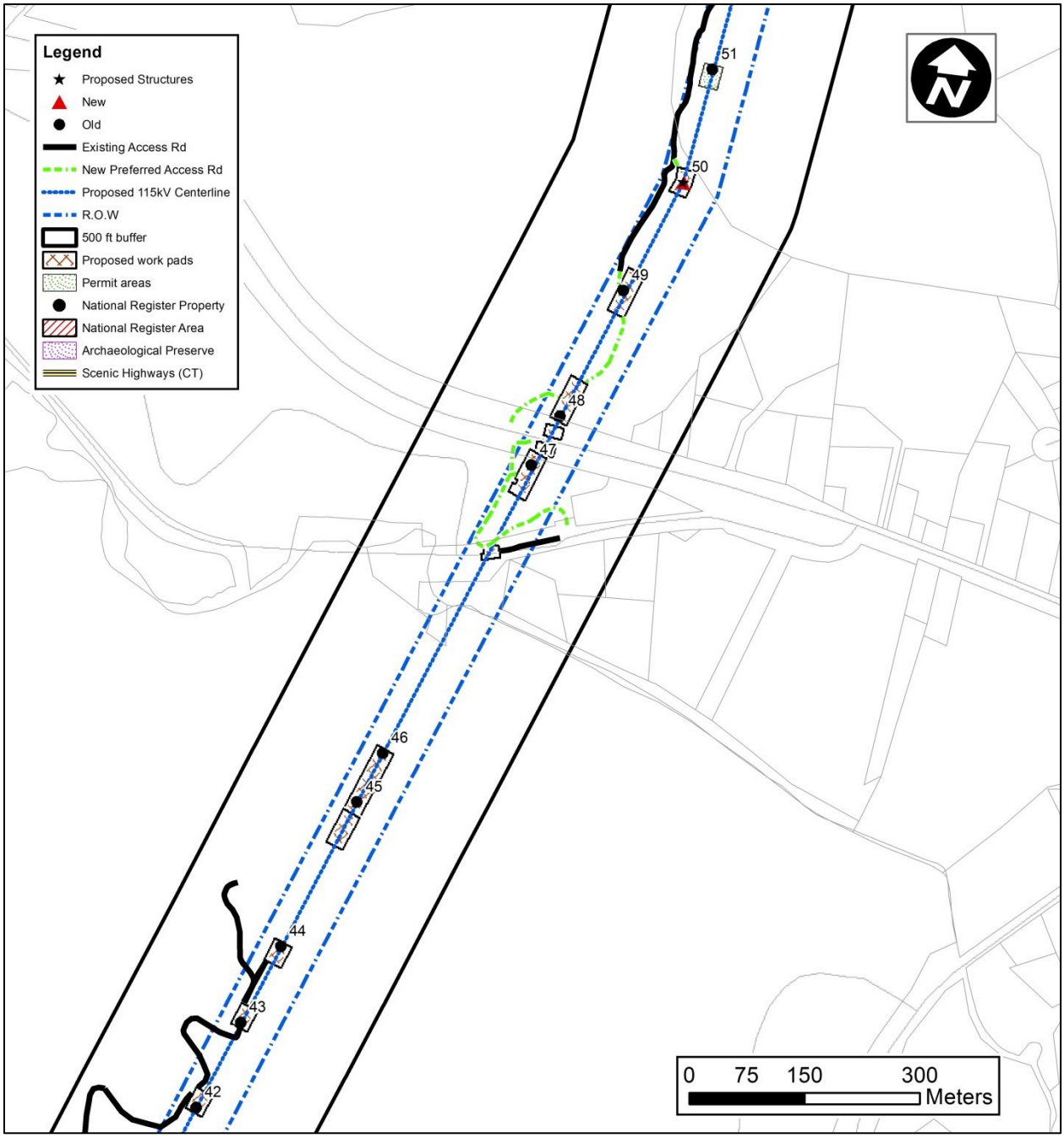


Figure 3, Sheet 7. Digital map depicting the locations of previously identified National Register of Historic Places properties in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.



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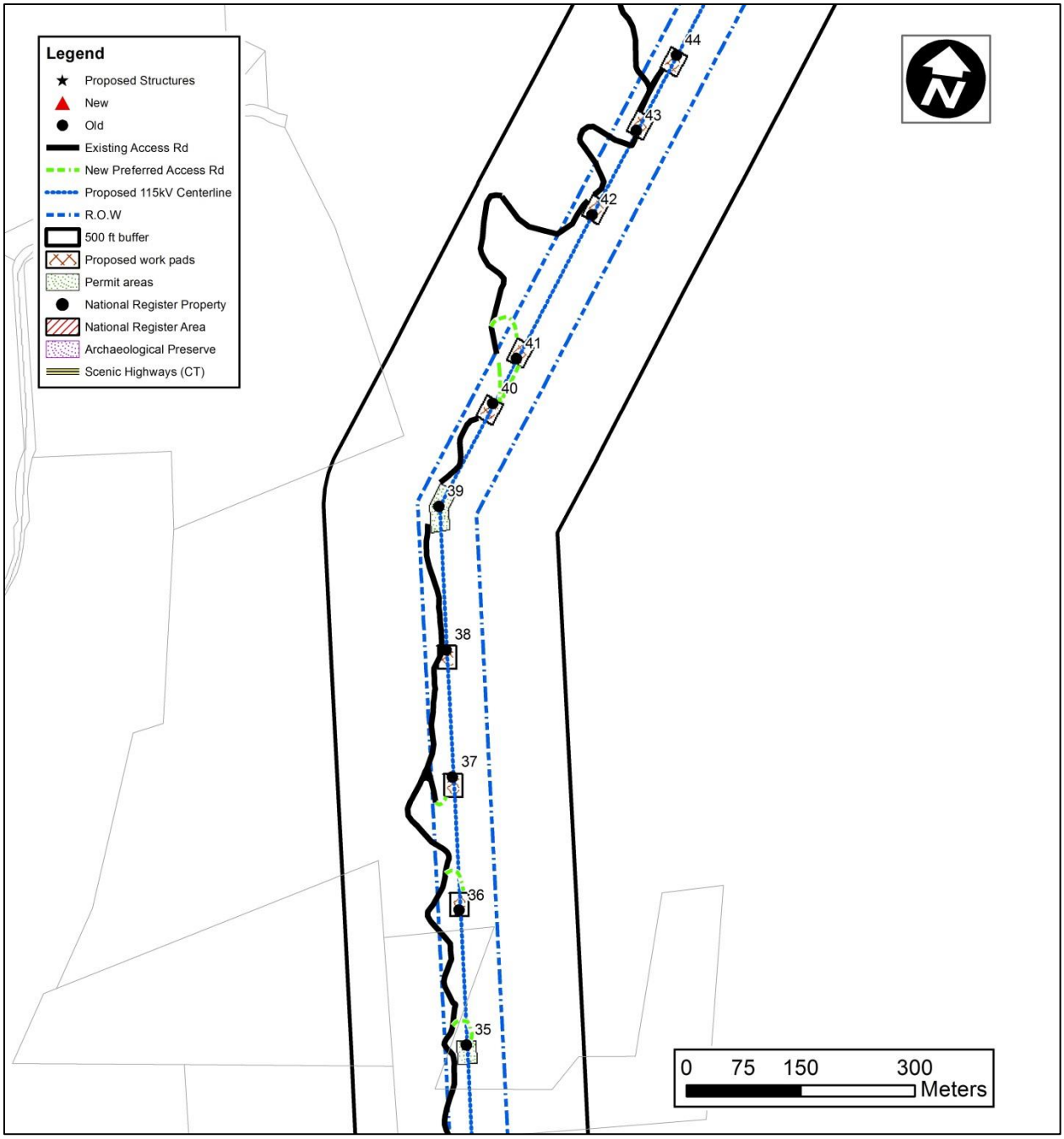

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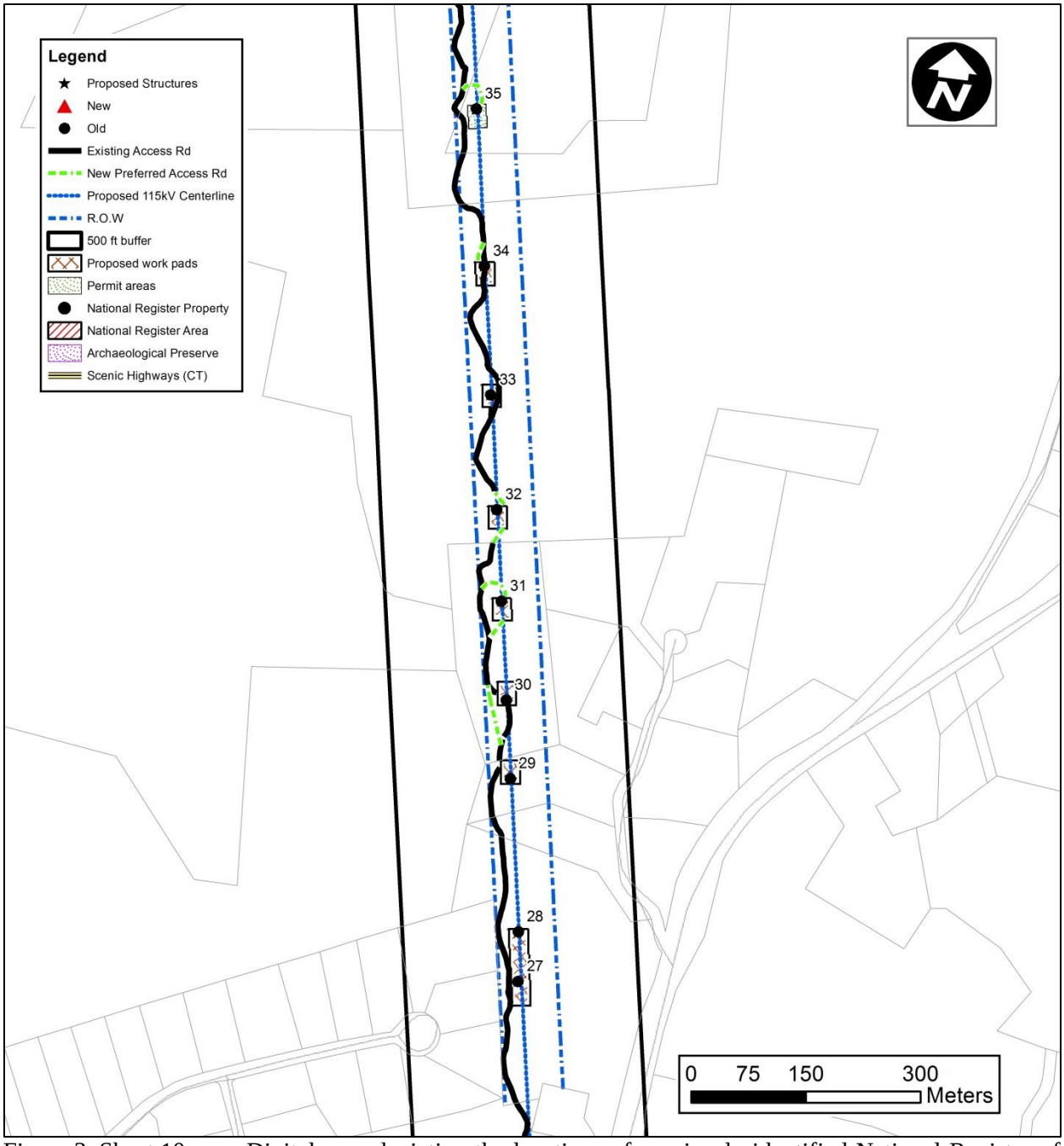
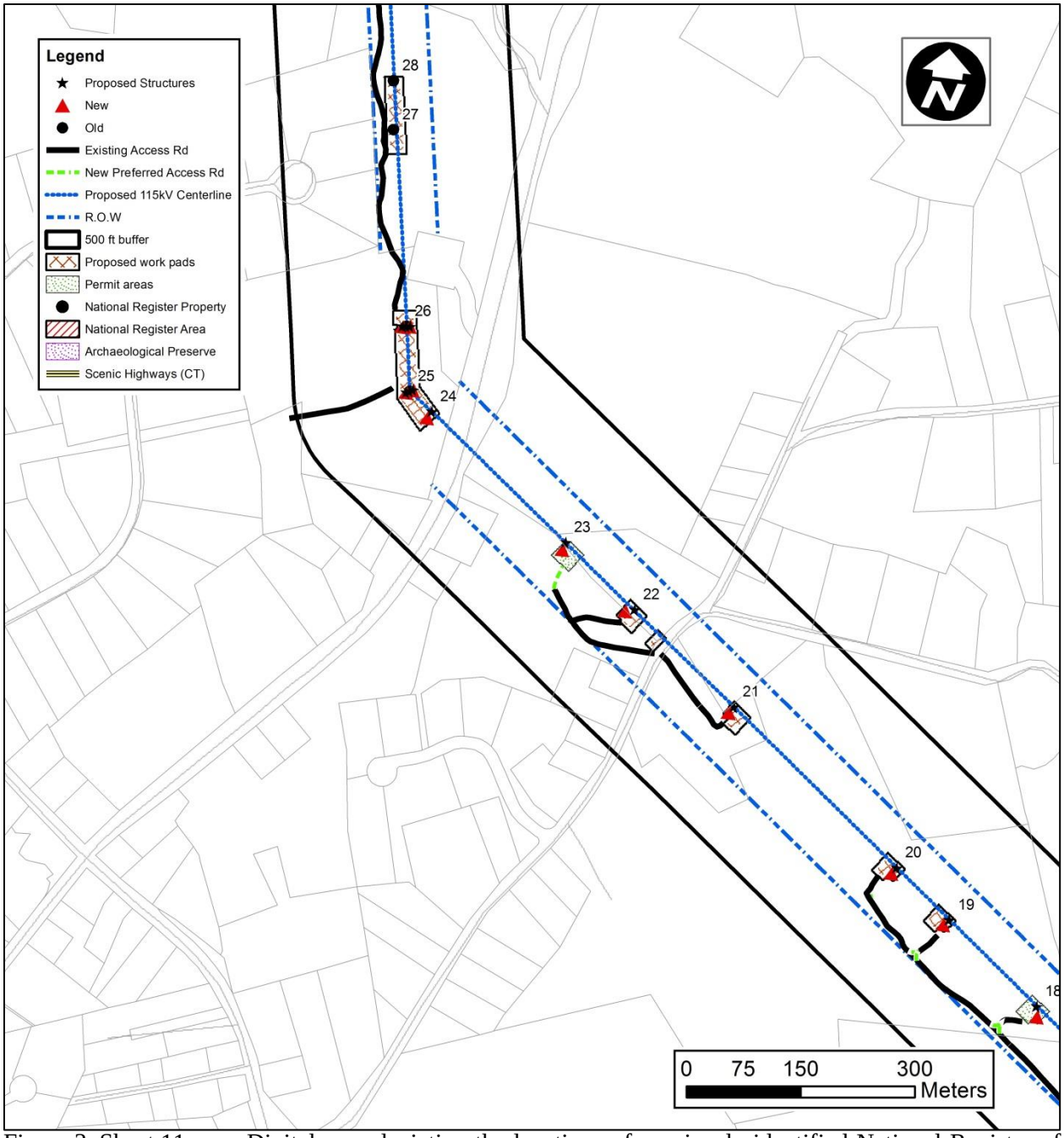


Figure 3, Sheet 10. Digital map depicting the locations of previously identified National Register of Historic Places properties in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.



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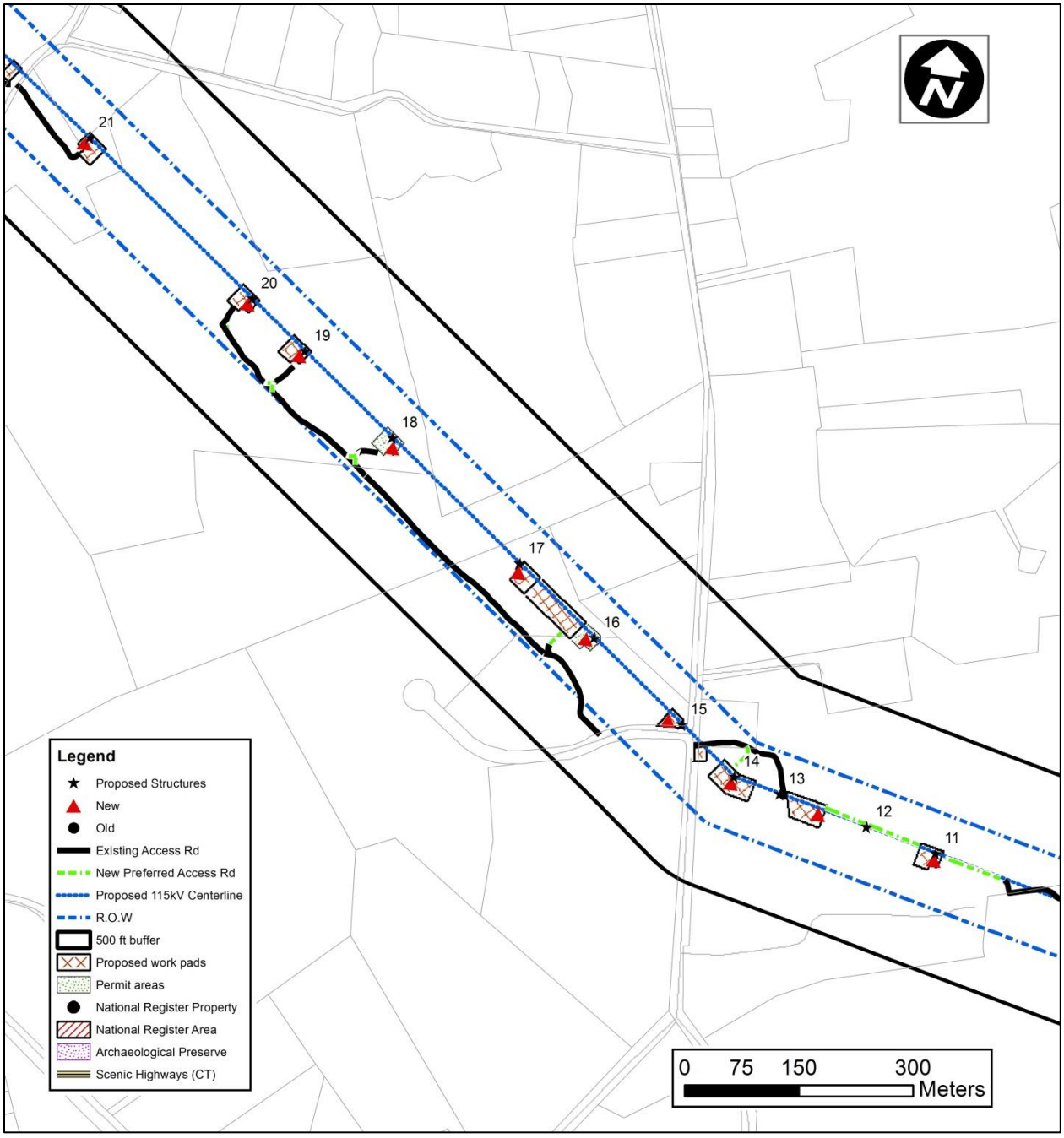
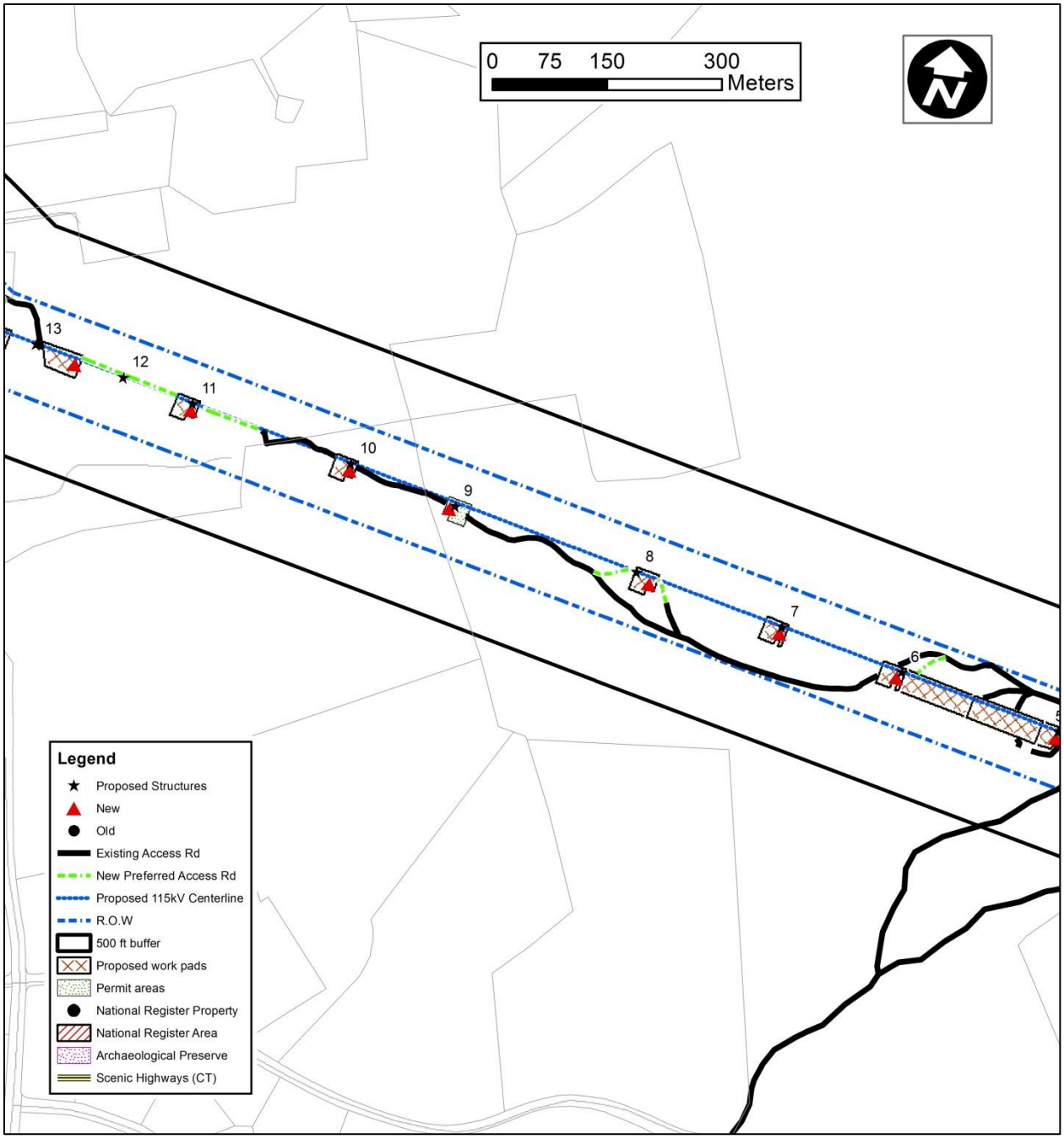


Figure 3, Sheet 12. Digital map depicting the locations of previously identified National Register of Historic Places properties in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.



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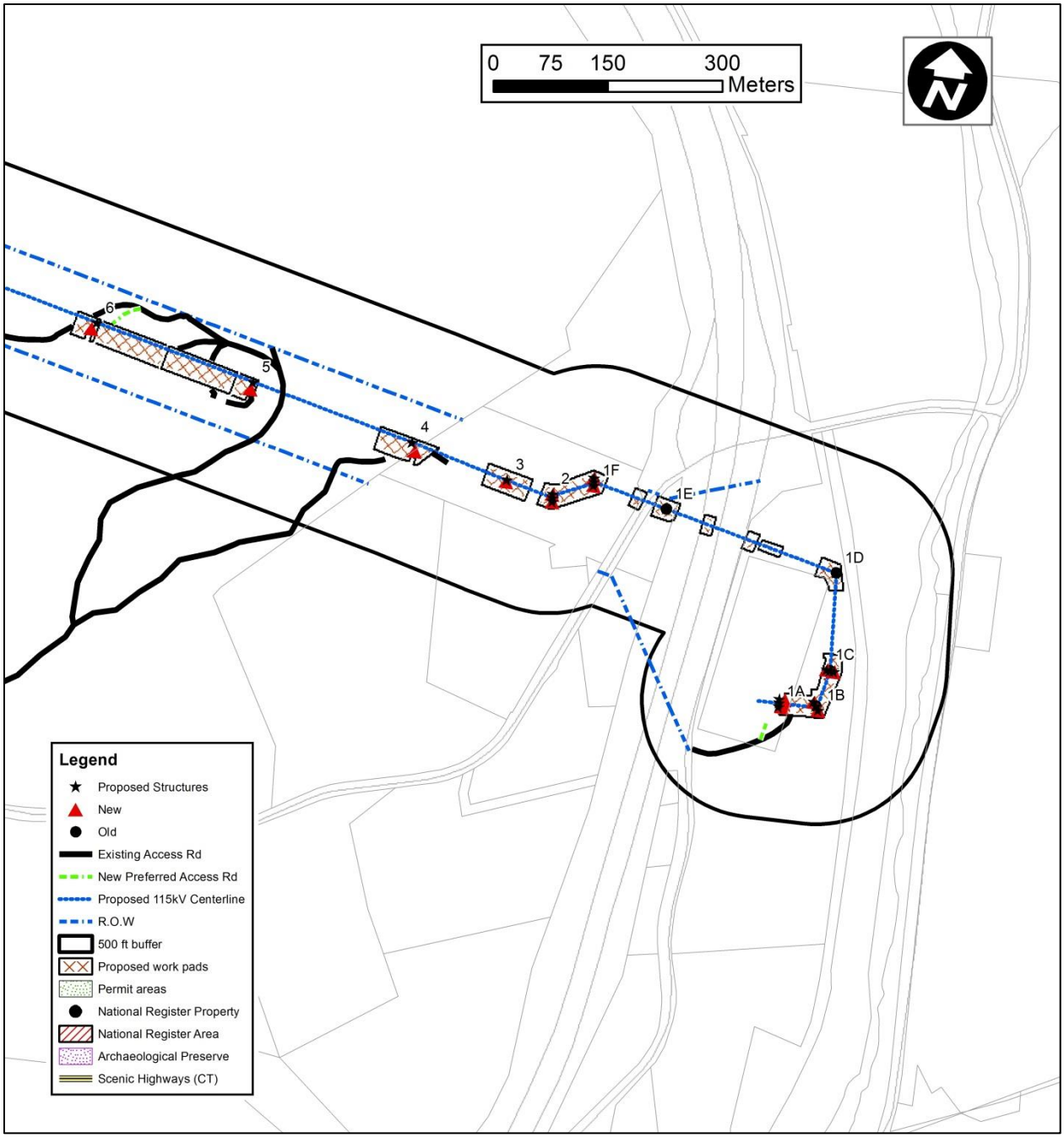

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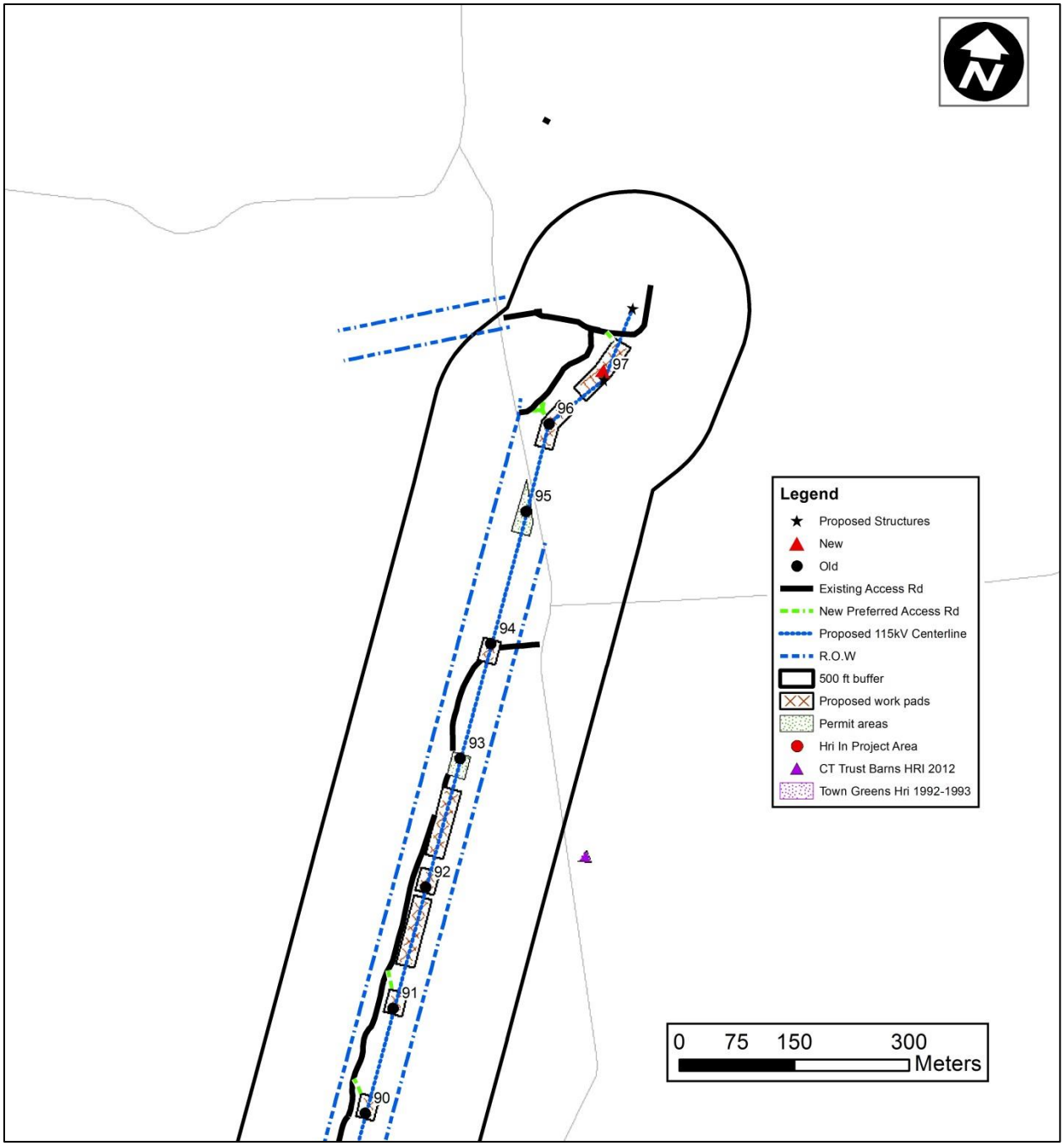


Figure 4, Sheet 1. Digital map depicting the locations of previously identified and inventoried historic structures in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.

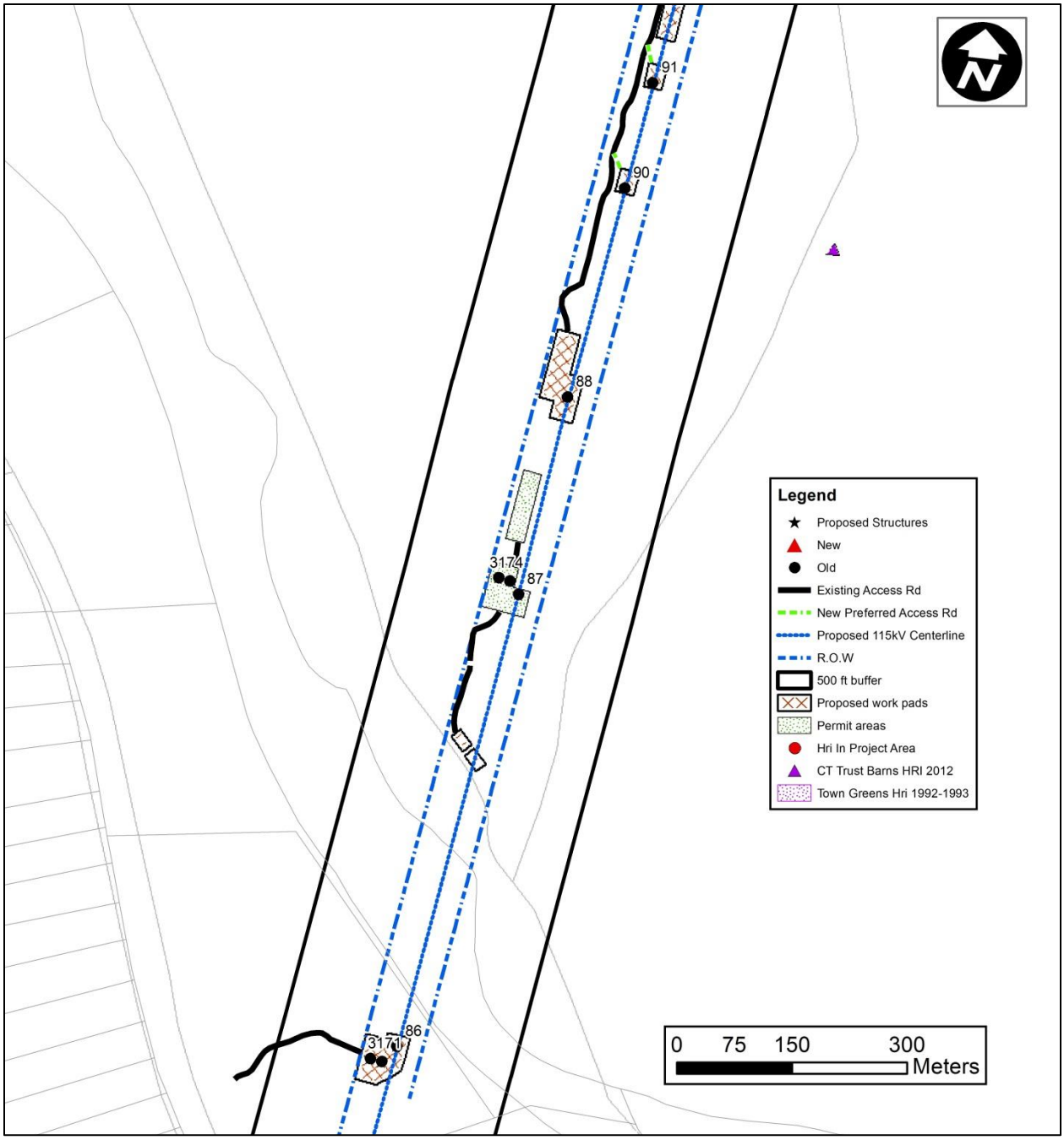


Figure 4, Sheet 2. Digital map depicting the locations of previously identified and inventoried historic structures in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.

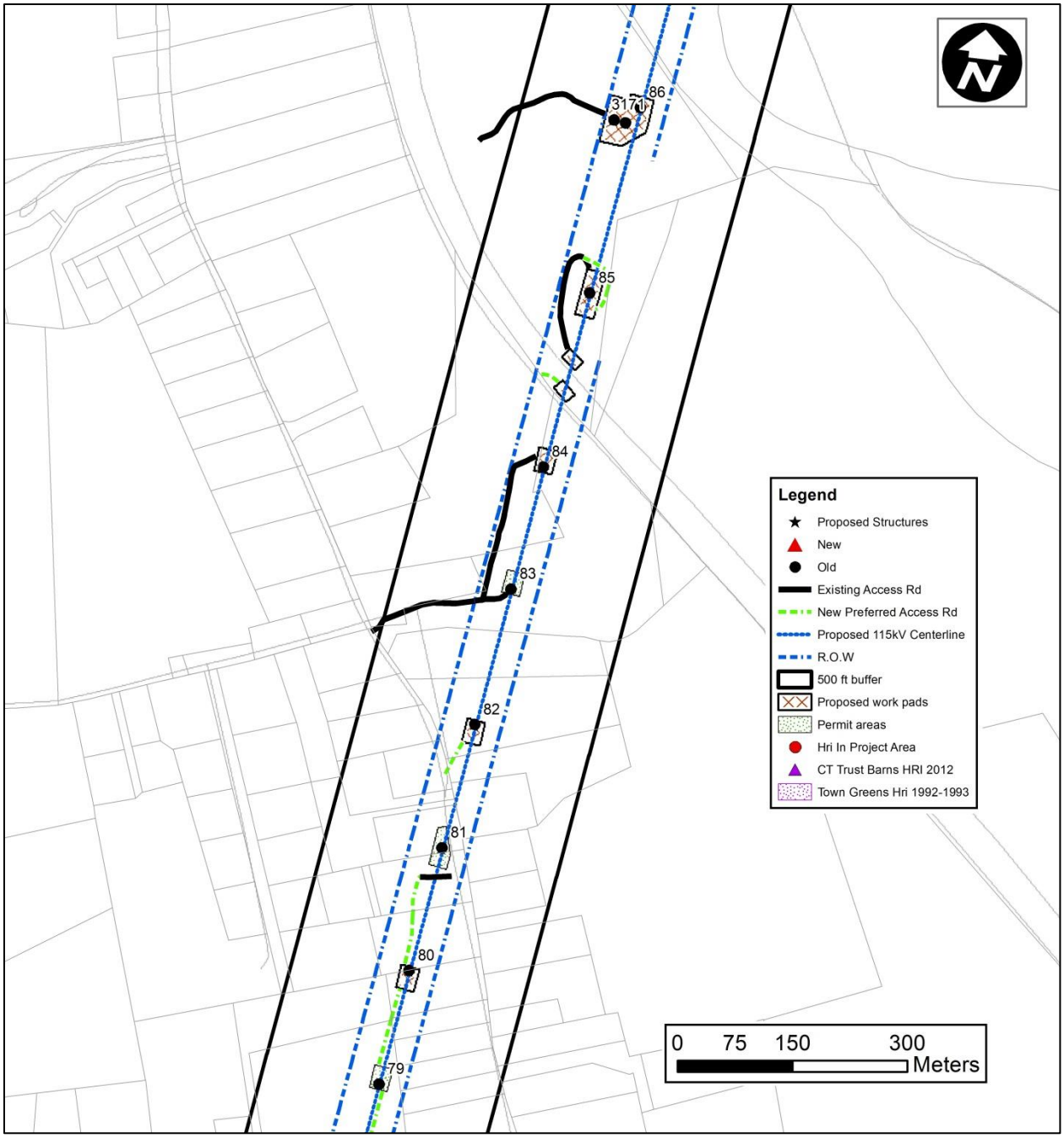
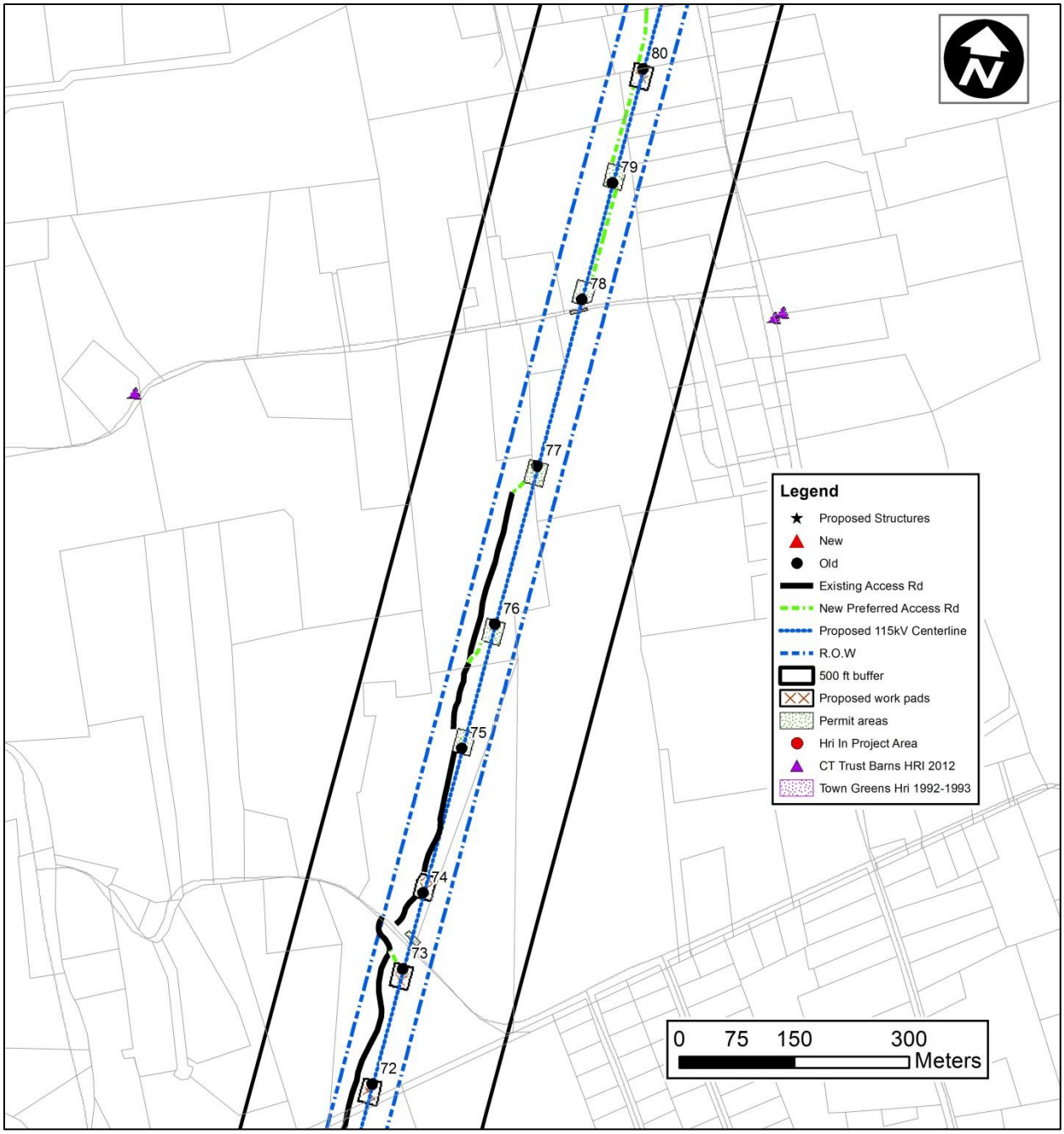


Figure 4, Sheet 3. Digital map depicting the locations of previously historic structures and National Register eligible properties in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.



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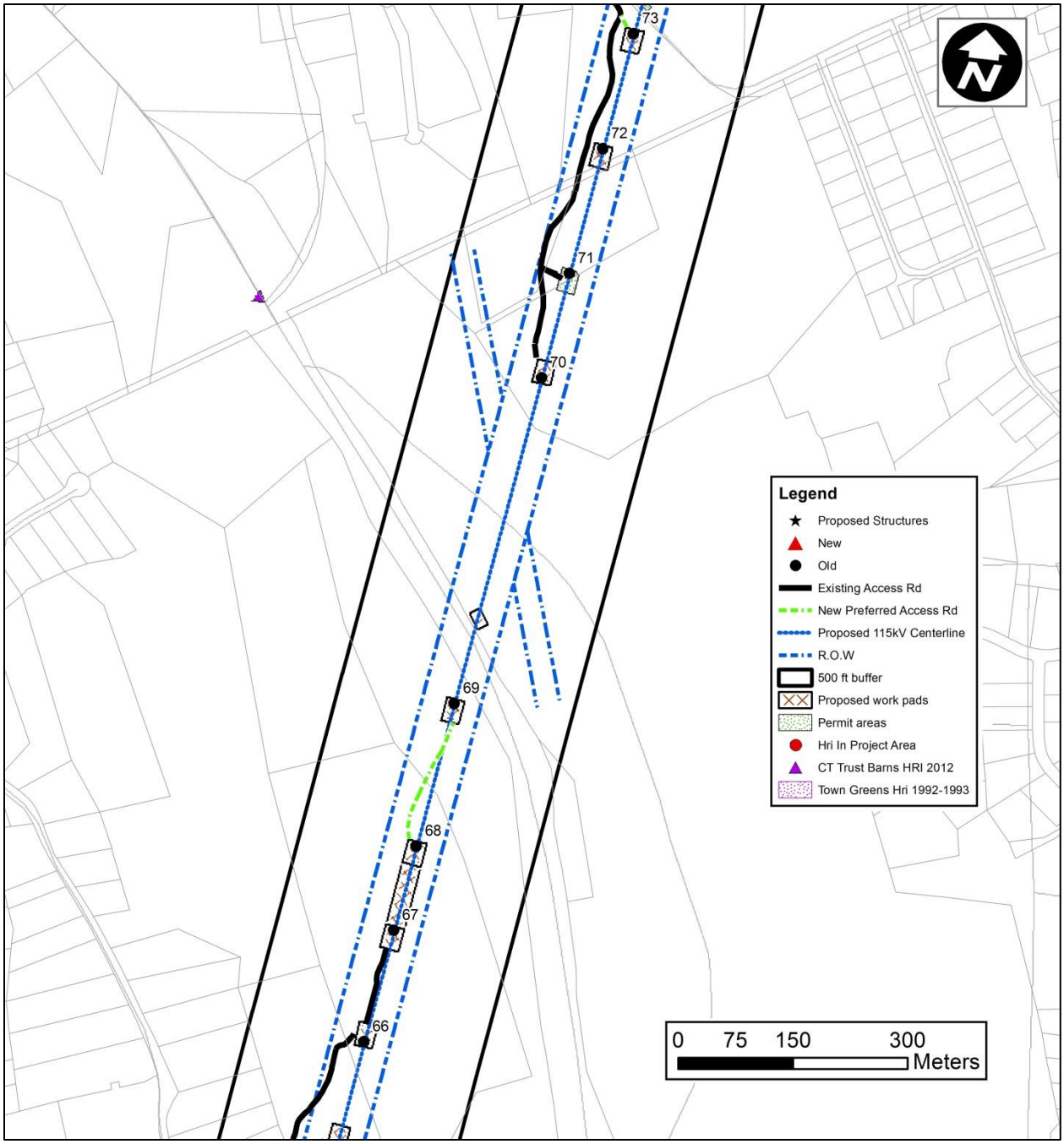


Figure 4, Sheet 5. Digital map depicting the locations of previously identified and inventoried historic structures in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.

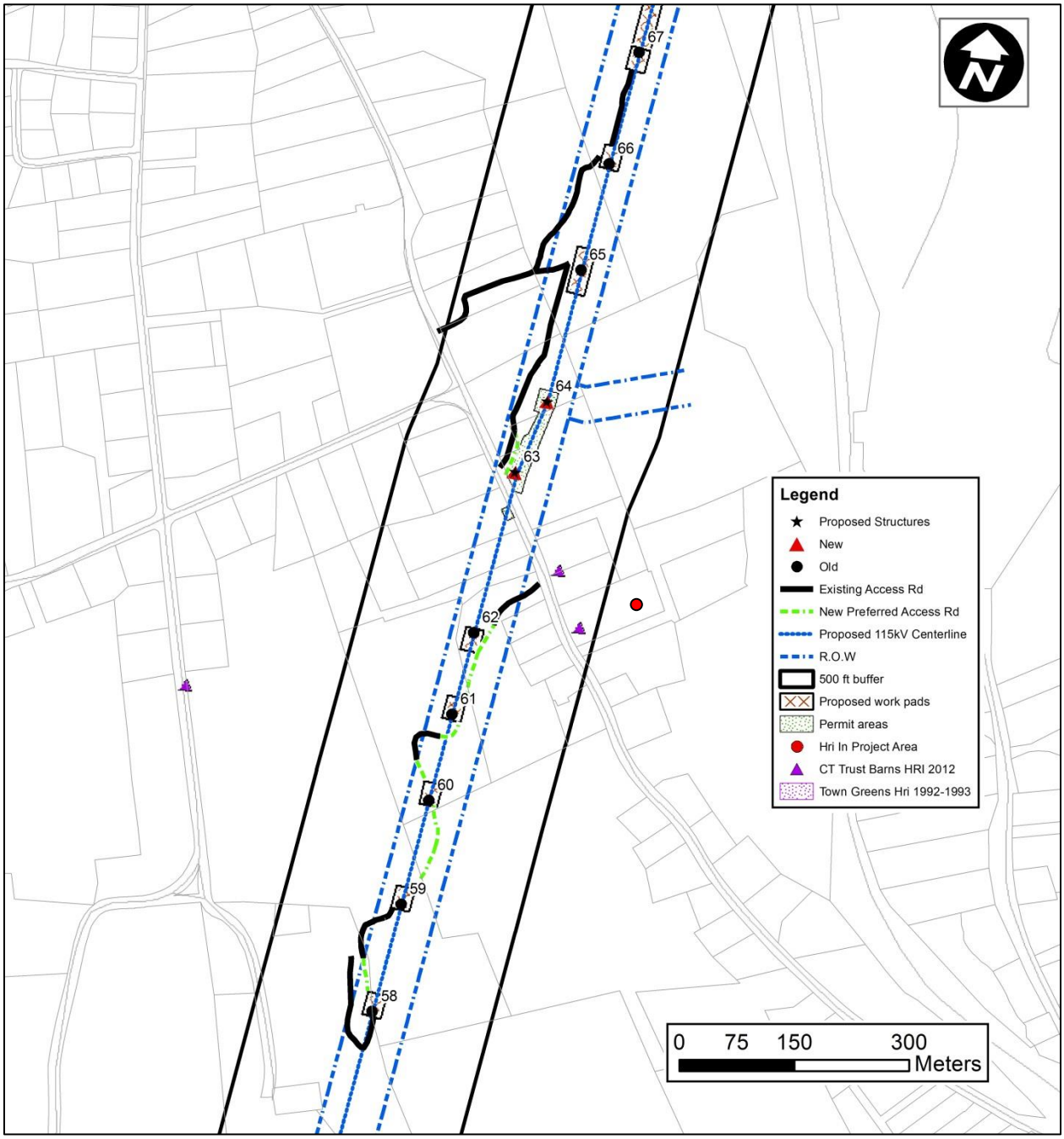


Figure 4, Sheet 6. Digital map depicting the locations of previously identified historic structures and National Register eligible in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.

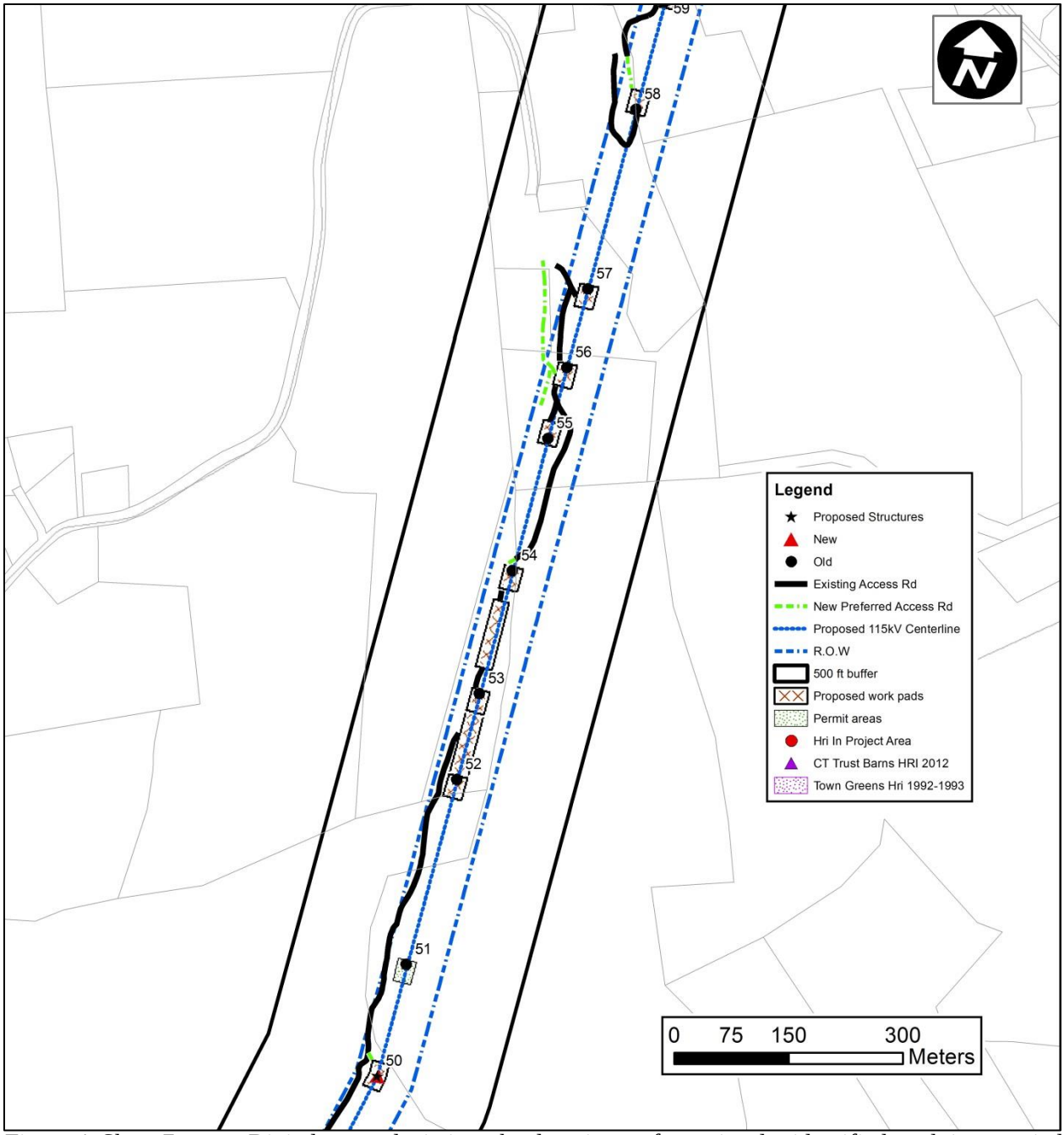
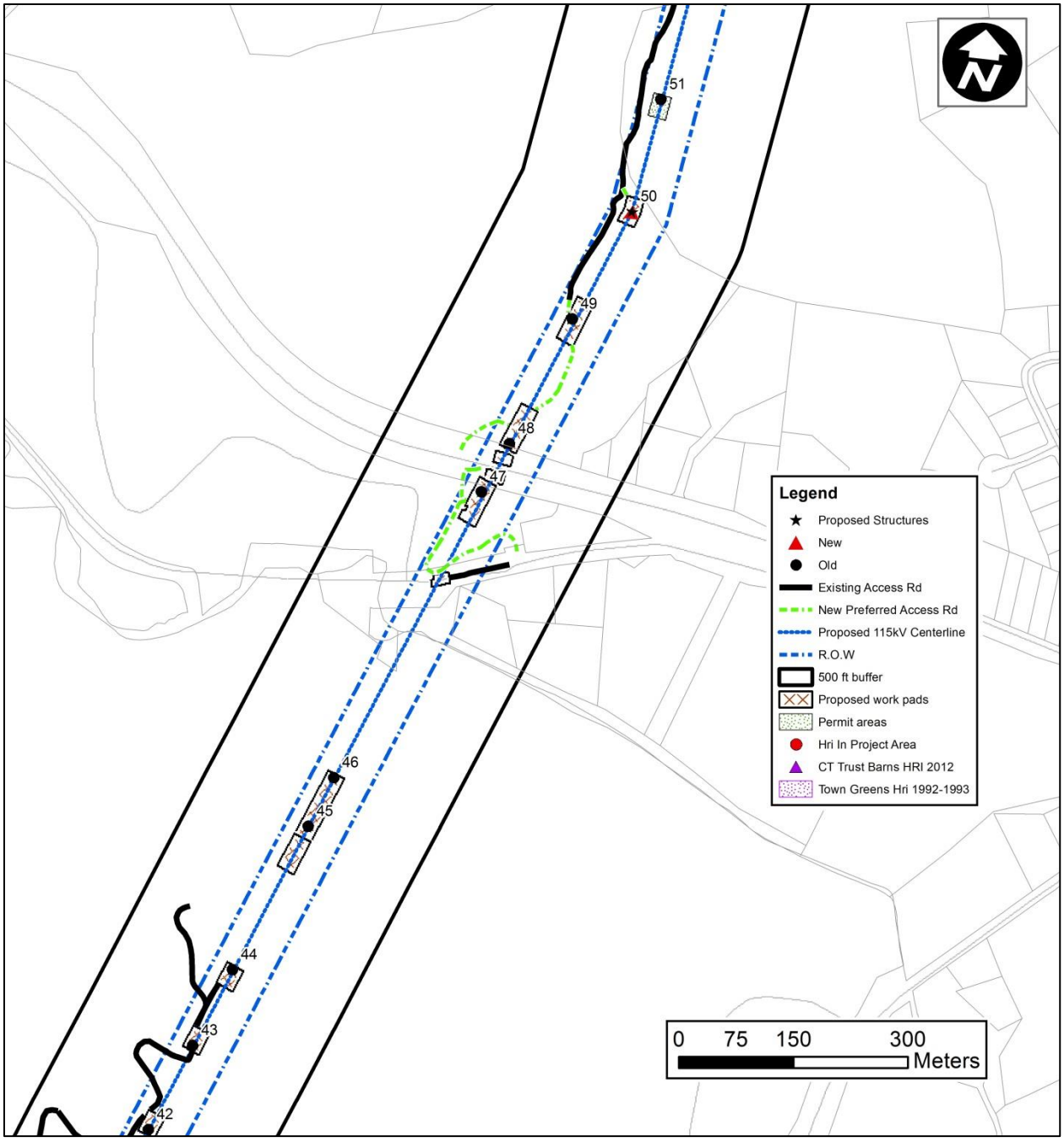


Figure 4, Sheet 7. Digital map depicting the locations of previously identified and inventoried historic structures in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.



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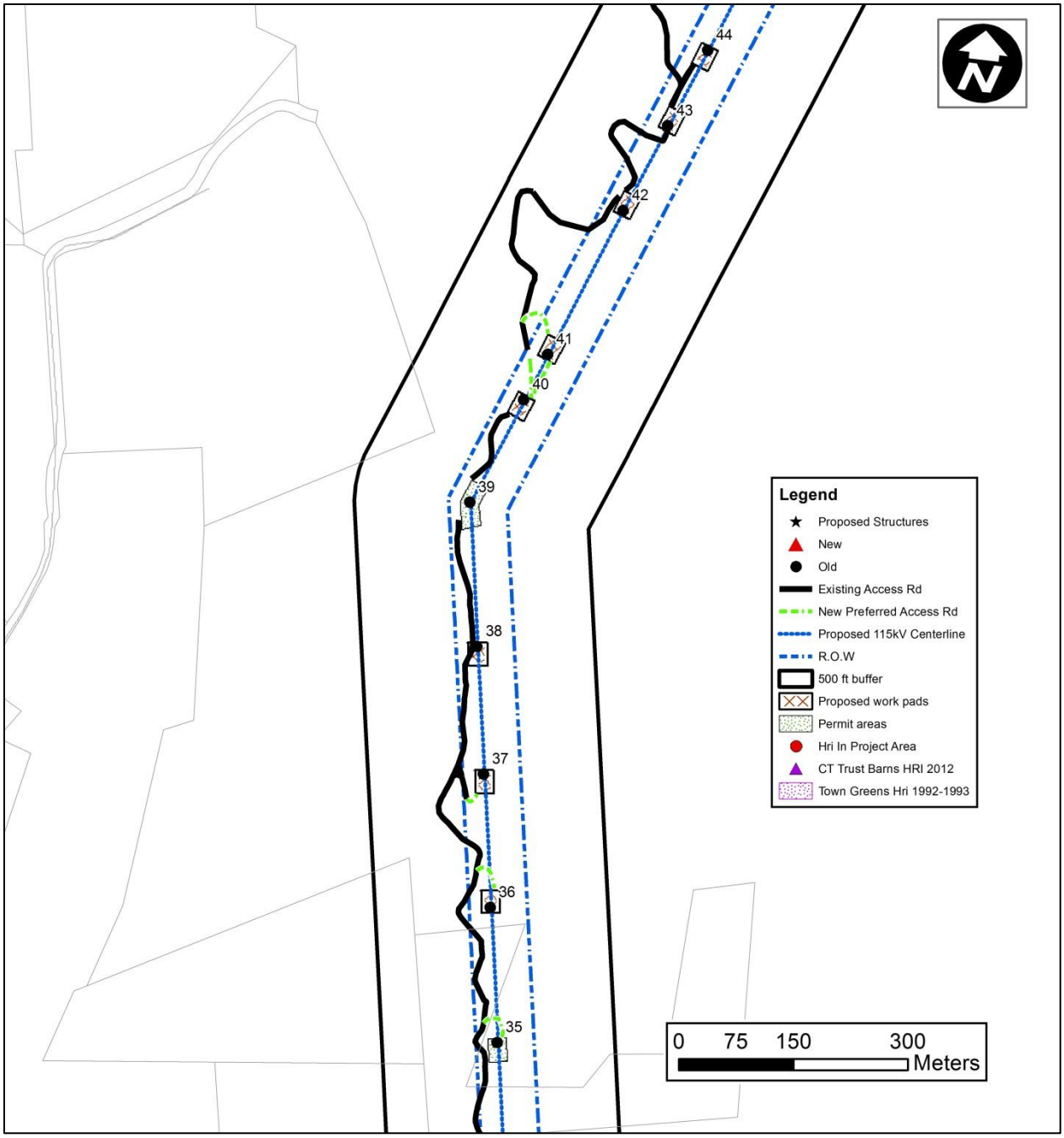

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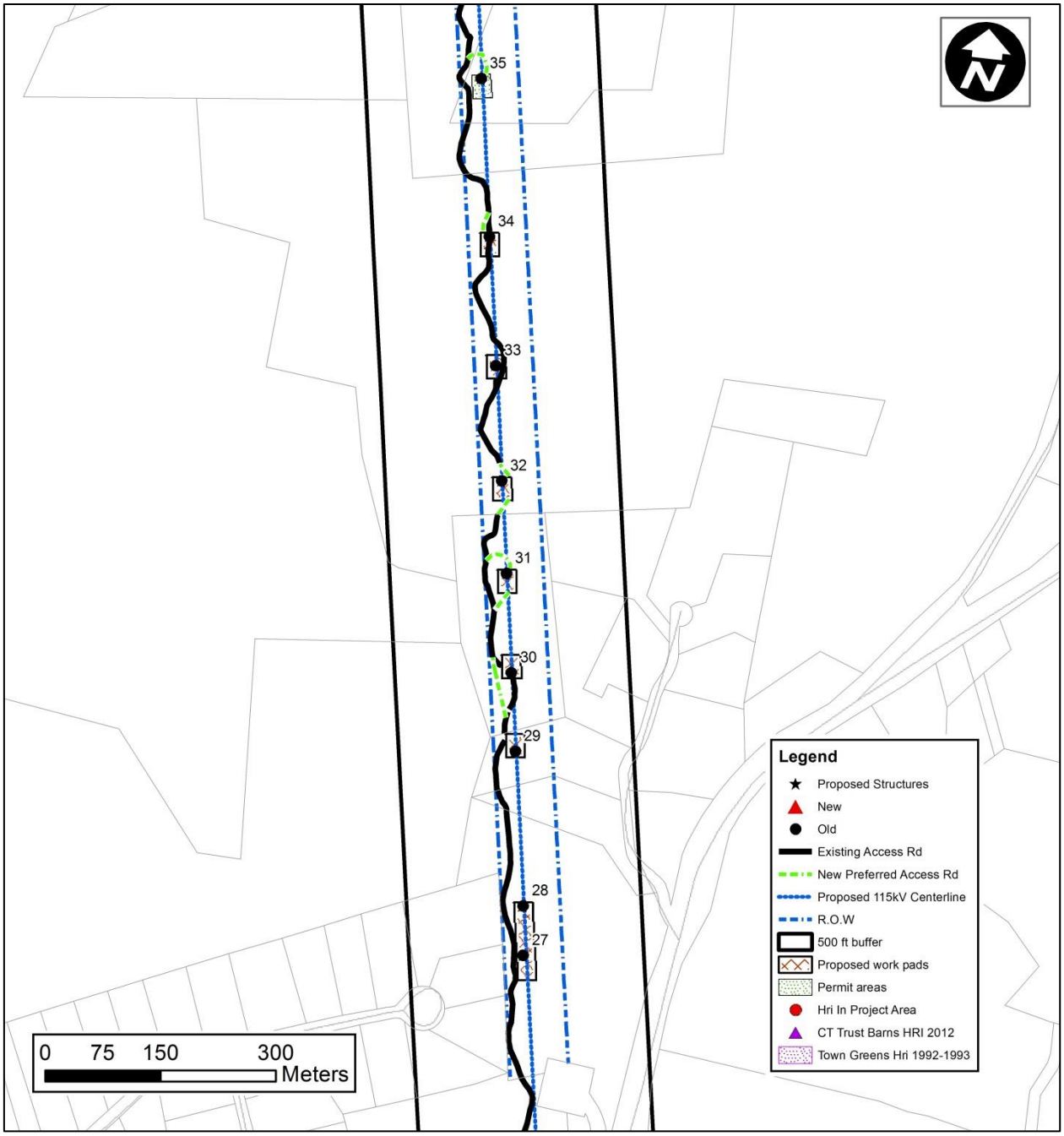
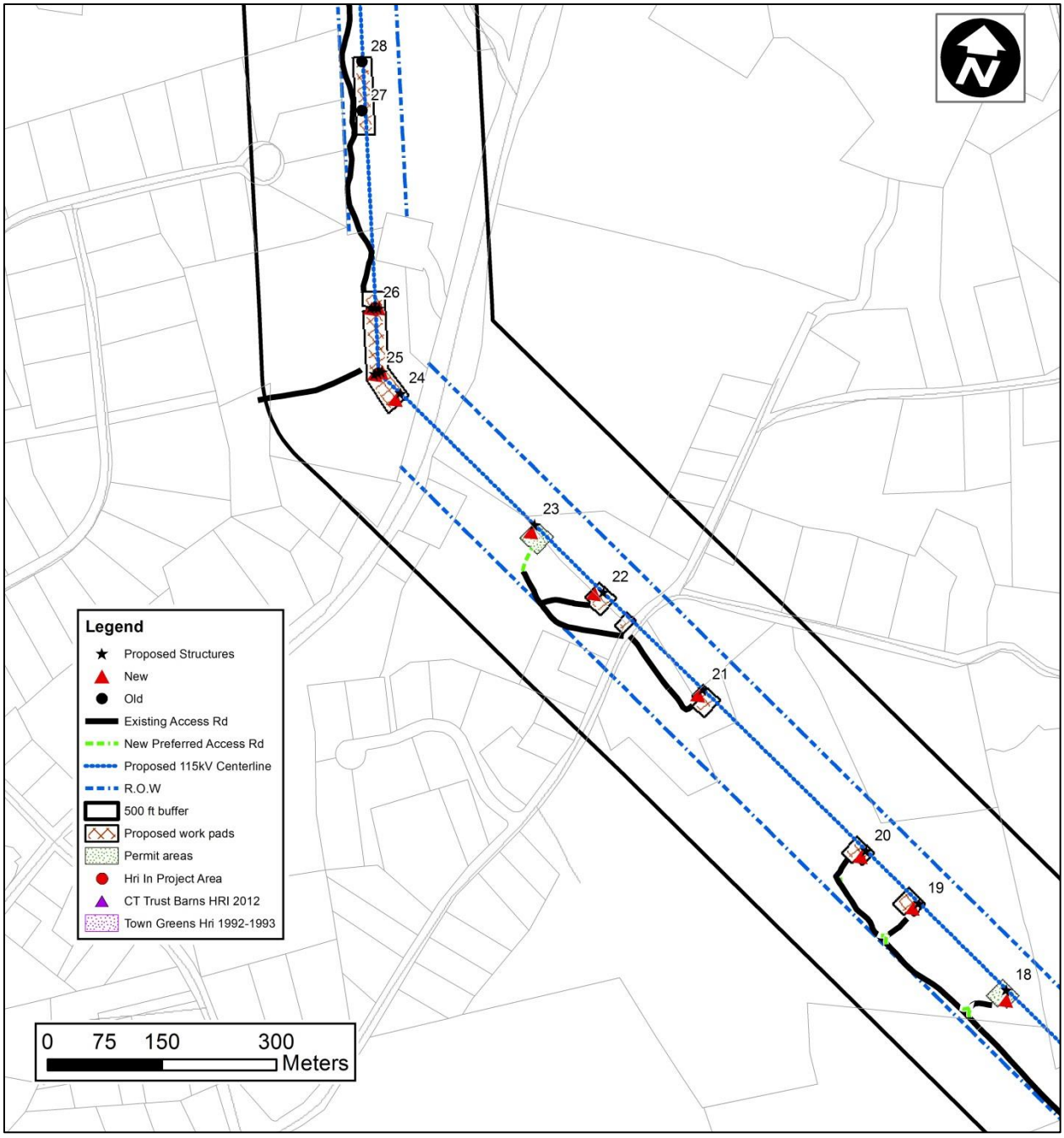


Figure 4, Sheet 10. Digital map depicting the locations of previously historic structures and National Register eligible properties in the vicinity of the route of the proposed Frost Bridge to Campville 115-kV Project.



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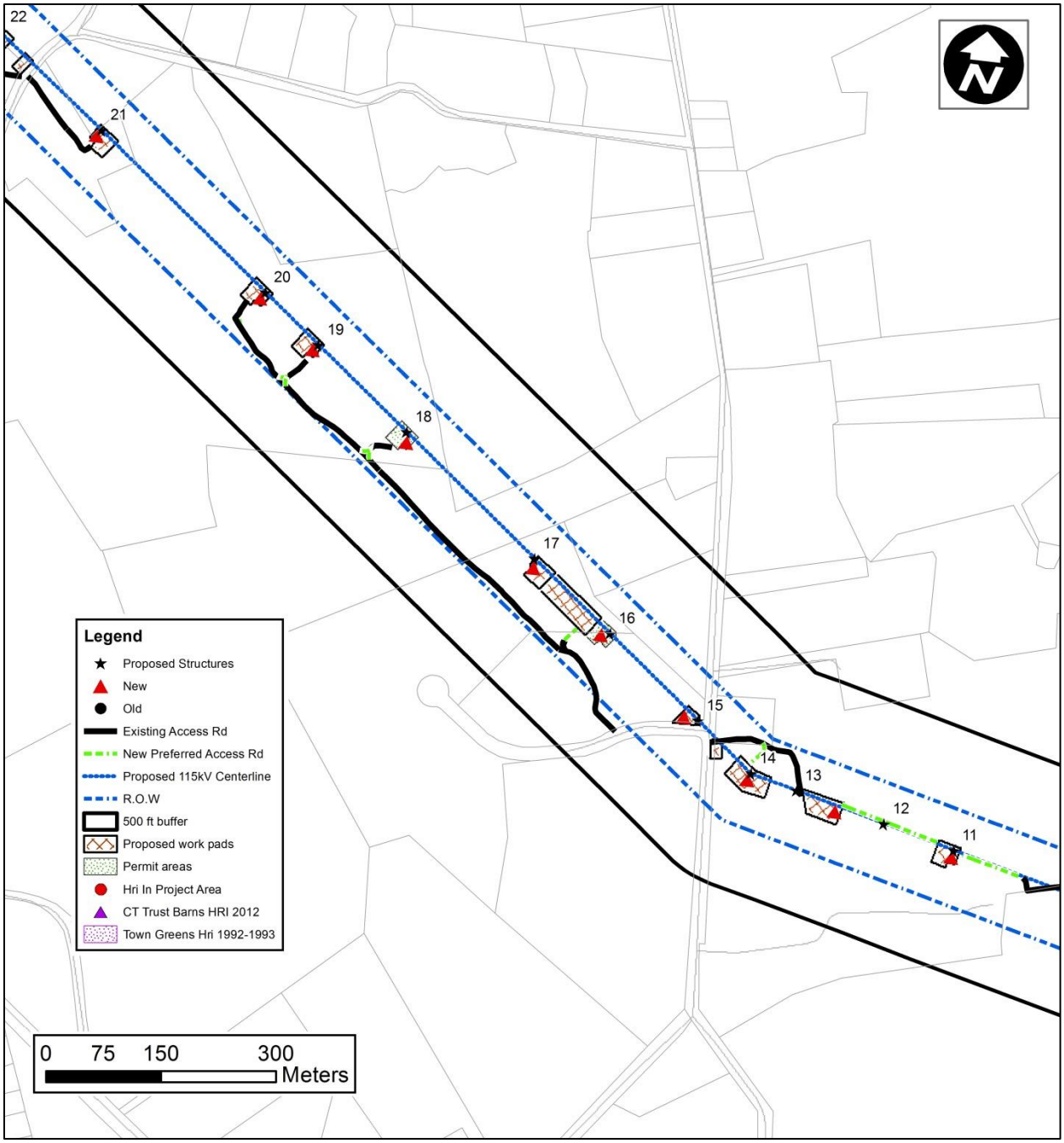

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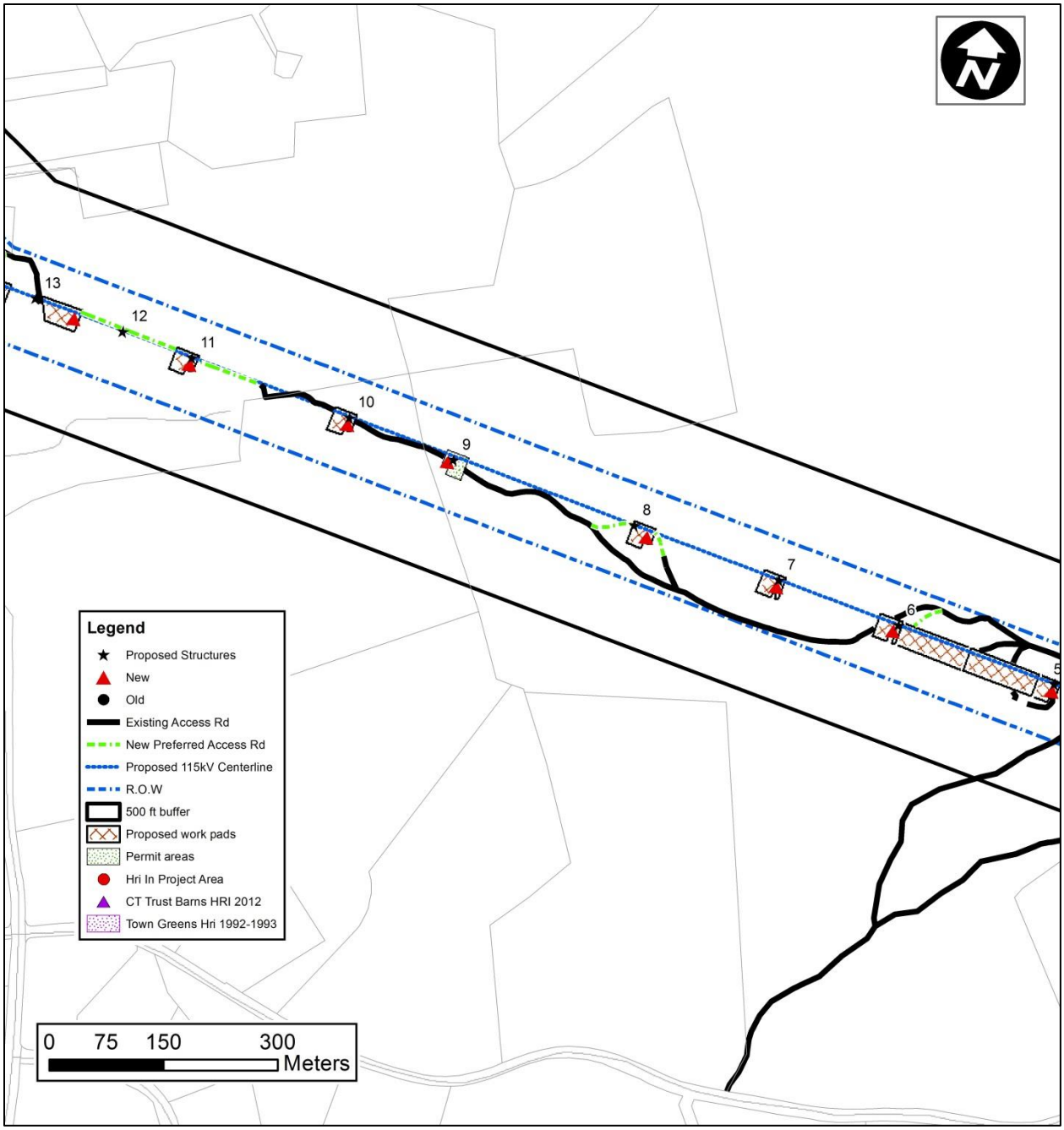

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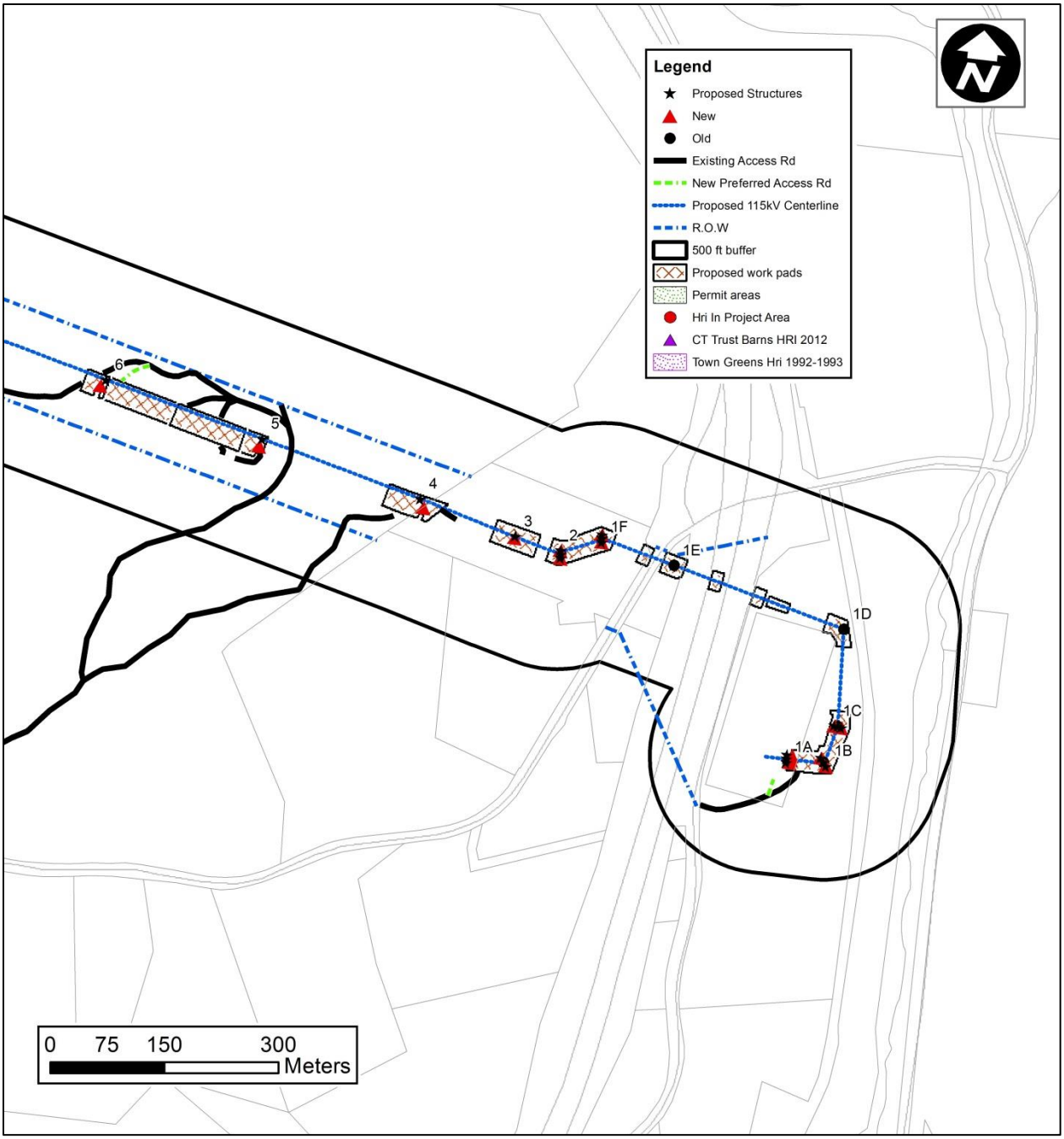

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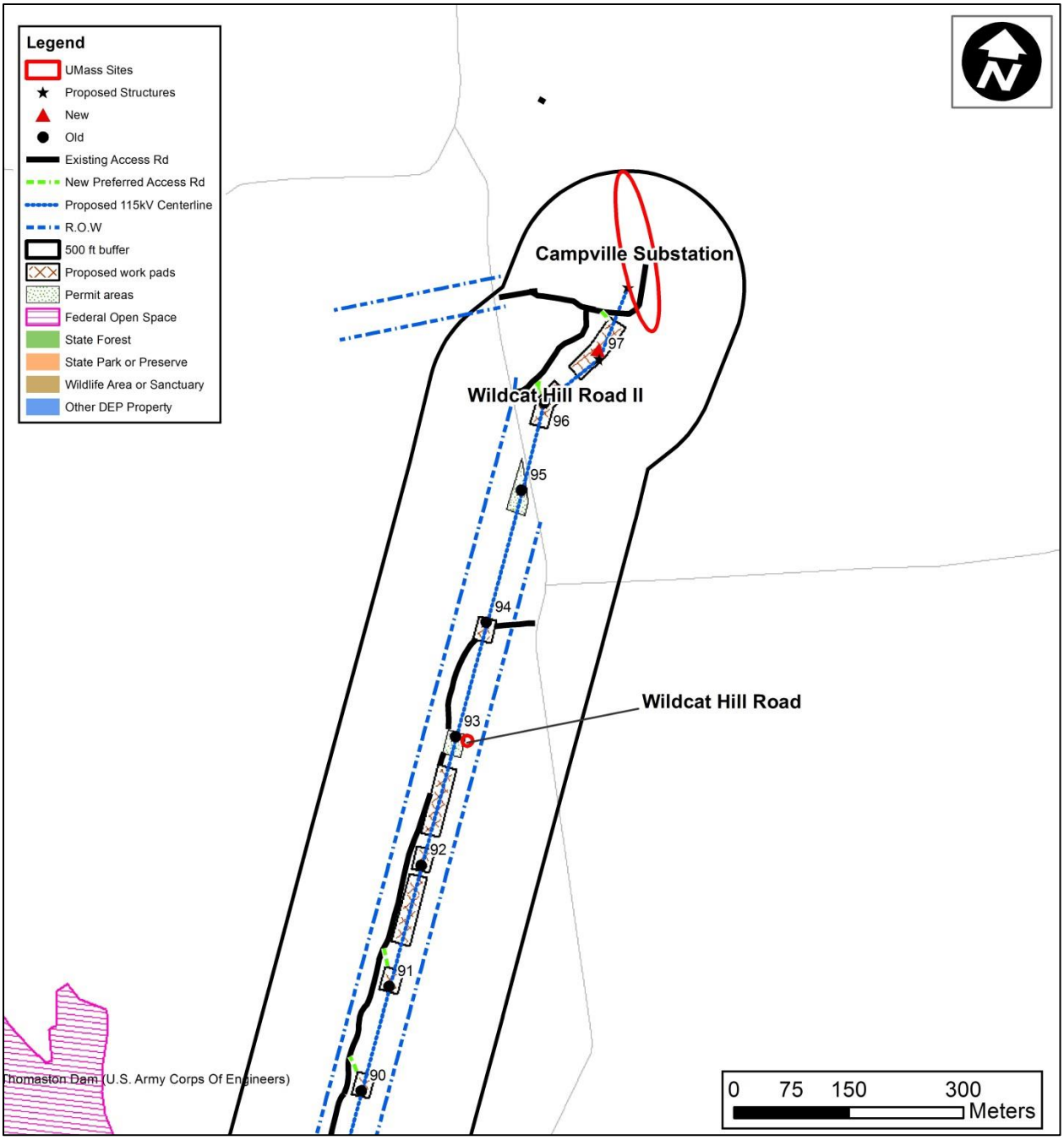

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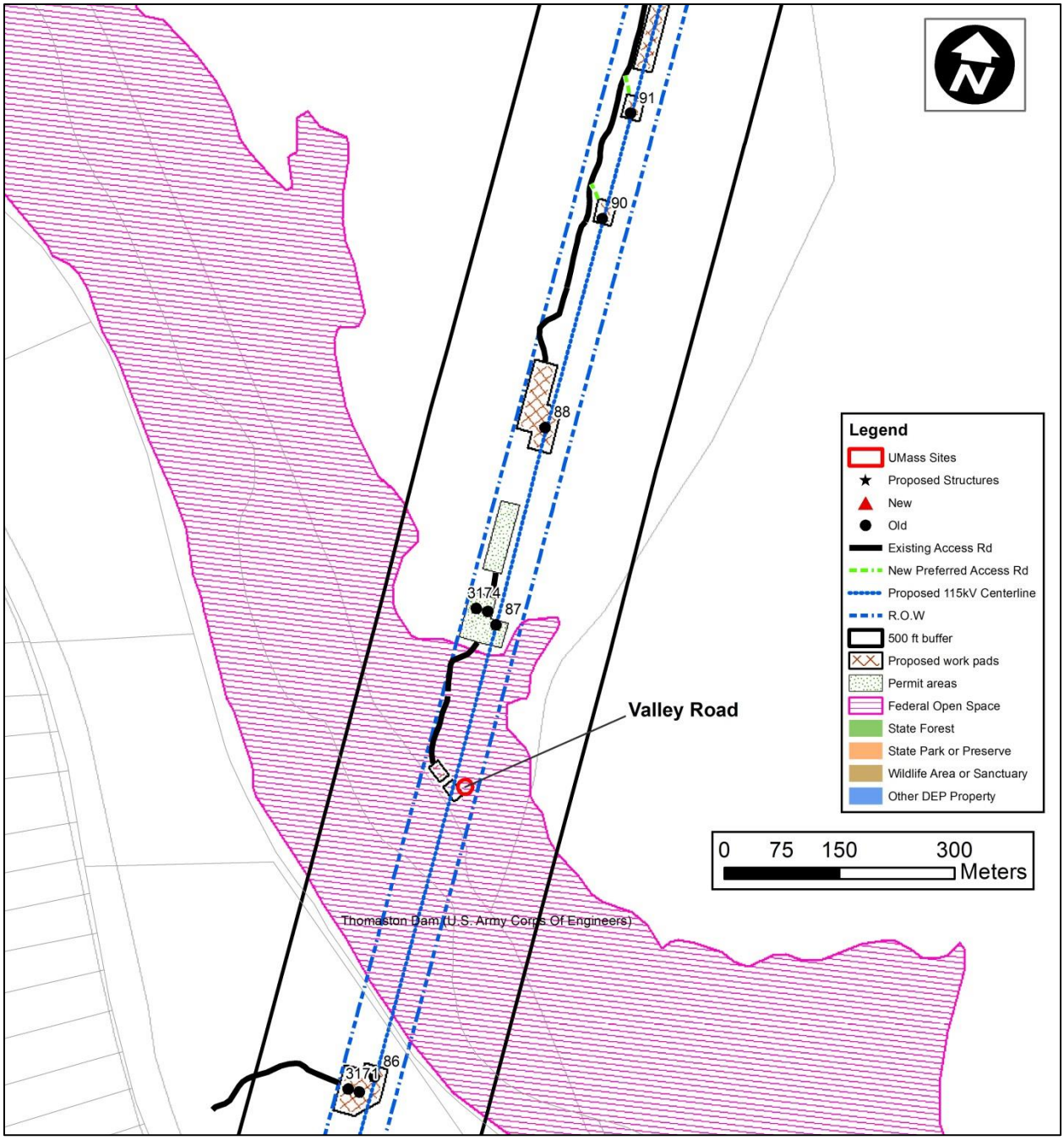

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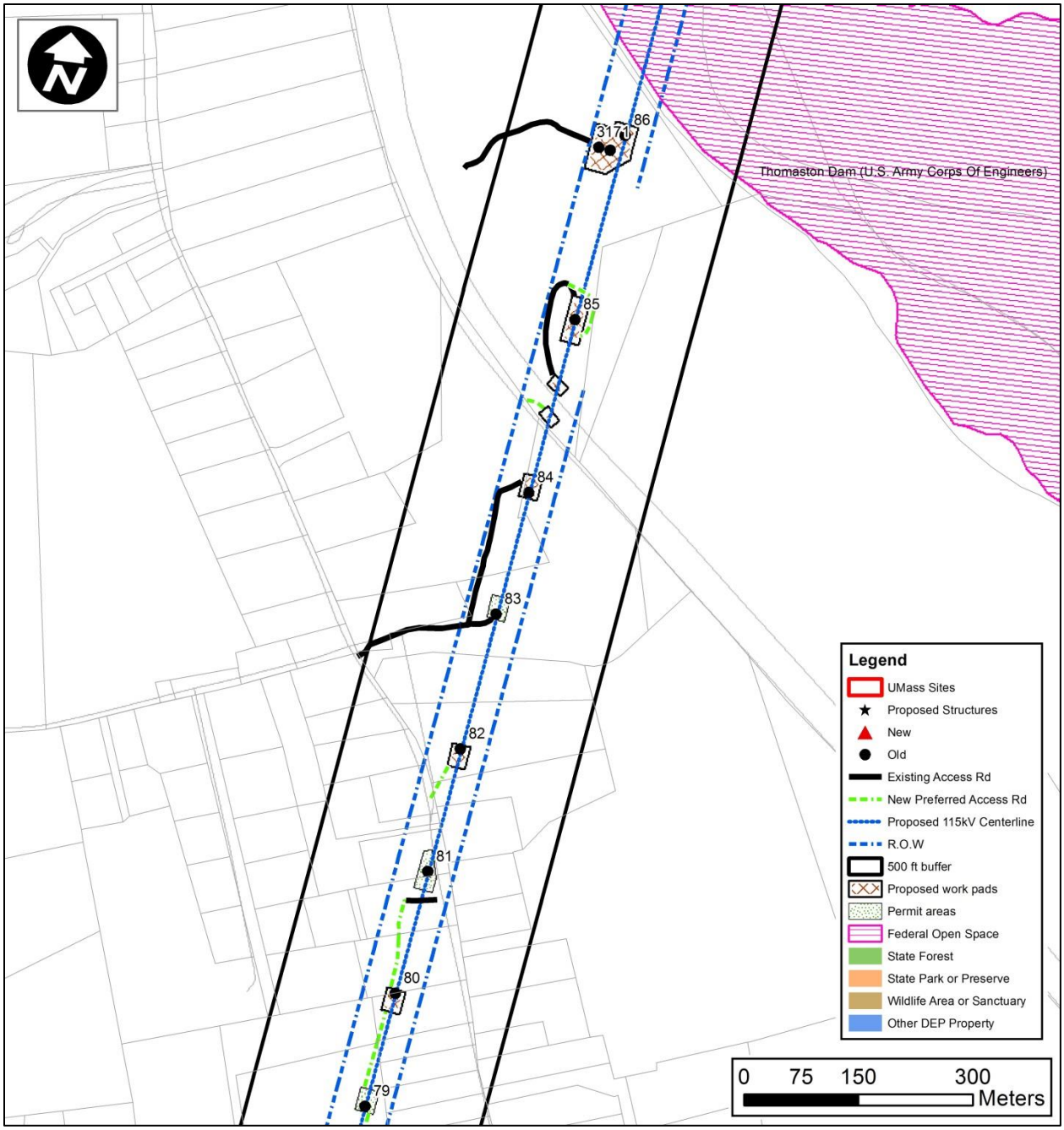
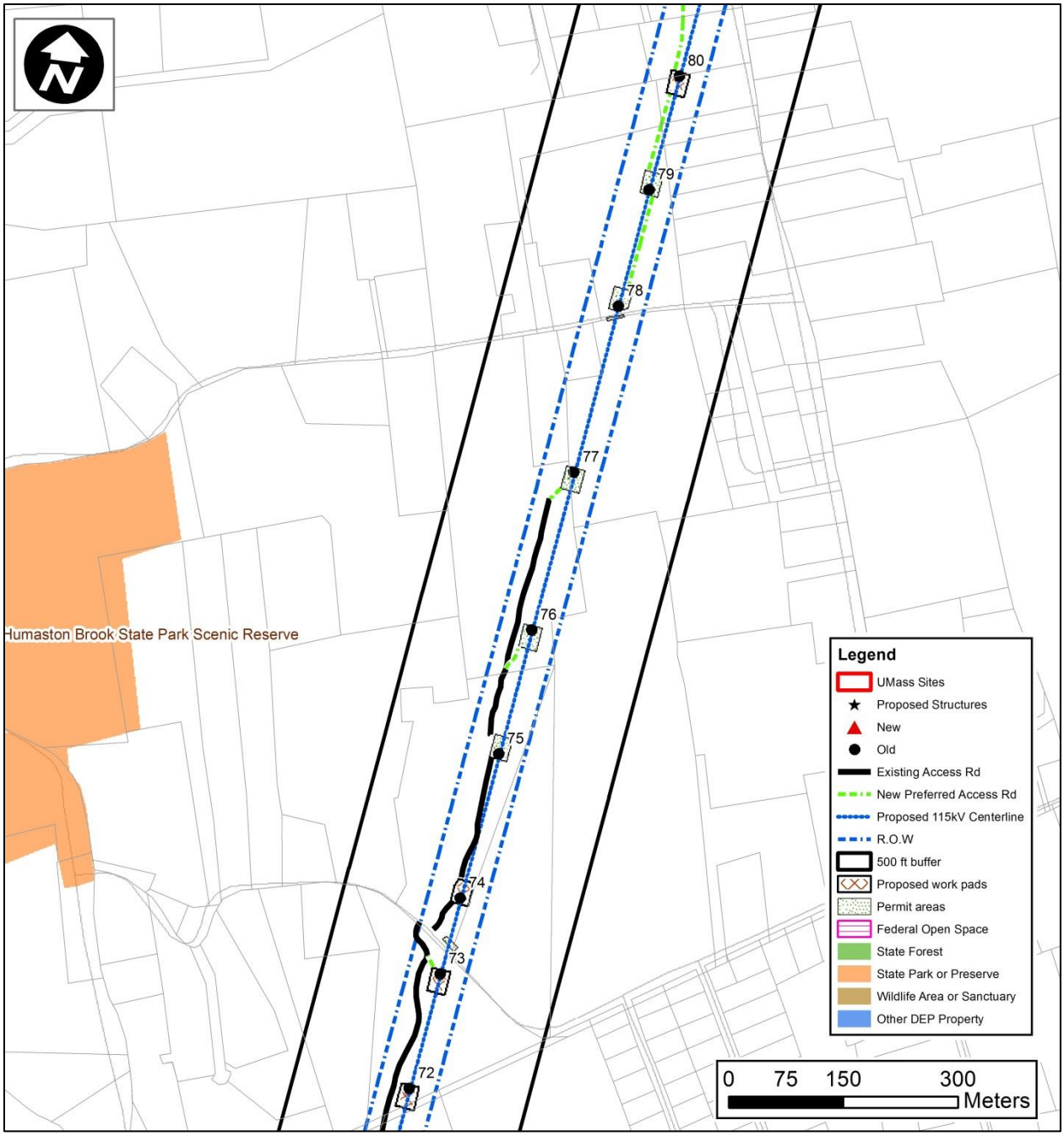


Figure 5, Sheet 3. Excerpt from a USGS 7.5' series topographic quadrangle depicting the route of the proposed Frost Bridge to Campville 115-kV Project, State and Federal properties, and previously recorded archaeological sites identified by UMass Archaeological Services.



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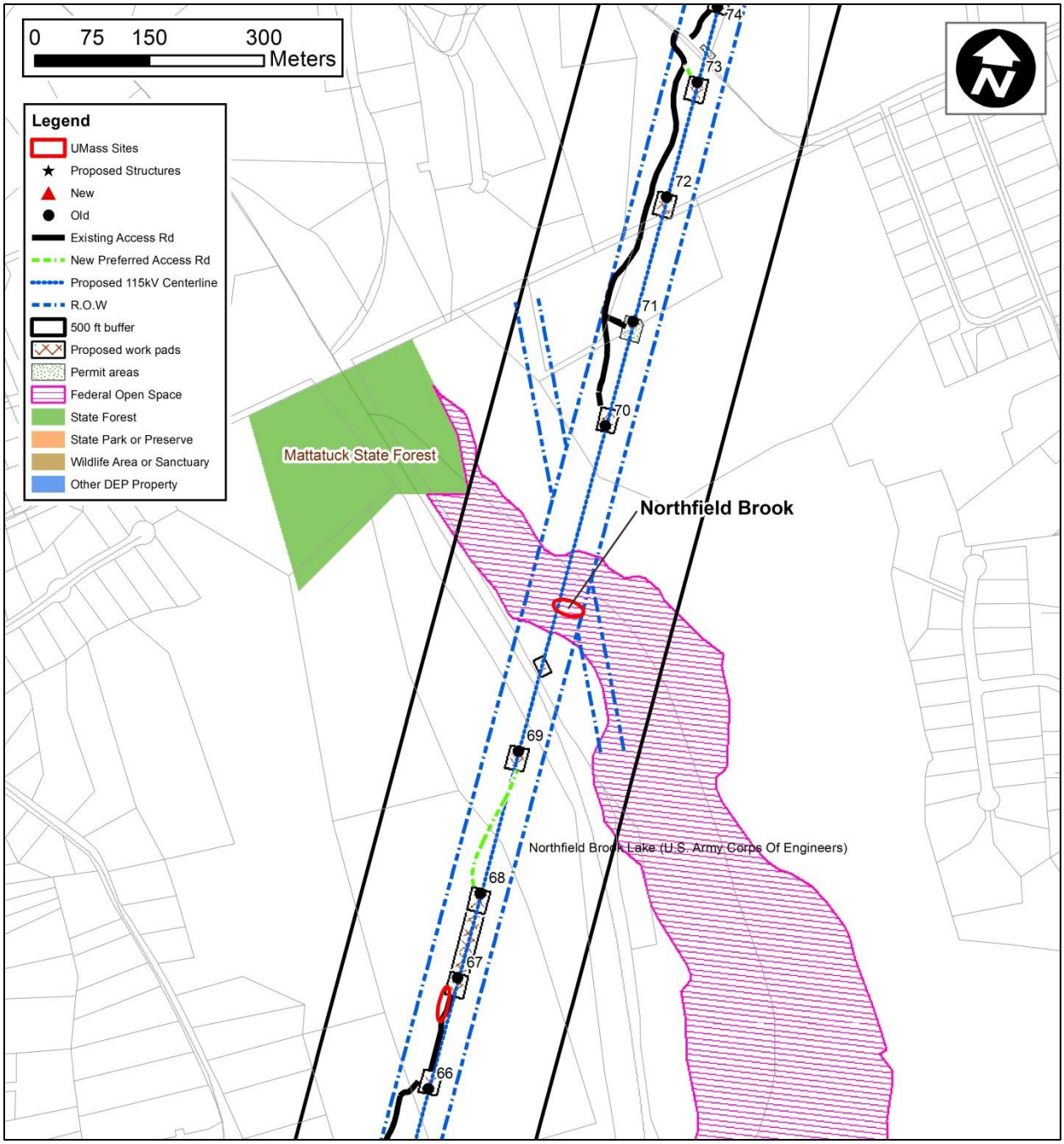

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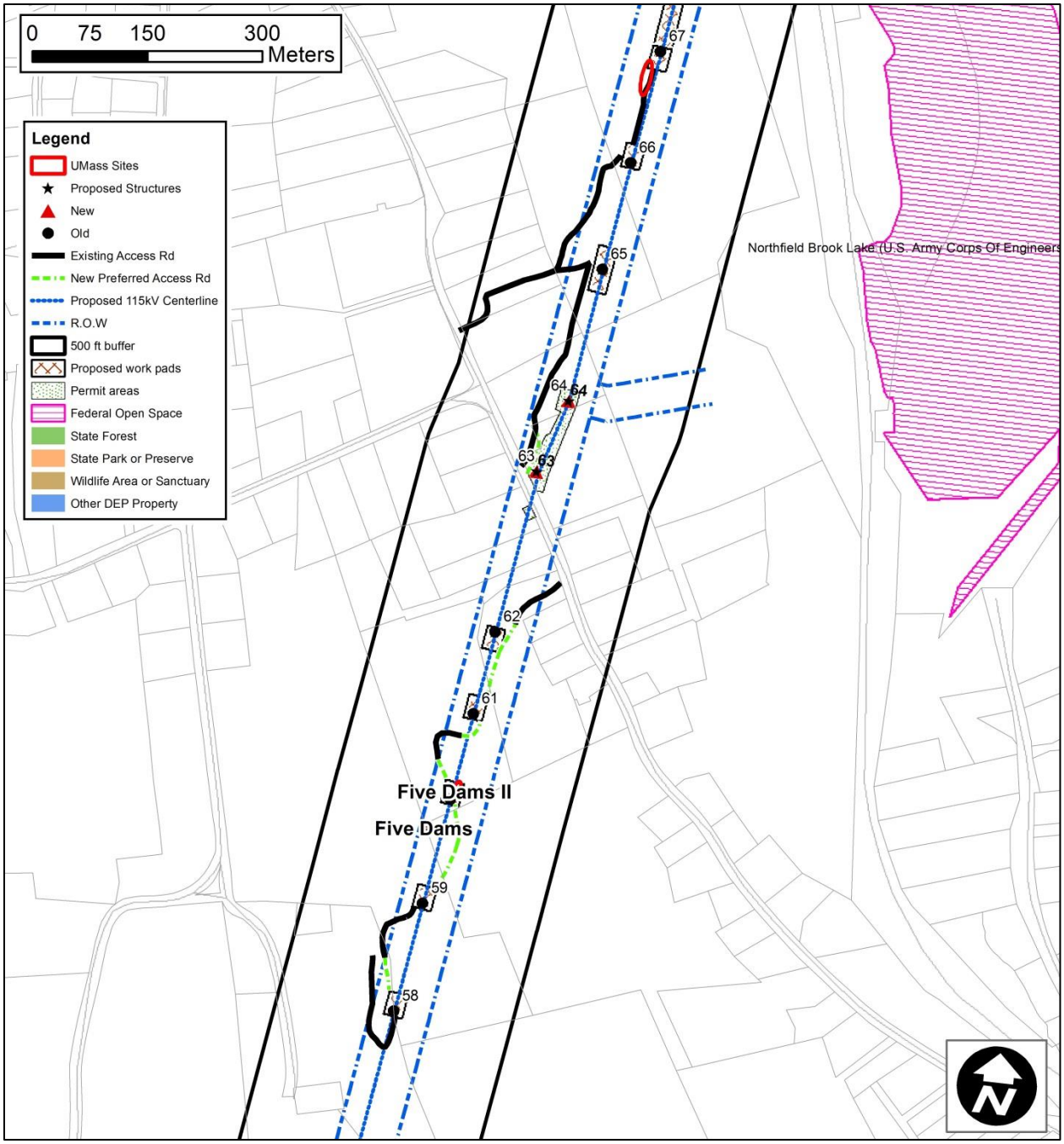

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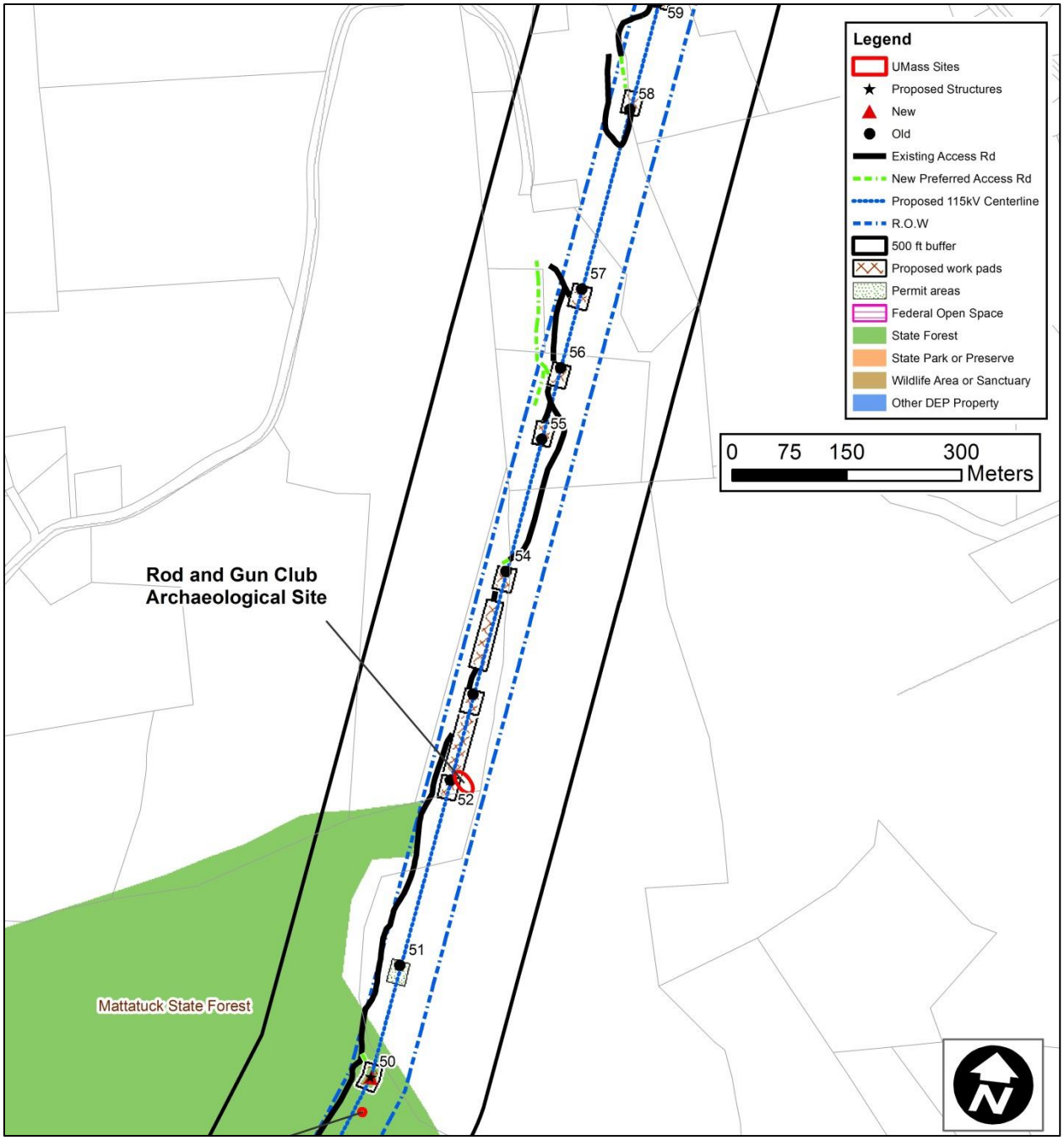

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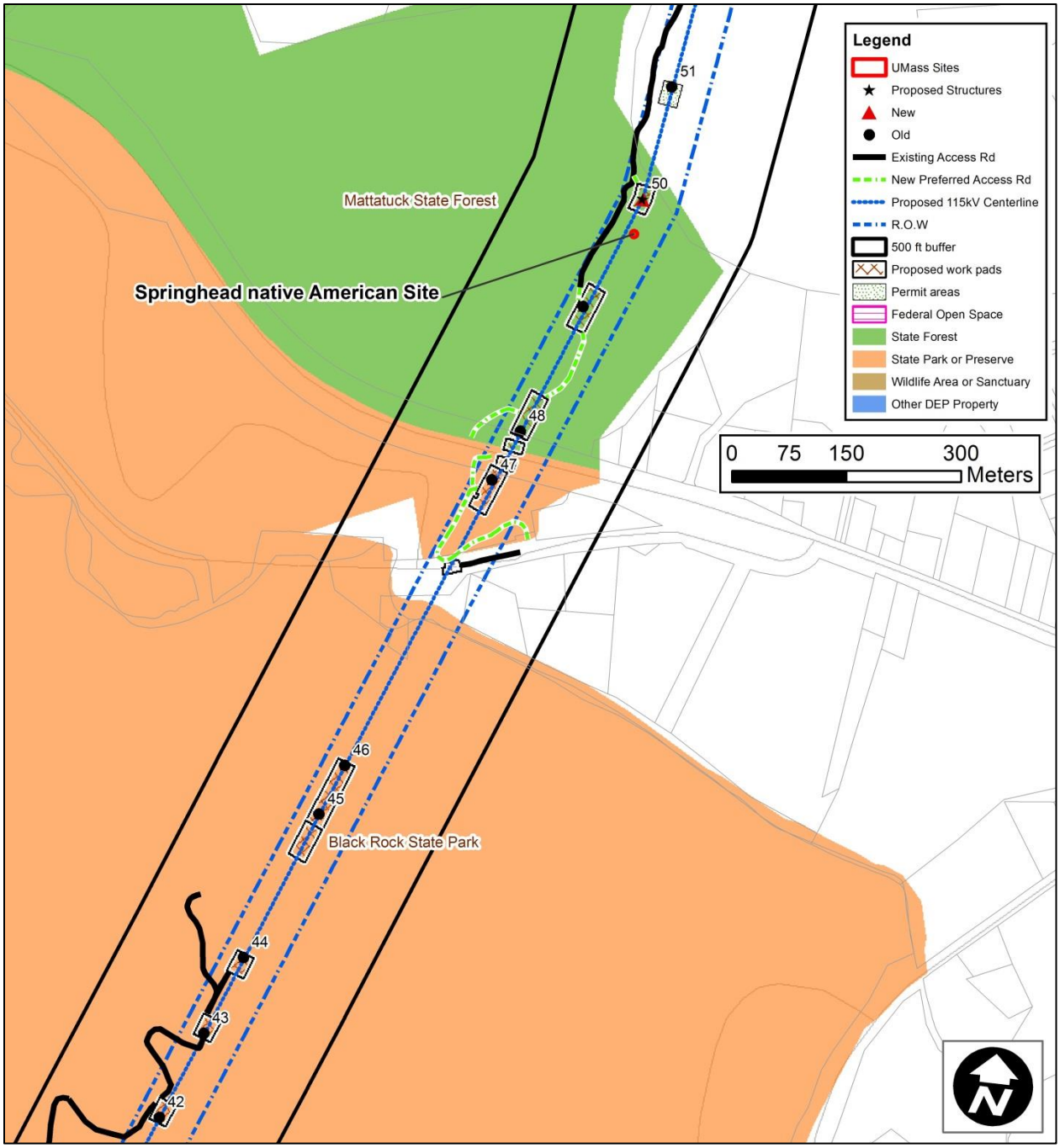

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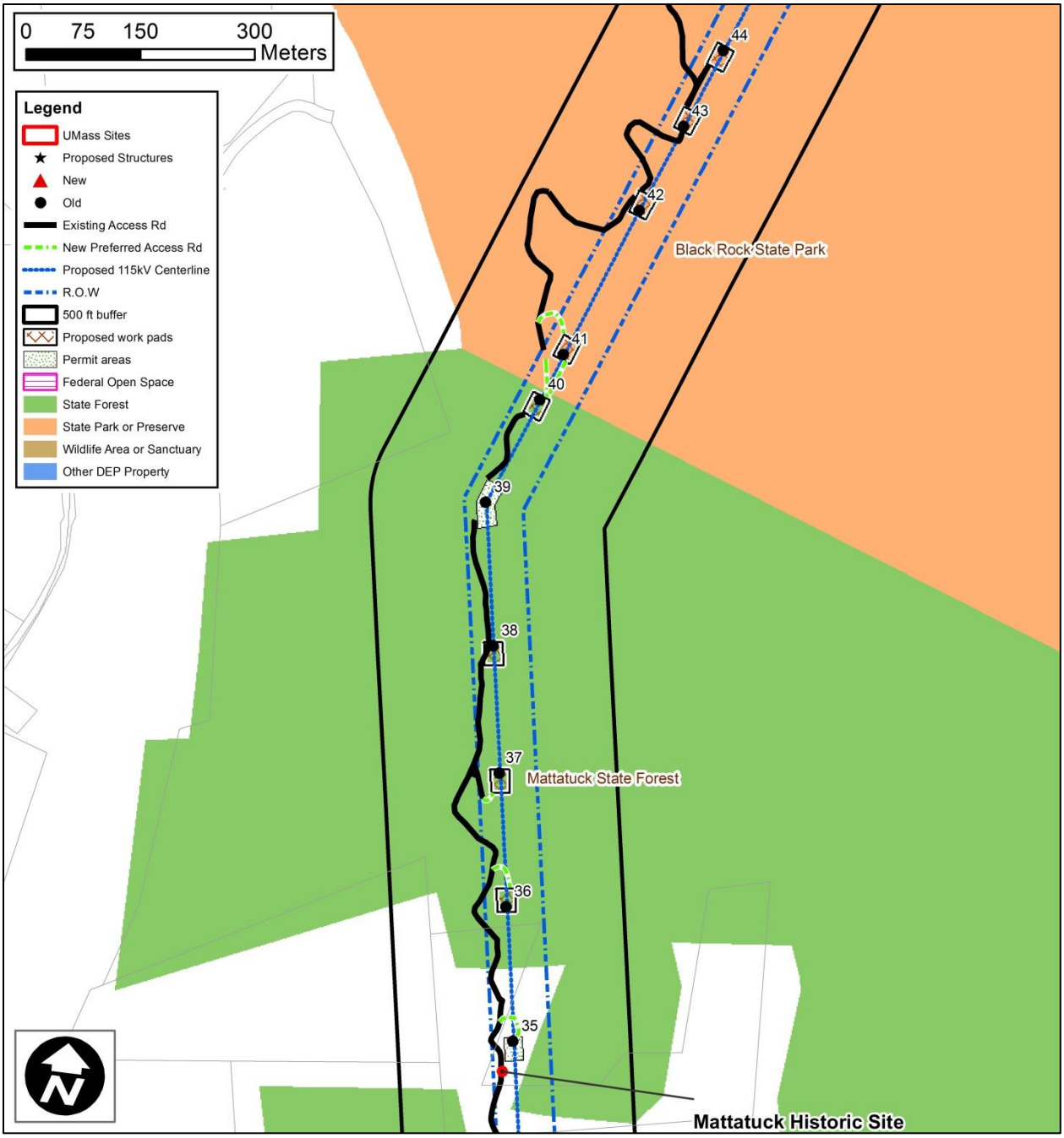

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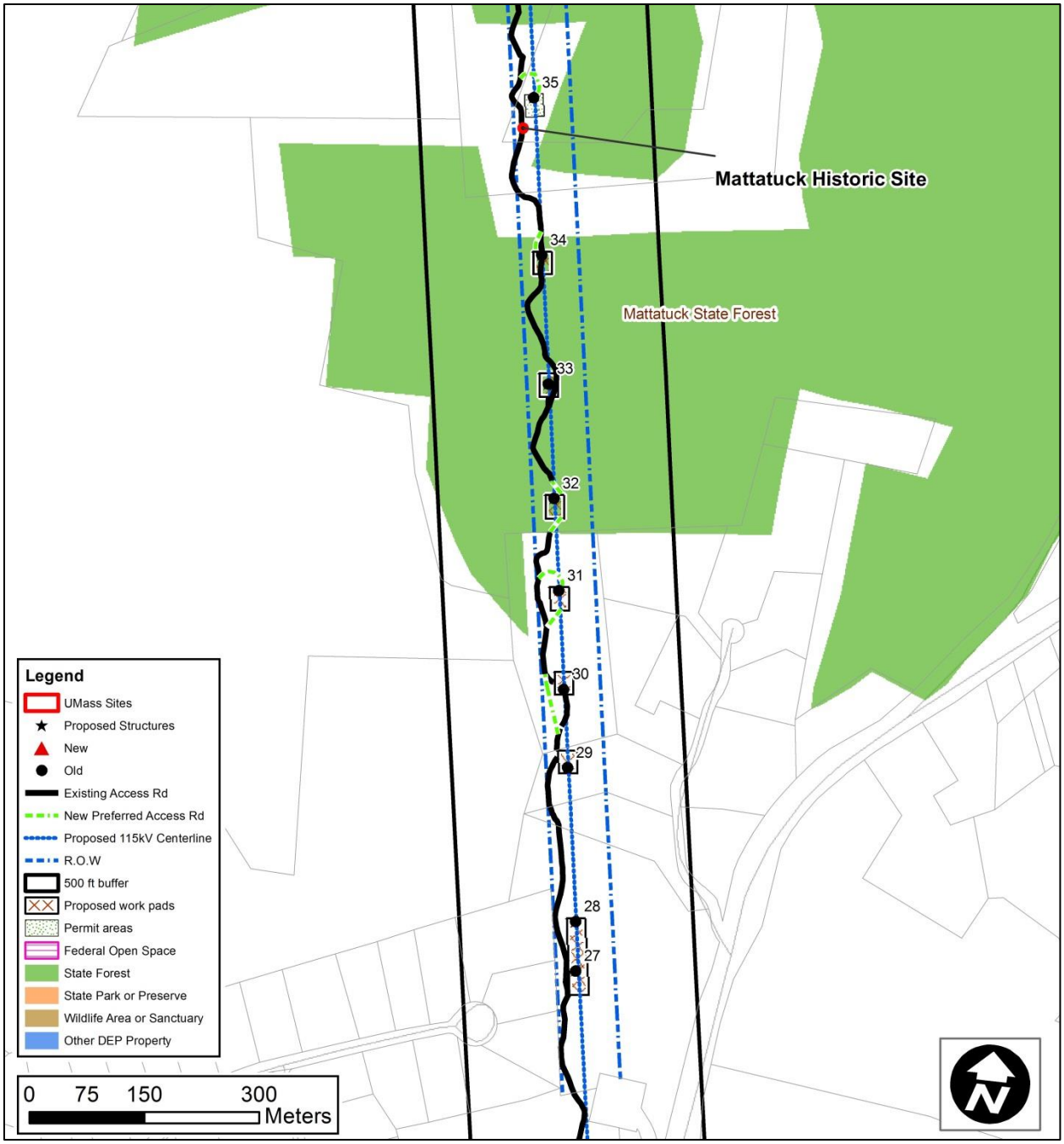

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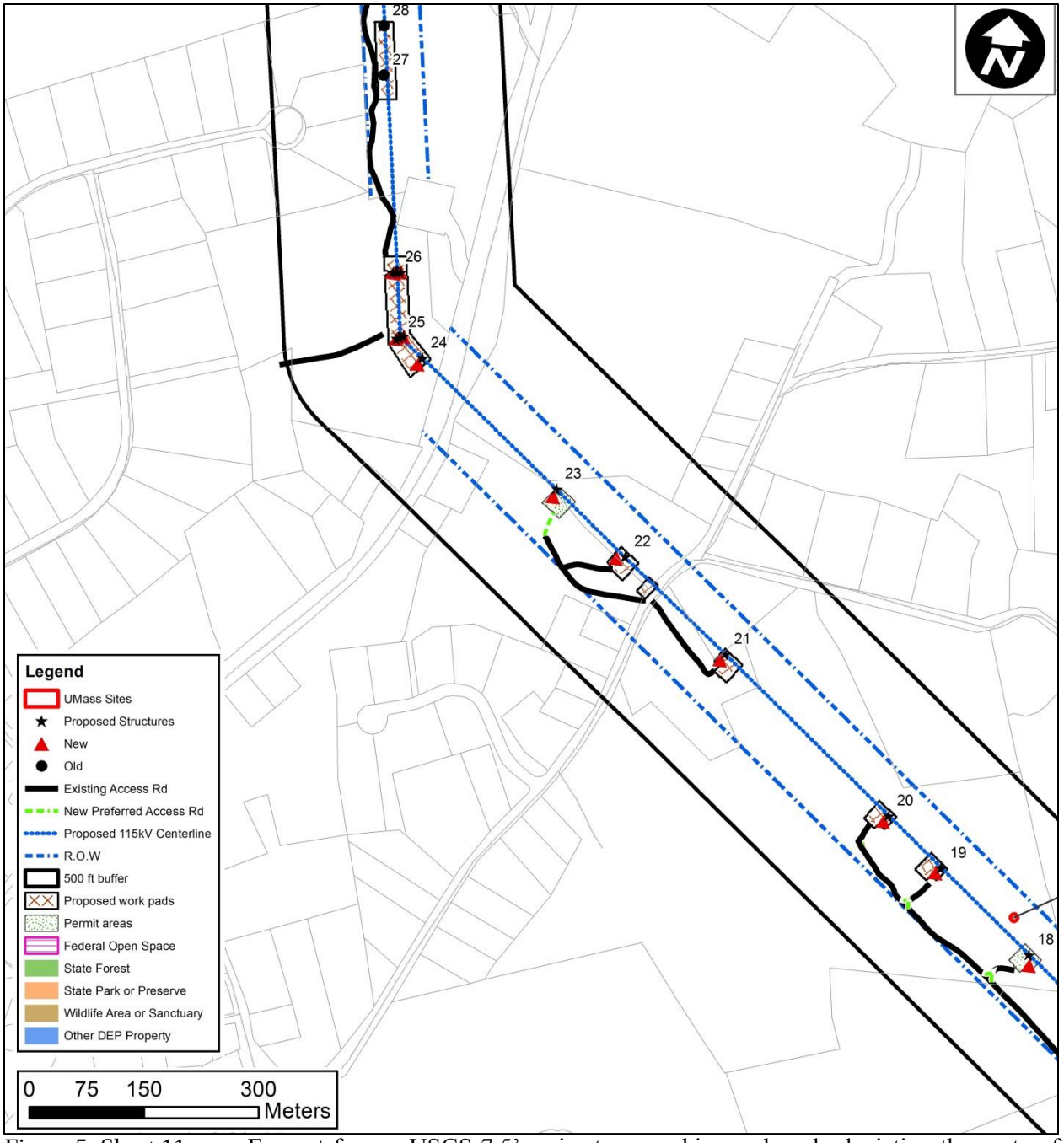

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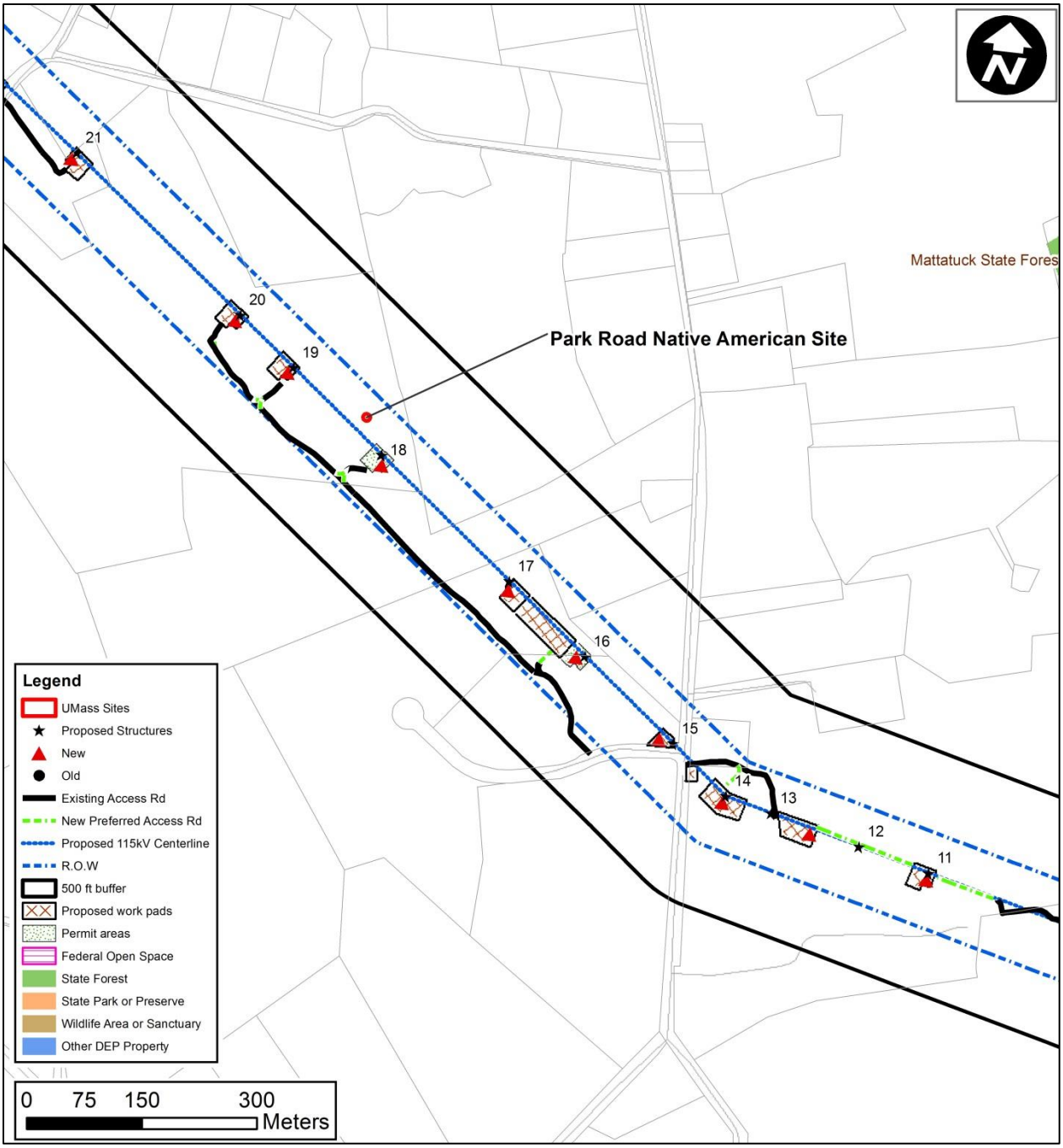

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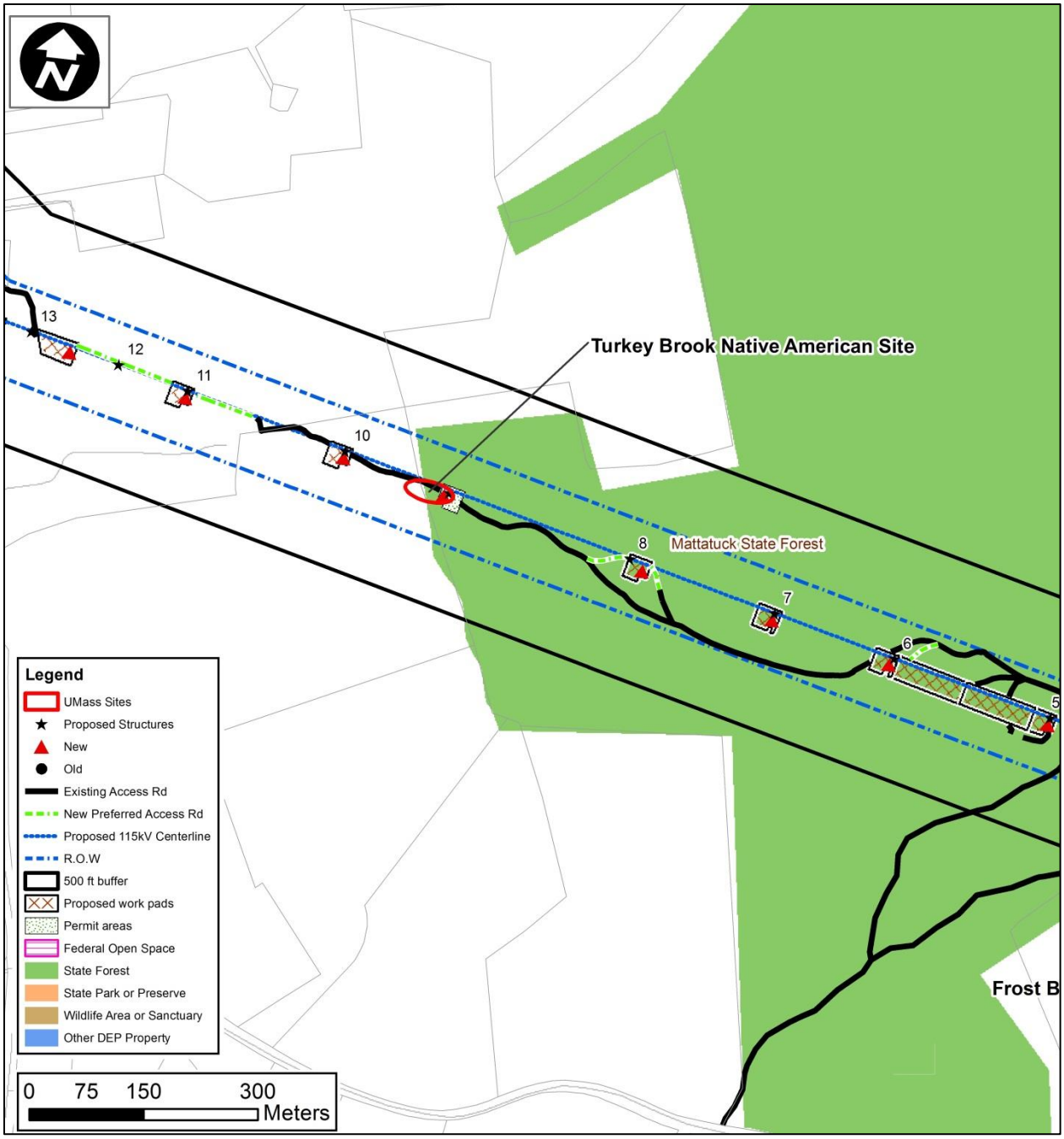

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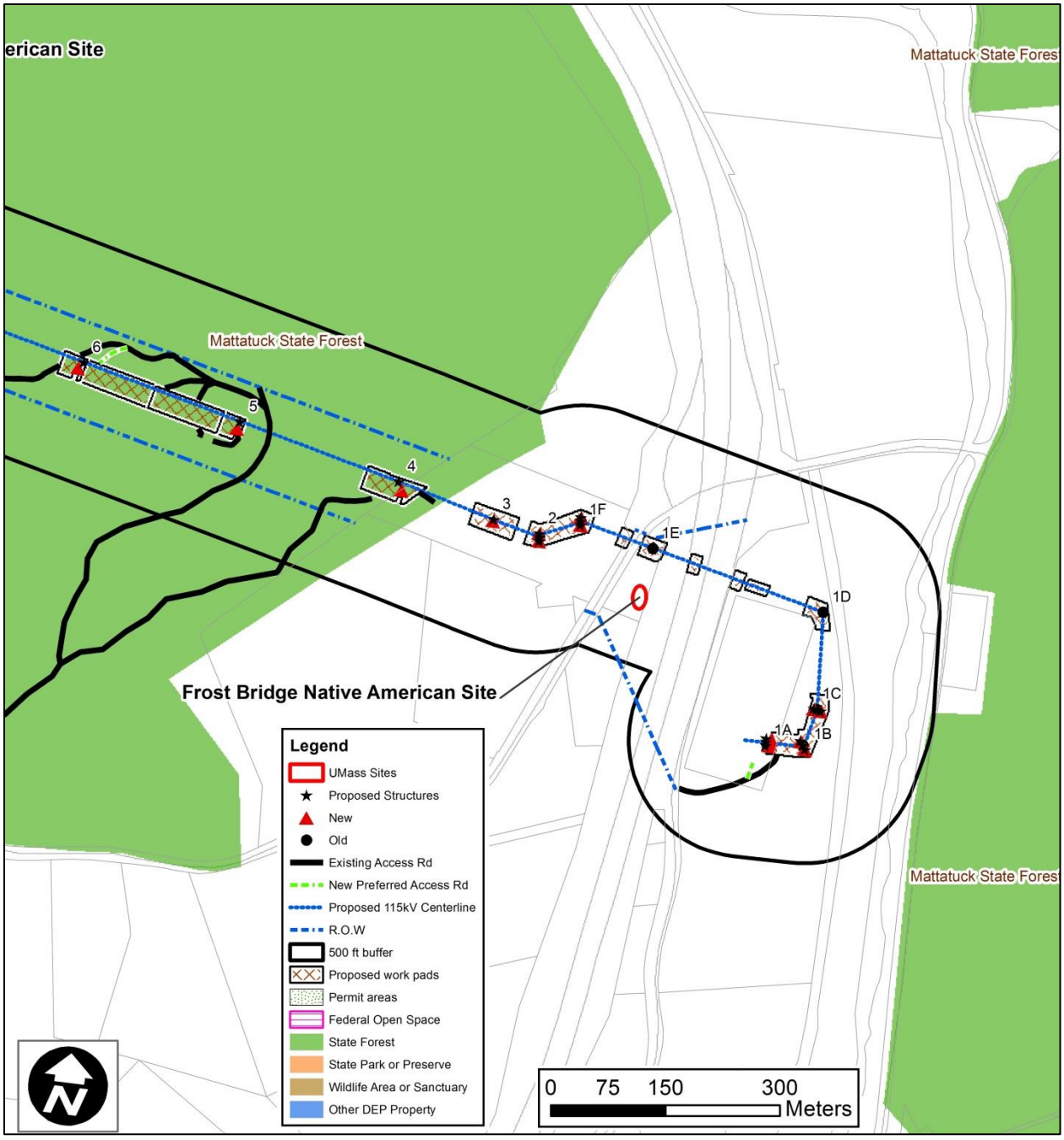

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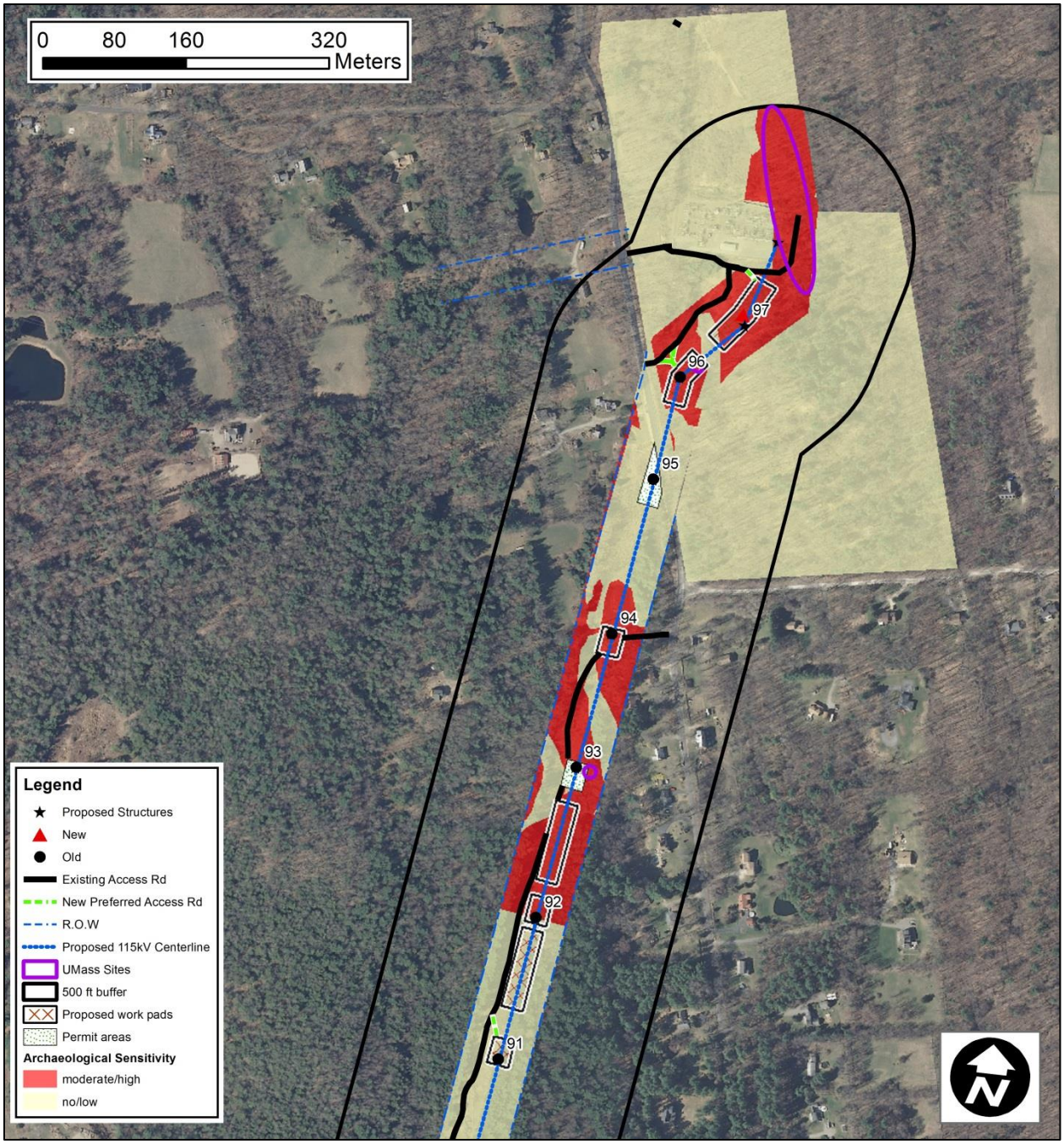

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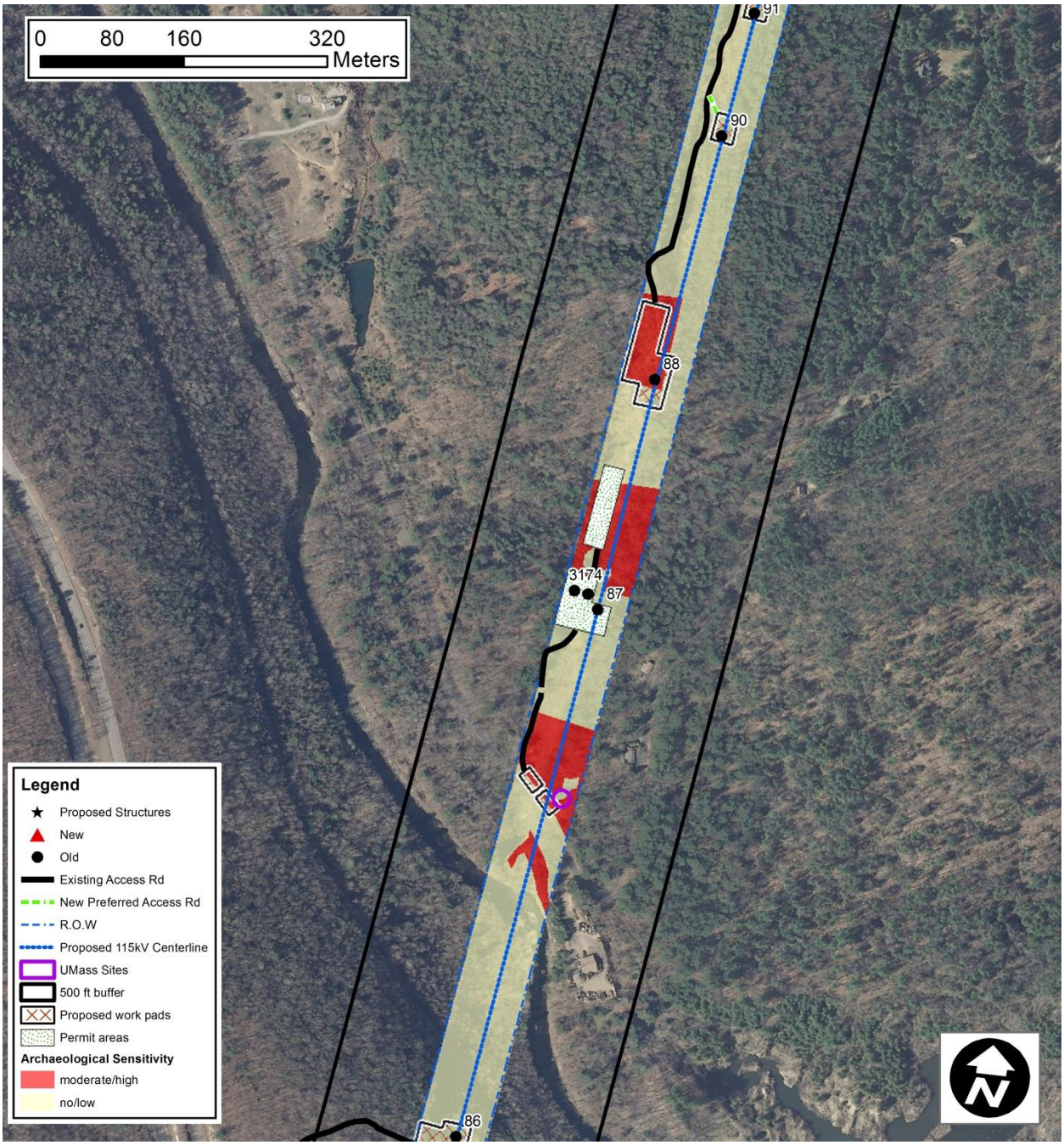


Figure 6, Sheet 2. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

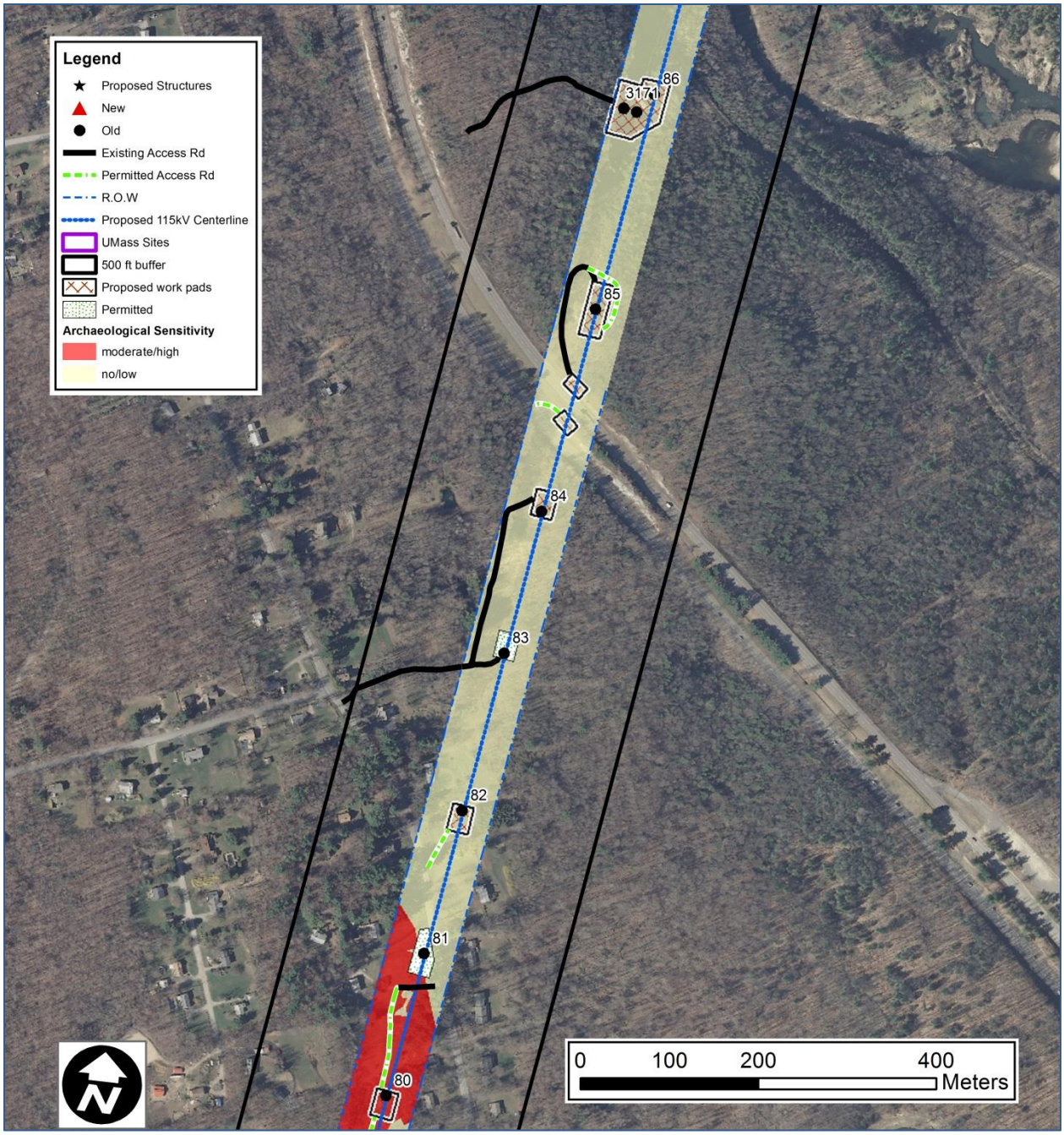
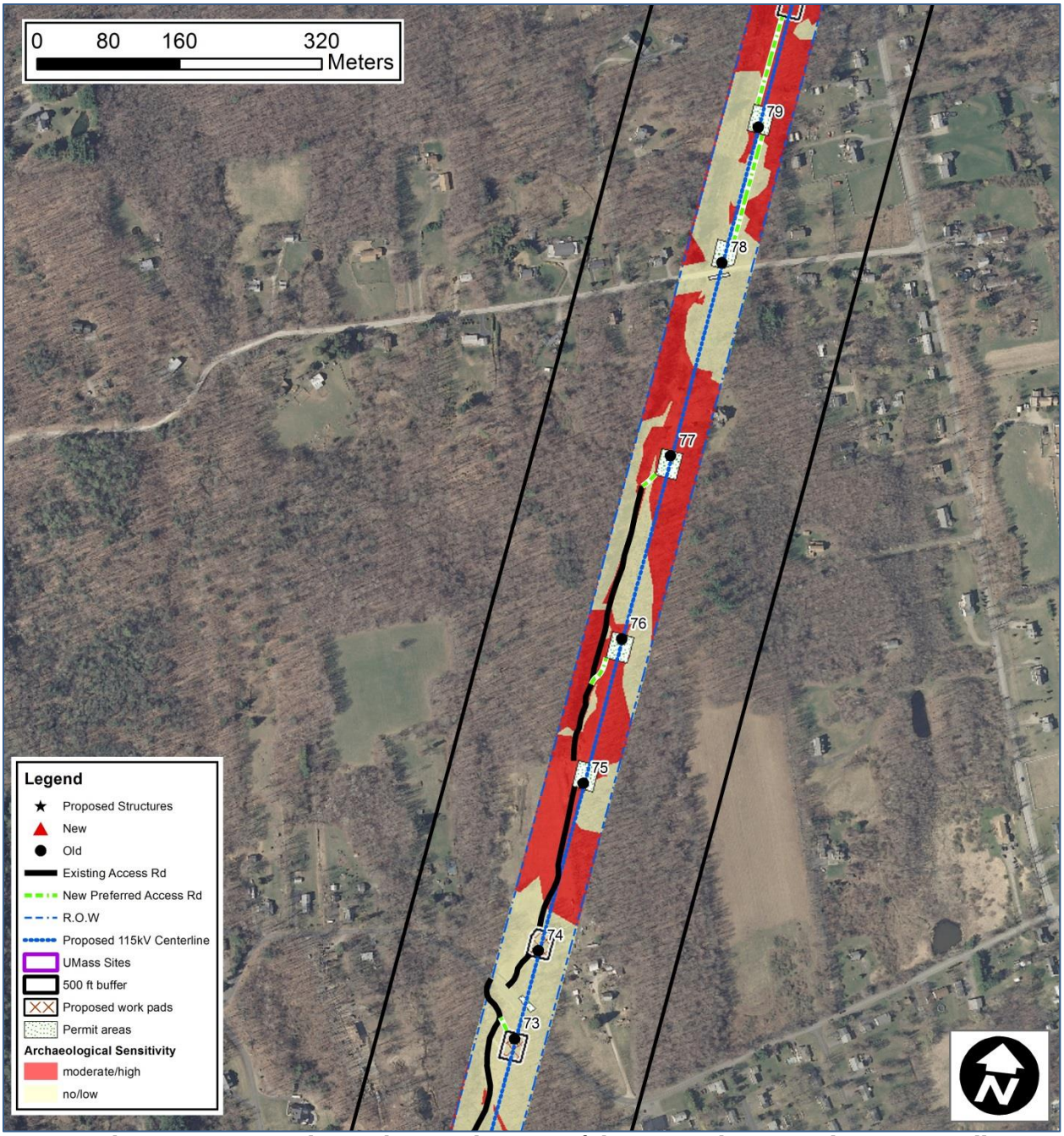


Figure 6, Sheet 3. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.



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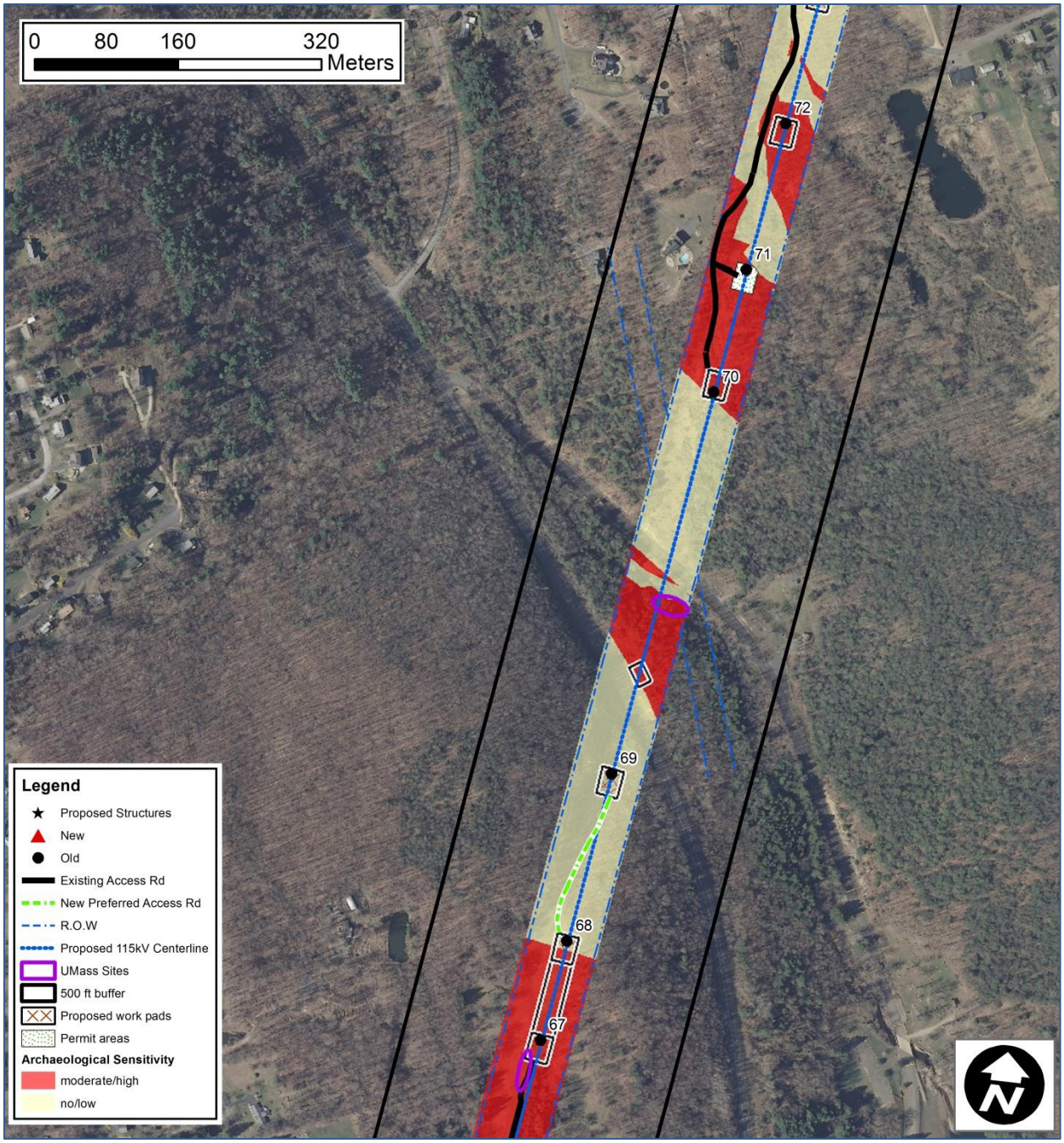

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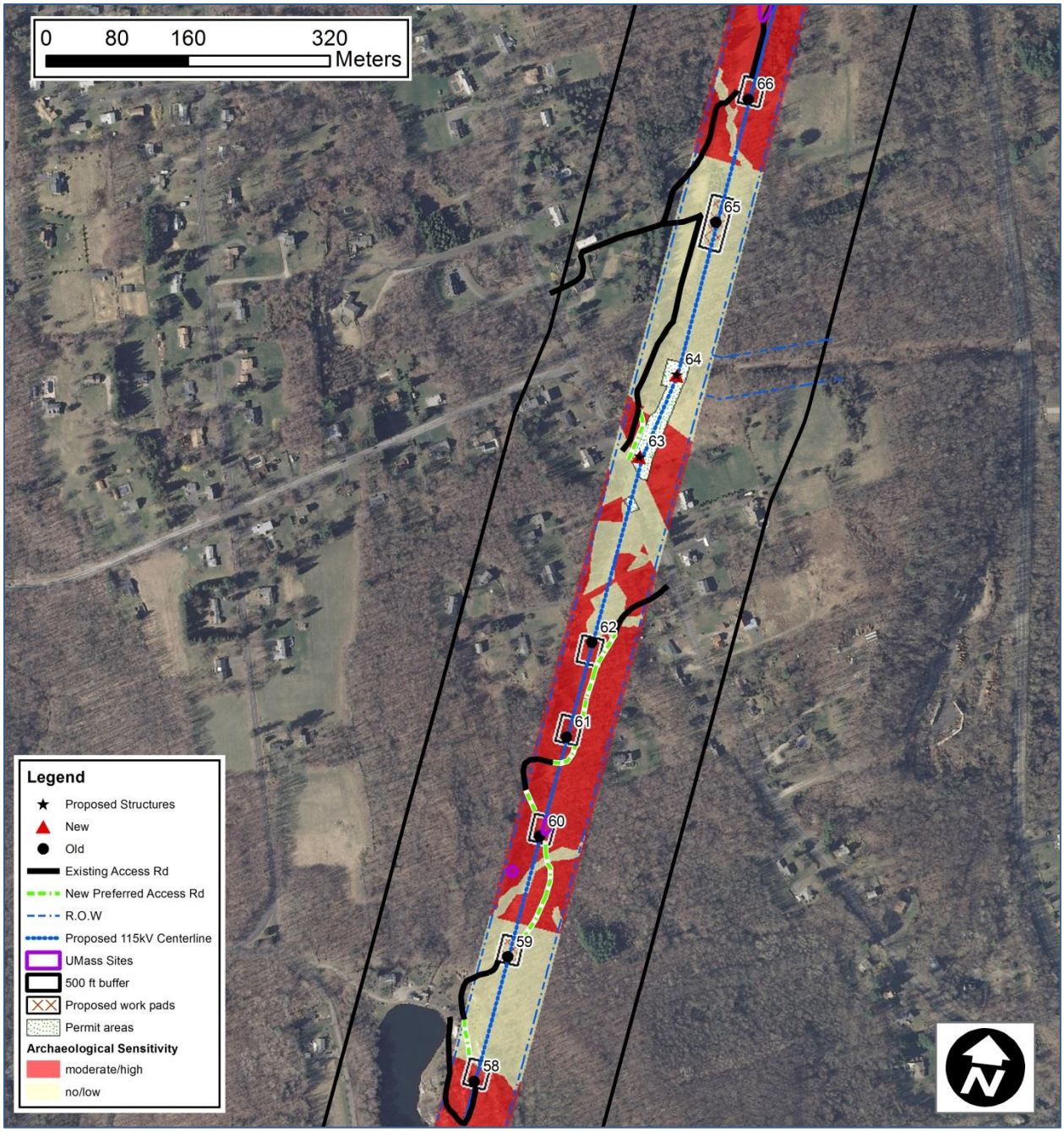

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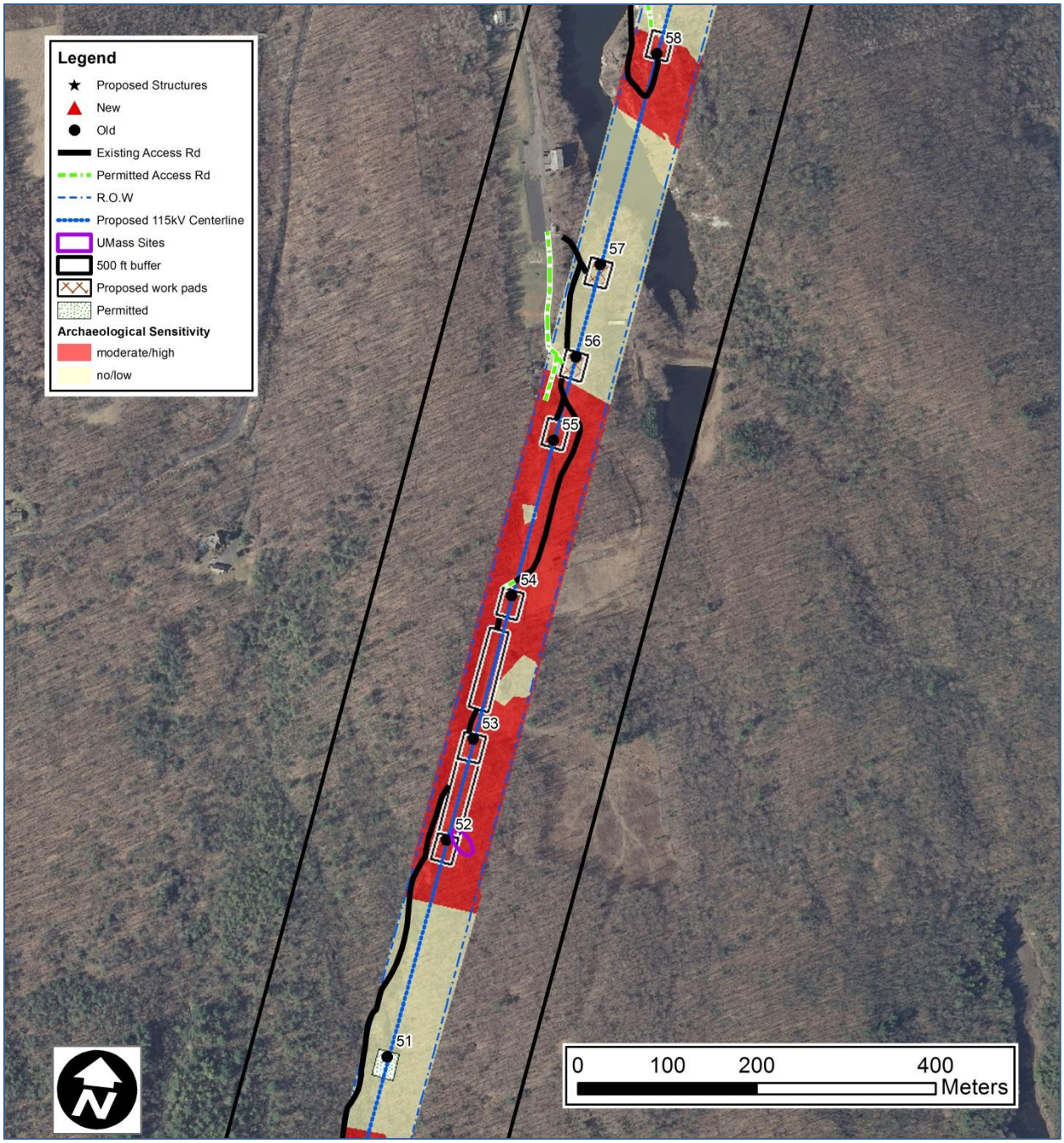

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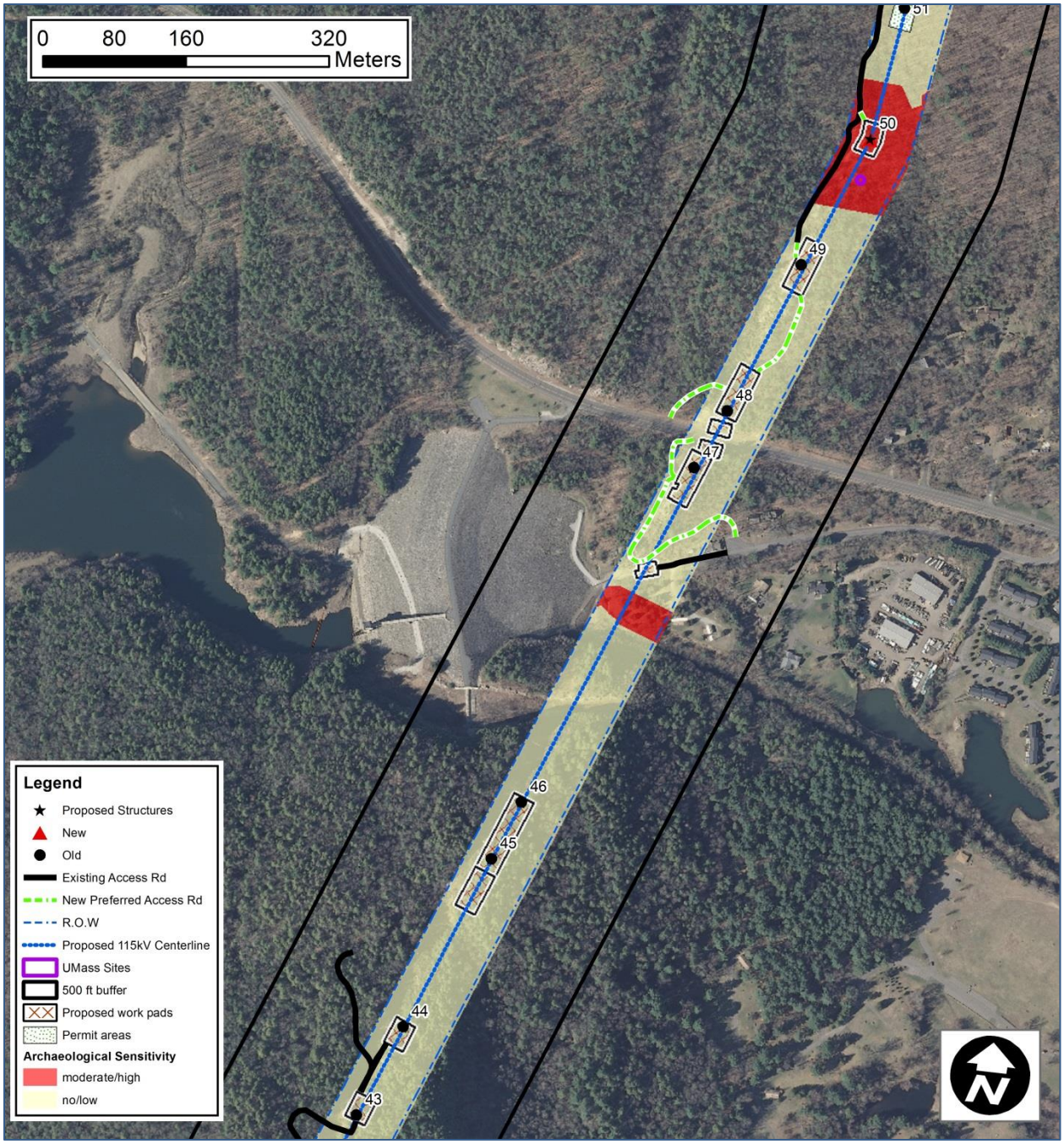

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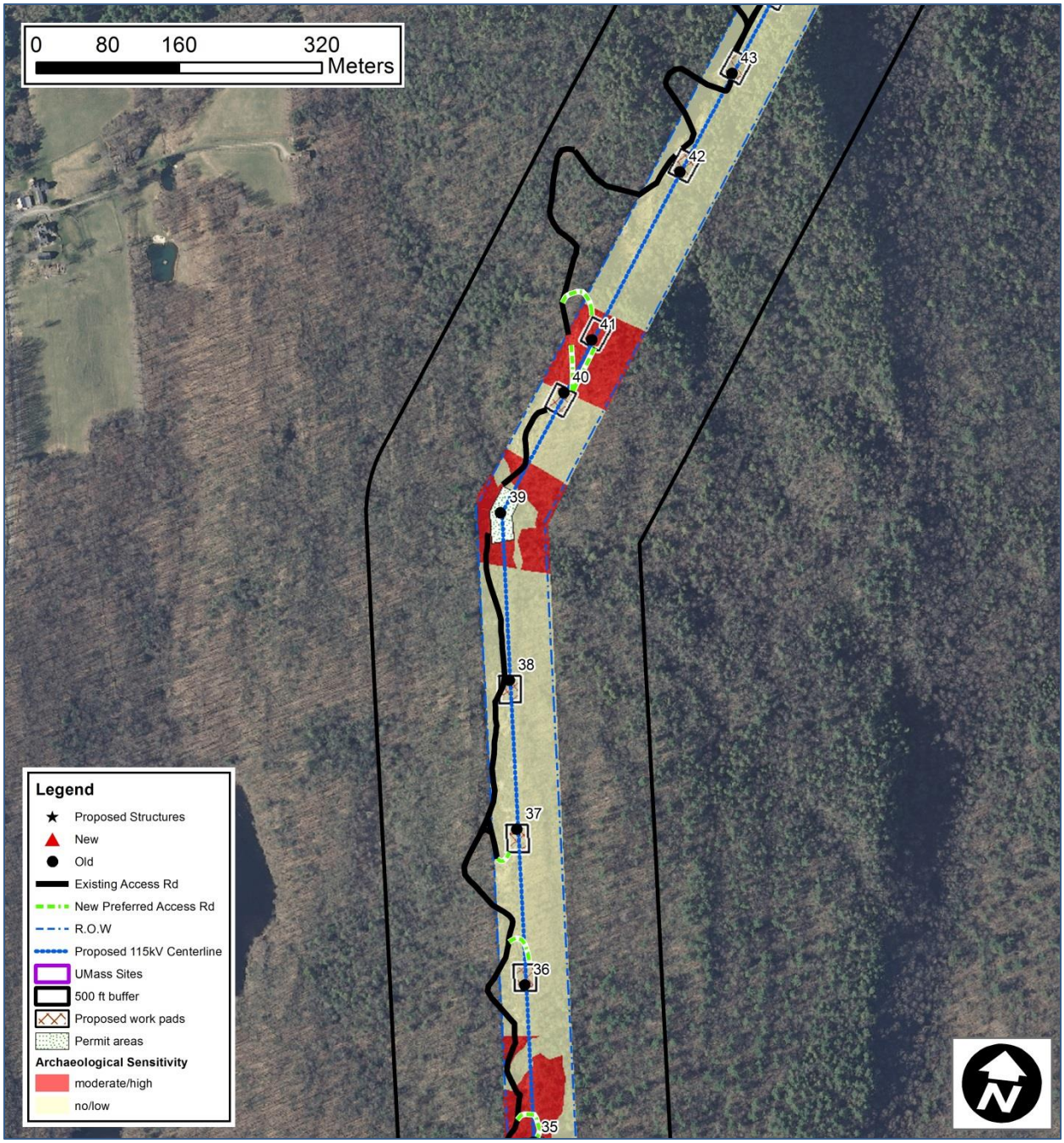

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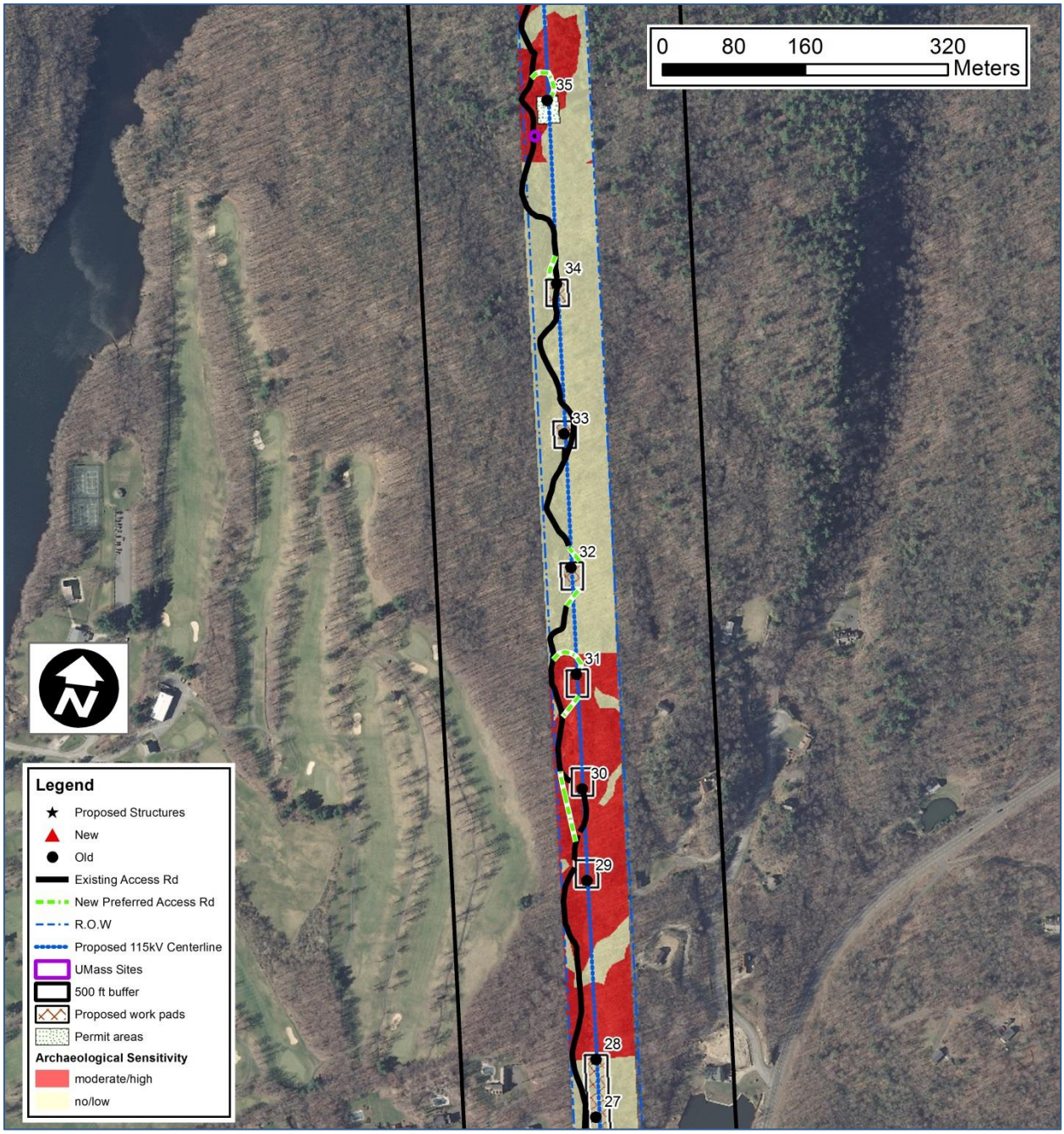

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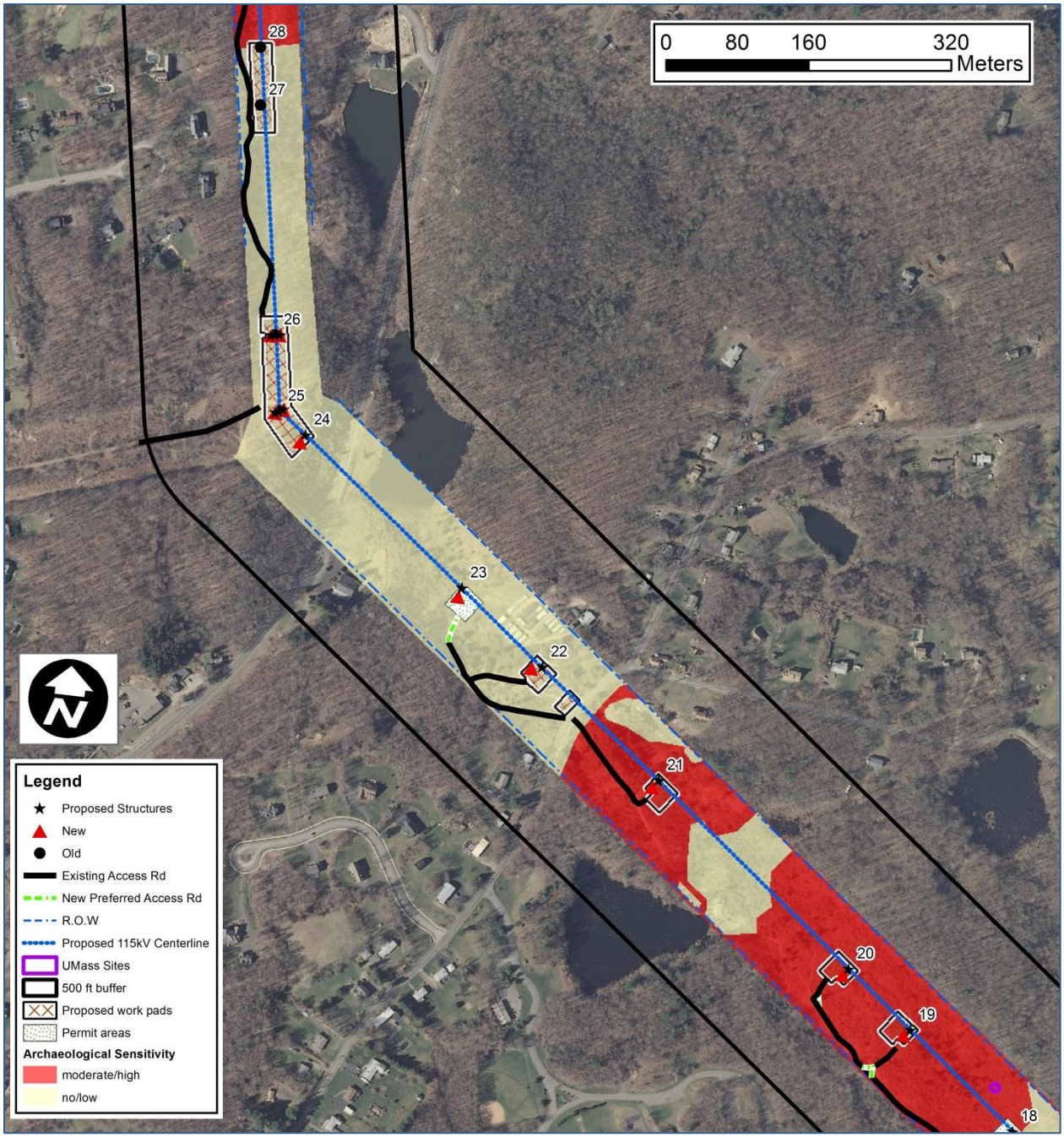

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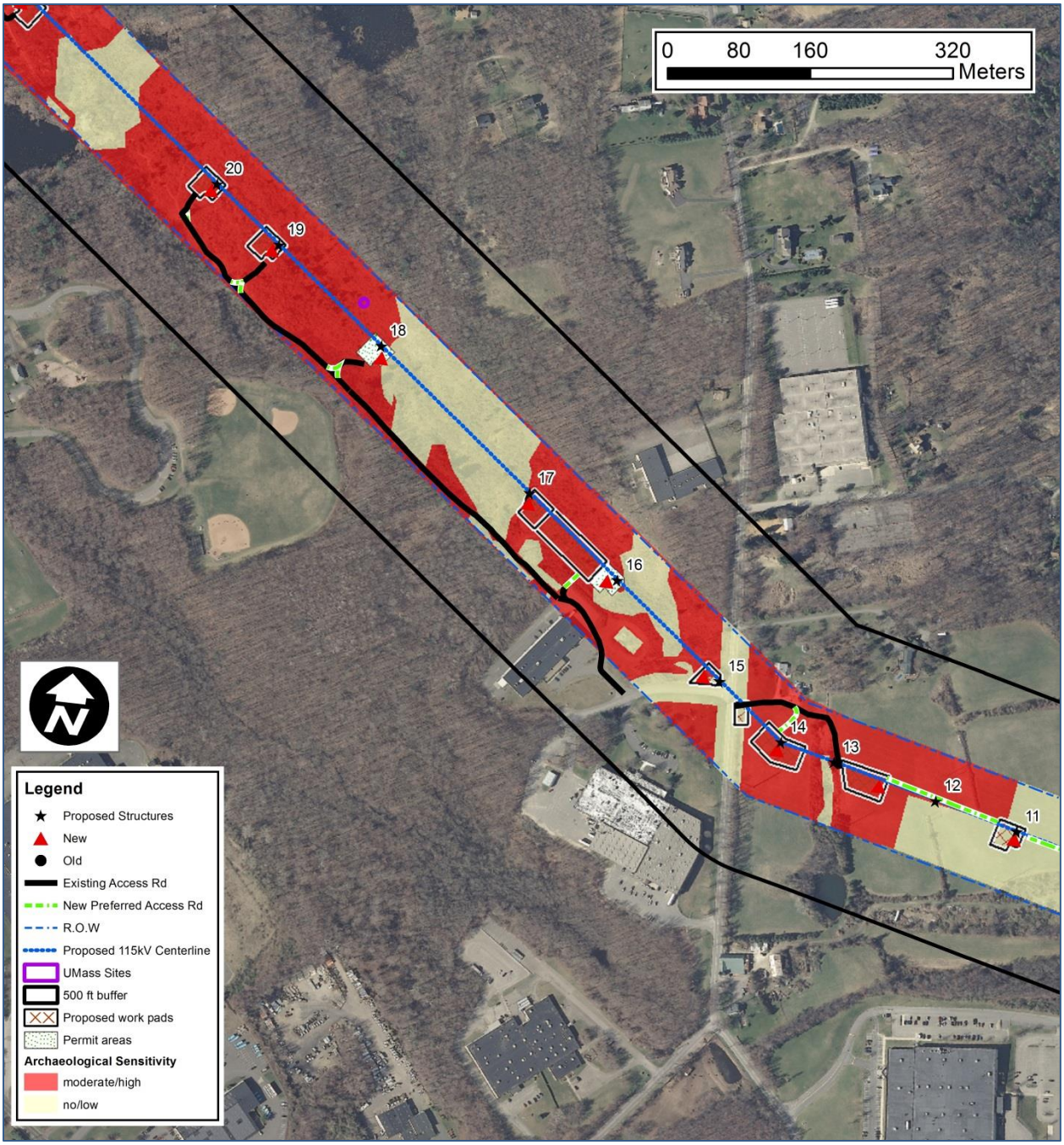

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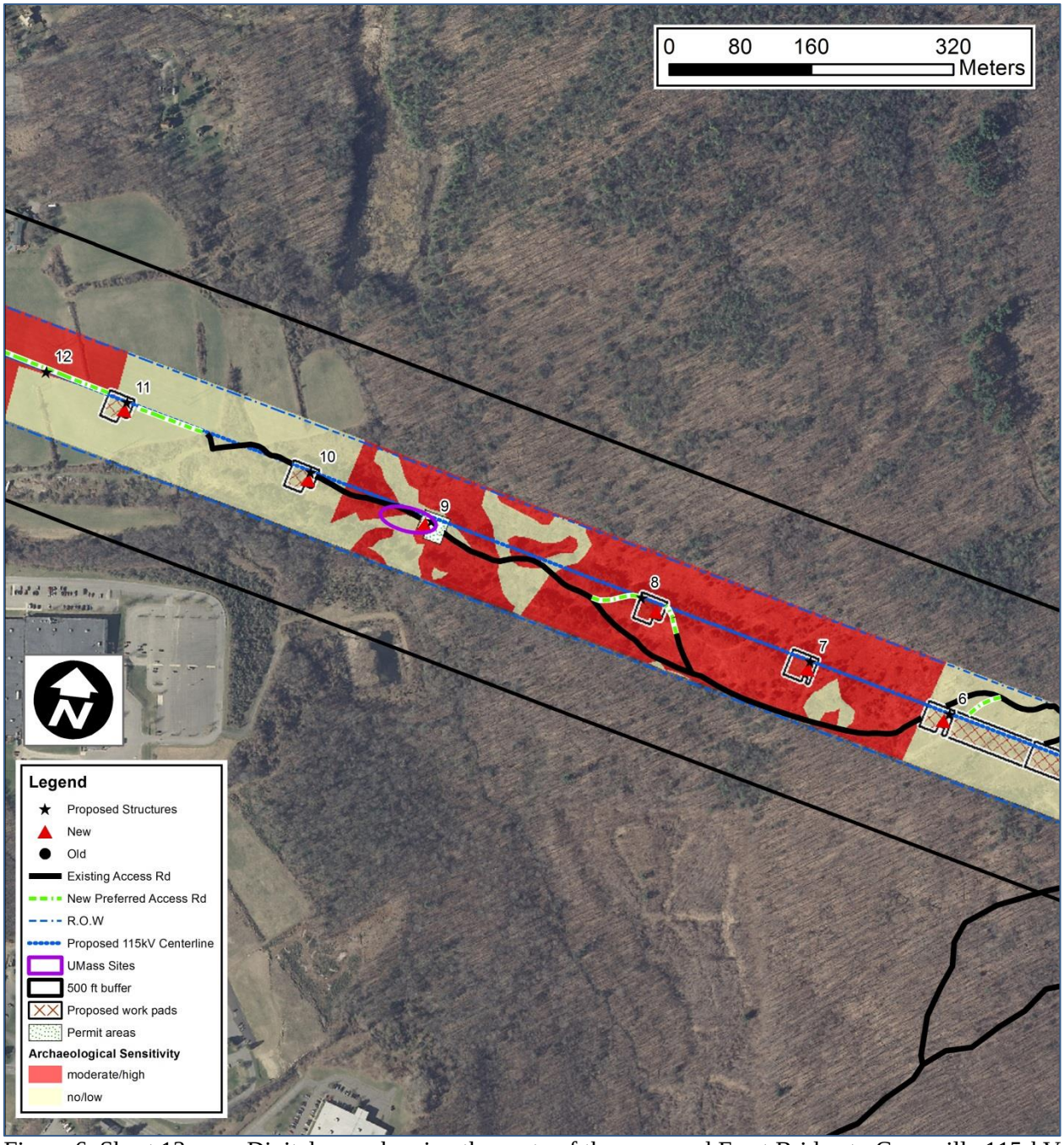

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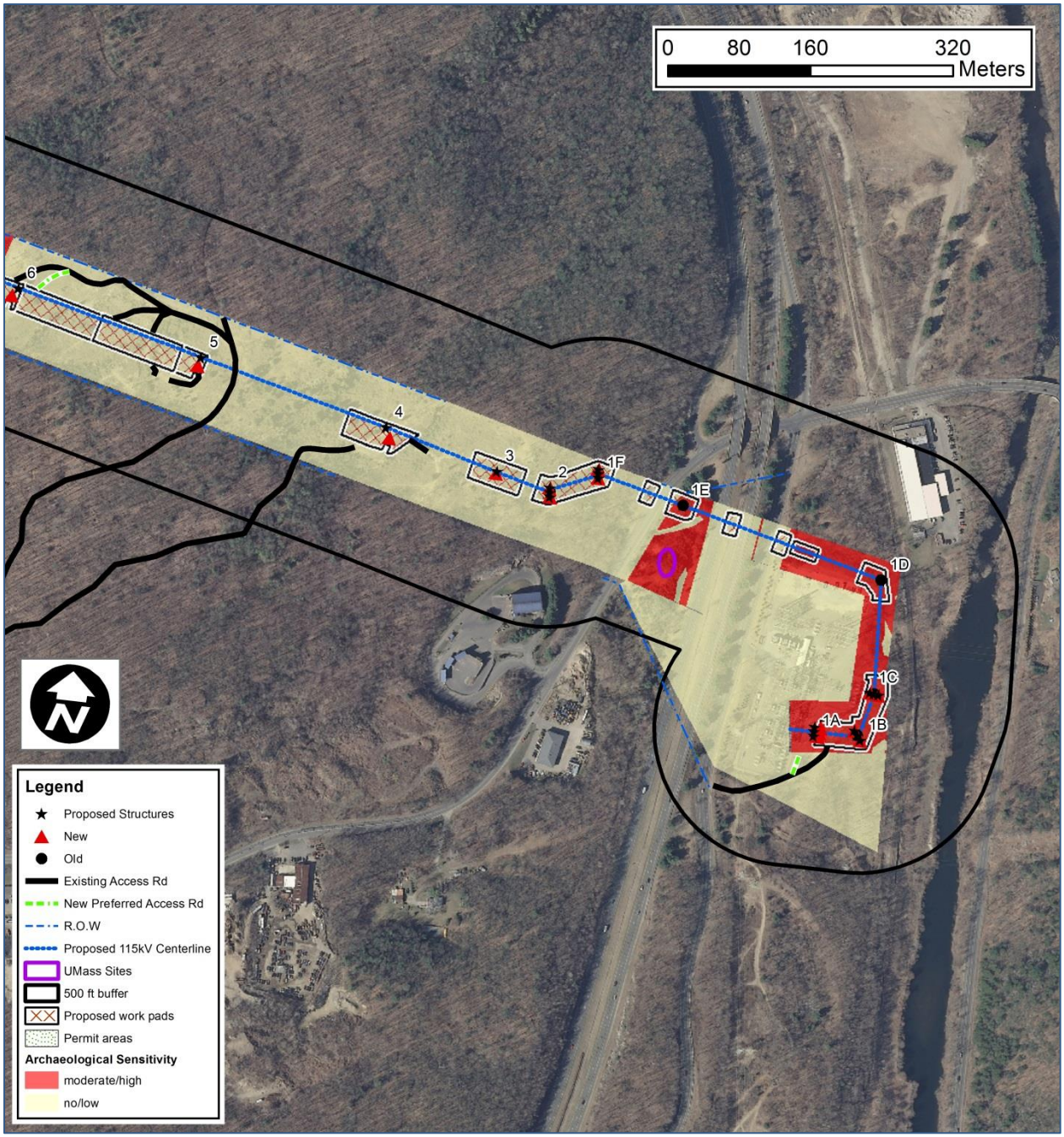

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HERITAGE CONSULTANTS, LLC

INTEGRATED HISTORIC PRESERVATION PLANNING

November 24, 2015

Mr. Justin Adams
Environmental Affairs
Eversource Energy
107 Selden Street
Berlin, CT 06037

RE: Scope of Work for Completion of a Phase IB Cultural Resources Reconnaissance Survey of Permitted Project Items Associated with the Proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut

Heritage Consultants, LLC is pleased to have this opportunity to provide Tighe & Bond, in support of Eversource Energy, with this Scope of Work for the above-referenced project in Harwinton, Watertown, Litchfield, and Thomaston, Connecticut. The proposed project will entail completion of a Phase IB cultural resources reconnaissance survey of 10 proposed work pads and 2 pull pads located in moderate/high archaeological sensitivity areas that will require permitting through the U.S. Army Corps of Engineers (USACE). It also will include re-identification and limited testing of 14 areas where archaeological sites have been previously identified (see Figure 1; Sheets 1 through 14 and discussion below). The remainder of this Scope of Work discusses the details of the proposed Phase IB cultural resources investigation. Heritage Consultants, LLC pledges to complete the undertaking while adhering to all rules and regulations stipulated in the *Environmental Review Primer for Connecticut's Archeological Resources*, which is promulgated by the Connecticut State Historic Preservation Office.

Project Tasking & Key Project Personnel

Prior to initiation of the proposed Phase IB cultural resources survey, a series of clearly defined tasks and roles will be delegated. These tasks and roles will be adhered to strictly during completion of the project. Tasks delineated to ensure successful and timely completion of the proposed undertaking will include Project Administration and Client Liaison; Background Research; Fieldwork for Phase IB Cultural Resources Reconnaissance Survey; Laboratory Analysis of Recovered Cultural Material (if any); and Cultural Resources Report Preparation. Each of these tasks is discussed in turn below.

Key personnel representing Heritage Consultants, LLC on this project will include Mr. David R. George, M.A., R.P.A., (Project Manager) and Mr. William F. Keegan, B.A., (Historical Geographer & Geographic Information Systems Specialist). The key staff of the firm provides daily oversight on all projects undertaken by Heritage Consultants LLC. With decades of combined experience, our key staff members are able to handle all types of delivery orders ranging from simple requests for archeological surveys to multi-year, multi-municipality projects requiring careful and methodical project planning efforts. These projects have been completed on time and on budget while meeting all guidelines and requirements set forth by the pertinent regulatory agencies.

Mr. David George, M.A., R.P.A., received his Bachelor of Arts degree in Business Management from Ithaca College in Ithaca, New York in 1990, and he completed his Master's degree in Anthropology in

1992 at the University of Connecticut. Mr. George's research interests include the prehistory and history of the northeastern United States, with an emphasis on southern New England; faunal, botanical, and lithic analyses; Contact Period/Colonial studies; and Geographic Information Systems applications in archeology. Over the last 24 years, he has served as Principal Investigator, Project Manager, and Field Director/Crew Chief for a range of projects throughout the northeastern and southeastern United States, and he possesses a wide variety experience in managing complex project ranging from large Phase I surveys to Phase II National Register testing and evaluation efforts to Data Recovery investigations.

Mr. George has supervised hundreds of projects completed on behalf of the Connecticut Department of Transportation; the Office of the Connecticut State Archaeologist; Eversource Energy, C.R. Johnson and Associates, Inc.; DeLeuw, Cather, and Company, Inc.; the Mashantucket Pequot, Tribe; the Mohegan Tribe; the Narragansett Tribe; the Connecticut National Guard; TIGHE & BOND; Vanasse Hangen Brustlin, Inc.; Harry J. Shepard & Associates, Inc.; Prospect Enterprises; EnviroBusiness Consulting, Inc.; Lessard Environmental, Inc.; ATC Associates, Inc.; Weston and Sampson Engineers, Inc.; and Fuss and O'Neill Consulting Engineers, Inc., Tighe & Bond, Inc., BSC Group, Conestoga Rovers, Inc., among others. Successful completion of project on behalf of these clients has required Mr. George to be knowledgeable about the prehistory, history, geology, and soils of each proposed project area in particular and Connecticut in general, as well as all necessary research design information and field methodologies. Not only has Mr. George been responsible for supervising field crews ranging in size from 2 to 25 people, he also has prepared research designs and implemented and supervised all stages of fieldwork and laboratory analysis for the numerous projects he has completed. Thus, Mr. George is familiar with the complexities of field survey and excavation, stratigraphic identification and analysis, Connecticut geological and pedological data, flotation procedures, lithic and ceramic analysis protocols, and report preparation and production.

Mr. William F. Keegan, B.A., GIS Specialist and Historical Geographer at Heritage Consultants, LLC, received his Bachelor of Arts degree in Anthropology from the University of Connecticut in 1996, and he currently is a student in the University of Connecticut Geography Department where he is completing his Master of Arts degree in Geography and Geographic Information Systems. Mr. Keegan specializes in archival, genealogical, and historical research, and integrates them into Geographic Information Systems as they apply to archeological research, historical landscape reconstruction, and fatal flaws analyses. Mr. Keegan offers unparalleled GIS services, and he is able to assist our many clients with geo-referencing locations of natural resources (e.g., floral associations, riparian environments, fishery habitats, etc.), cultural resources (e.g., archeological sites, historic standing structures, National Register Properties, cemeteries, etc.), land-use variables (e.g., forests and parks, public water supplies, existing transmission lines, etc.), residential subdivisions, licensed day care facilities, youth camps, and public playgrounds, among others. Once geo-referenced, these data layers can be used for project planning and design/redesign purposes, public meetings, and subsequent field studies.

In addition to his GIS and historical geography expertise, Mr. Keegan has over a decade of experience conducting cultural resources investigations in southern New England. While completing these projects he has acted as Project Manager and has supervised dozens of Field Archeologists. He also acted as Project Liaison for many cultural resources investigations, keeping clients abreast of project developments and interacting with interested parties in the compliance process. Mr. Keegan also has authored or contributed to dozens of cultural resources management reports and other monographs.

Project Administration and Client Liaison
The objectives of this task include careful project management to ensure that project milestones are met on time. This task also will include consultation with representatives of Tighe & Bond and Eversource Energy, as well as other interested parties related to the project, as required. These conferences will provide Tighe & Bond and Eversource Energy with regular project updates.

Background Research
During the proposed Phase IB cultural resources reconnaissance survey, detailed examination of the areas containing the proposed permitted work pads, pull pads, and previously identified archaeological site locations will be conducted in an effort to identify and to assess preliminarily all cultural resources located within the Areas of Potential Effect. A three-step approach will be utilized to achieve these objectives. It will consist of cartographic and archeological review of data relevant to the proposed project items; pedestrian survey and shovel testing of the 10 proposed work pads, 2 pull pads, and additional shovel testing of the 14 archaeological sites previously identified in the Right-of-Way to assess their integrity, basic size, and content; and the recordation and preliminary assessment of all cultural resources situated within the proposed project area (Table 1 and 2). The primary objective of the survey will be to identify and delineate precisely all cultural resources situated within the USACE permitted project items, as well as to revisit the 14 previously identified archaeological sites, and to assess them applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]).

Background research associated with this project has been completed in the form of a Phase IA cultural resources assessment survey (see attached); however, prior to fieldwork for the Phase IB, Heritage Consultants, LLC will conduct a brief review of the records on file with the Connecticut State Historic Preservation Office in Hartford, Connecticut, including the National Register of Historic Places files. This will be done to ensure that no new cultural resources have been identified in the project region after the completion of the Phase IA investigation and therefore might be overlooked prior to starting Phase IB fieldwork. Background research also will entail re-examination of all GIS data layers previously produced by Heritage Consultants, LLC. The background information will assist in the interpretation of the archeological context for any cultural resources identified within the proposed project area during the Phase IB cultural resources reconnaissance survey.

Phase IB Cultural Resources Reconnaissance Survey of USACE Permitted Project Items
Following completion of the background research and after obtaining all necessary permits to excavate on any state or Federal lands that coincide with permitted project items, a Phase IB reconnaissance-level survey of the USACE permitted project items will be undertaken. The 10 permitted work pads and 2 pull pads will be subjected to pedestrian survey and subsurface testing. The subsurface testing regime within proposed work pads and pull pads will consist of the excavation of shovel tests located at 15 m (49.2 ft) intervals along parallel survey transects spaced 15 m (49.2 ft) apart within the proposed work areas (see example at end of this document). As many transects will be excavated as required by the size and configuration of the proposed work pads. In addition, a single shovel test also will be placed at the location of each proposed new structure in the work pad areas. Using this approach, it is anticipated that up to 70 shovel tests will be required to complete the initial portion of the Phase IB survey (see Table 1).

During the Phase IB survey, each shovel test will measure 50 cm (19.7 in) in size and each will be excavated to an approximate depth of 50 cm (19.7 in) below surface or until sterile subsoil is reached. Stratigraphic soil profiles for all shovel tests will be recorded and all shovel test fill will be screened through 0.64 cm (0.25 in) hardware cloth and examined visually for cultural material. Munsell Soil Color Charts will be used to record soil color; texture and other identifiable characteristics will be documented using standard soils nomenclature. All shovel tests will be backfilled completely following completion of recordation. In

addition, the Phase IB cultural resource reconnaissance survey will entail mapping of the Areas of Potential Effect, with the locations of all shovel tests recorded using GPS, natural landscape features, and man-made structures depicted. The resultant maps will be digitized and included in the Report of Investigations. Finally, the proposed project areas will be subjected to photo-documentation using color digital media.

Archeological Site Delineation

Archaeological sites identified during the Phase IB cultural resources reconnaissance survey of the permitted work pads and pull pads, if any, will be examined testing to ascertain their nature, size, depth, integrity, age, and cultural affiliation. Site delineation also will be used to assess the stratigraphic placement, density, and research potential of each identified site. In addition, information will be gathered to assist in the subsequent assessment of whether or not a site is considered not significant, potentially significant, or significant applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). Archeological recordation will include the following: (1) establishment of a site datum; (2) surface reconnaissance of the site area; (3) excavation of tightly spaced shovel tests along rays emanating from datum to delineate the site's boundaries, size, and configuration; and (4) mapping and photographing of the site area. Color digital photographs of the site area(s) will be taken. It is anticipated that up to 40 additional shovel tests may be excavated in order to determine the spatial limits of any new archaeological resources identified during the initial Phase IB survey effort.

Phase IB Testing of Previously Identified Archaeological Sites

During previous fieldwork completed along the proposed project corridor during 2009 by Umass Archaeological Services, 14 archaeological sites were identified within "test areas" that were thought to retain a high probability for containing intact archaeological deposits. All 14 of these sites were interpreted as potentially significant cultural resources (Table 2). However, in general, very limited shovel testing was completed at these sites, and it is the professional opinion of Heritage Consultants, LLC that not enough testing was undertaken or data collected to infer that all 14 sites are potentially significant cultural resources. As a result, Heritage Consultants, LLC proposes to return to the 14 site locations and conduct additional Phase IB shovel testing in an effort to gather additional archaeological data, as well as information on site size and artifact types and densities, so that better informed interpretations of the sites can be made with respect to their National Register of Historic Places significance. It is anticipated that up to 140 shovel tests (10 at each previously identified site) will be excavated in order to determine whether the previously identified sites discussed in Table 2 retain research potential and, thus, the qualities of significance applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]).

Laboratory Analysis

Laboratory analysis of recovered cultural material collected during the Phase IB cultural resources reconnaissance will follow established archeological protocols. All field specimen bag proveniences first will be crosschecked against the field notes and the specimen inventories for accuracy and completeness. Following this quality-control process, all recovered material will be washed by hand, air-dried, and sorted into basic material categories. The nature and structure of the laboratory analysis will be determined by the goals of the project. In general, the artifact analysis will consist of making and recording a series of observations for each specimen. The observations will be chosen to provide the most significant and temporally/functionally diagnostic information about each specimen. Up to three separate relational databases may be employed to store, organize, and manipulate the data generated by the analytical process. Separate databases will be used for the analysis of the recovered historic cultural material, prehistoric lithic objects, and/or prehistoric ceramic artifacts. The different databases will reflect the differences in the analytical protocols used to study the three types of materials.

Historic Cultural Material Analysis
The analysis of the historic cultural material will be organized by class, functional group, type, and subtype. The first level, class, will represent the material category, e.g., ceramic, glass, metal. The second level, functional group, e.g., architecture, kitchen, or personal, will be based on classifications established by South (1977). The third and fourth levels, type and subtype, will describe the temporally and/or functionally diagnostic artifact attributes. The identification of artifacts will be aided by consulting standard references.

Prehistoric Lithic Analysis
The lithic analysis protocol used in this project will be a "technological" or "functional" one designed to identify prehistoric reduction trajectories, lithic industries, and tool functions. The protocol therefore will focus on recording technological characteristics of the recovered lithic artifacts. The lithic artifact database will be organized by lithic material group, type, and subtype. The first level will describe the raw material type of the artifact. Lithic materials will be identified utilizing recognized geological descriptions and terminology, and with the use of type specimens of known source. Lithic raw materials will be divided into distinct categories based on three factors: texture, color, and translucence.

The second analysis level, type, will be used to define the general class, e.g., unmodified flake, core, or preform, of lithic artifact, while the last level, subtype, will be employed to specify morphological attributes, e.g., primary cortex, extensively reduced, or corner-notched. Typological identifications for temporally and regionally diagnostic tools also will be included in the analysis. Such identifications will be made by reference to established lithic artifact typologies.

Prehistoric Ceramic Analysis
The prehistoric ceramic taxonomy will be organized by type, surface decoration, aplastic inclusions, and vessel portion. The database will be designed to allow the analyst to record established ceramic types, as well as ceramic modes and attributes. The first level, type, will represent the established named ceramic types according to published sources. Decoration will be used to describe the basic type of surface decoration present on the sherd, e.g., plain, brushed, engraved, ridged, or incised. The aplastic inclusion category will list the principal temper types observed in the paste of each sherd. Aplastic inclusion combinations, e.g., sand/grit, will be used to denote only the presence of those inclusions, not the numerical predominance of one over the other. The vessel portion column will list the portion of the ceramic vessel from which the sherd was derived. Possible values in this field will include body, rim, base, neck/collar, and so forth. The "additional description" column of the database will be used to record other observations.

Report Preparation/Production
Upon completion of the above-referenced Phase IB fieldwork and laboratory analysis, Heritage Consultants, LLC will prepare a detailed Report of Investigations. The report will be a thorough, well written, and polished product, and it will consist of eight chapters. The chapters will include: Introduction, Natural Setting of the Project Vicinity, Prehistoric Setting of the Project Vicinity, History of the Project Vicinity, Previous Cultural Resources Investigations Conducted within the Vicinity of the Project Areas, Field and Laboratory Methods, Results of the Investigation, and Management Recommendations for Identified Cultural Resources. The report also will contain an Abstract that presents the project details, results, and management recommendations in a condensed format.

Through this detailed report writing process, the identified archaeological sites will be described thoroughly, put into the proper natural, prehistoric, and/or historic context, and evaluated applying the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). In addition, the report will contain appendices, as necessary, which will include an inventory of recovered cultural material; official State of Connecticut Site Forms for newly identified sites, completed State of Connecticut Site

Forms for the 14 archaeological sites previously identified by Umass Archaeological Services, and project correspondence with agencies, if any. Heritage Consultants, LLC will provide Tighe & Bond and Eversource Energy with two copies of the Report of Investigations. In addition, Heritage Consultants, LLC will supply two copies of the report to the Connecticut State Historic Preservation Office for review and comment. We are proud to say none of our reports has failed to pass muster with that agency.

Project Assumptions
Heritage Consultants, LLC makes the following assumptions regarding the project:

- That full access to each of the USACE permitted project items be will be available;
- That the project items can be located using a GPS coordinate file provided by Tighe & Bond;
- That no more than 70 shovel tests will be required to complete the initial Phase IB survey of the permitted work pads and pull pads;
- That no more than 40 additional shovel tests will be required to delineate any newly identified archaeological sites;
- That no more than 140 shovel tests will be required to better asses the 14 sites previously identified by Umass Archaeological Services;
- That all archaeological data associated with the 14 sites previously identified by Umass Archaeological Services, including field forms and artifacts, be made available to Heritage Consultants, for analysis;
- That any GPS data or other electronic data collected by Umass Archaeological Services relating to the 14 sites previously identified be made available to Heritage Consultants, LLC;
- That any additional testing at yet-to-be-identified project items (e.g., guy wire anchor locations, additional work pads, new access roads, etc.), will constitute a change order and will be completed only after agreement by Tighe & Bond, Eversource Energy, and Heritage Consultants, LLC personnel.

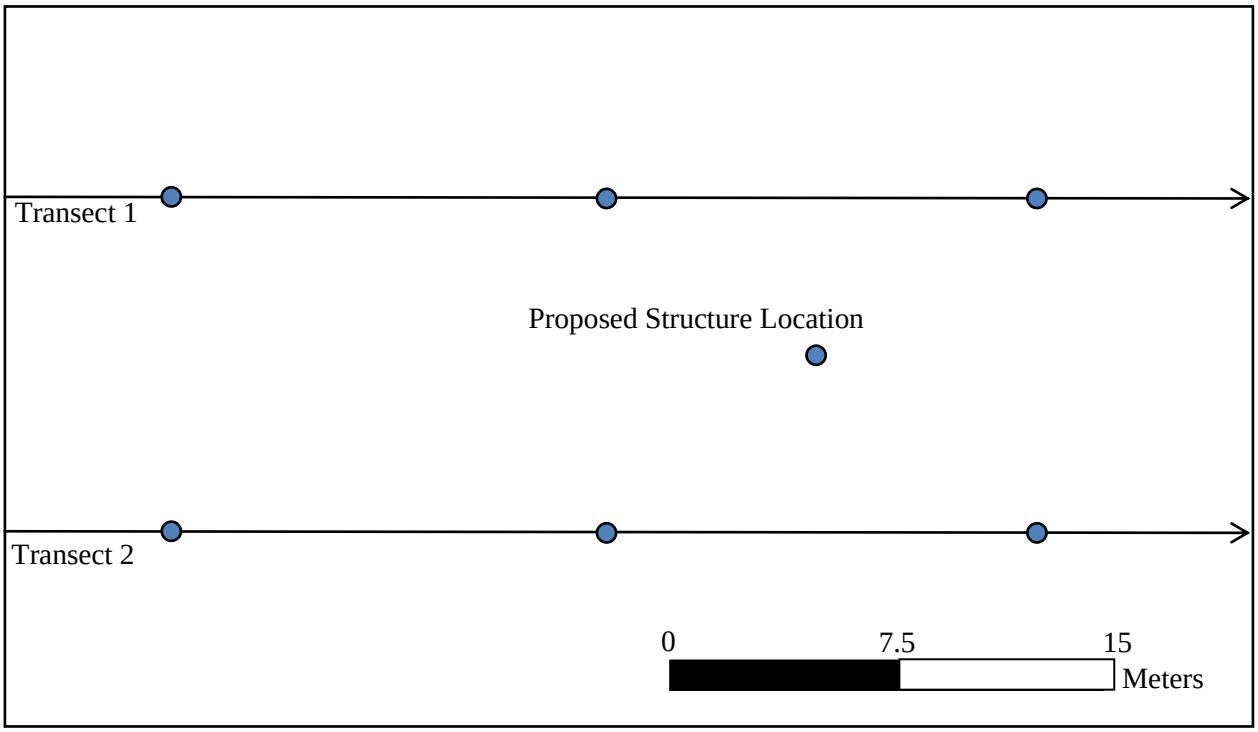
In addition, this Scope of Work does not include tasks associated with Native American consultation (e.g., project walk downs with local tribes). However, should these tasks be requested, Heritage Consultants, LLC would be pleased to provide these services to Tighe & Bond and Eversource Energy.

Heritage Consultants, LLC welcomes this opportunity to once again be of service to Tighe & Bond and Eversource Energy in support of its important mission in Harwinton, Watertown, Litchfield, and Thomaston, Connecticut. If you have any questions regarding this Scope of Work, or if we can be of additional assistance with this or with any other project you may have, please do not hesitate to contact me at (860) 667-3001 (office) or (860) 299-6328 (cell phone). Alternatively, you may contact me via email at dgeorge@heritage-consultants.com. We are at your service.

Sincerely,

David R. George

David R. George, M.A., R.P.A.
Heritage Consultants, LLC



Shovel test layout at typical proposed work area.

Table 1. USACE permitted project items to be examined during Phase IB testing.

Figure-Sheet	Item	Approximate Size/Length in Meters	Number of Shovel Tests Required
1-13	Work Pad at Structure 9	30 x 30	5
1-12	Work Pad at Structure 15	30 x 30	5
1-11	Work Pad at Structure 18	30 x 30	5
1-9	Work Pad at Structure 35	30 x 30	5
1-9	Work Pad at Structure 39	100 x 200	5*
1-6	Potential Pull Pad at Structures 63/64	100 x 200	10
1-4	Work Pad at Structure 75	30 x 30	5*
1-4	Work Pad at Structure 76	30 x 30	4*
1-4	Work Pad at Structure 77	30 x 30	5
1-4	Work Pad at Structure 79	30 x 30	4*
1-2	Potential Pull Pad East of Structure 87	30 x 85	12
1-1	Work Pad at Structure 93	30 x 30	5

* Indicates that wetlands in the vicinity will preclude some shovel testing.

Table 2. Cultural resources identified during previous archaeological investigation of the proposed project corridor by UMass Archaeological Services.

Site Name	Cultural Affiliation	National Register Eligibility*
Frost Bridge Native American Site	Prehistoric/Historic	Potentially Eligible
Turkey Brook Native American Site	Prehistoric	Potentially Eligible
Park Road Native American Site	Prehistoric	Potentially Eligible
Mattatuck Historic Site	Historic	Potentially Eligible
Springhead Native American Site	Prehistoric	Potentially Eligible
Rod and Gun Club Archaeological Site	Prehistoric/Historic	Potentially Eligible
Five Dams Site	Prehistoric/Historic	Potentially Eligible
Five Dams II Site	Prehistoric	Potentially Eligible
Walnut Hill Road Site	Prehistoric	Potentially Eligible
Northfield Brook Site	Prehistoric	Potentially Eligible
Valley Road Site	Prehistoric/Historic	Potentially Eligible
Wildcat Hill Site	Prehistoric	Potentially Eligible
Wildcat Hill II Site	Prehistoric	Potentially Eligible
Campville Substation Site	Prehistoric/Historic	Potentially Eligible

*note that UMass Archaeological Services made the above-referenced National Register eligibility determinations

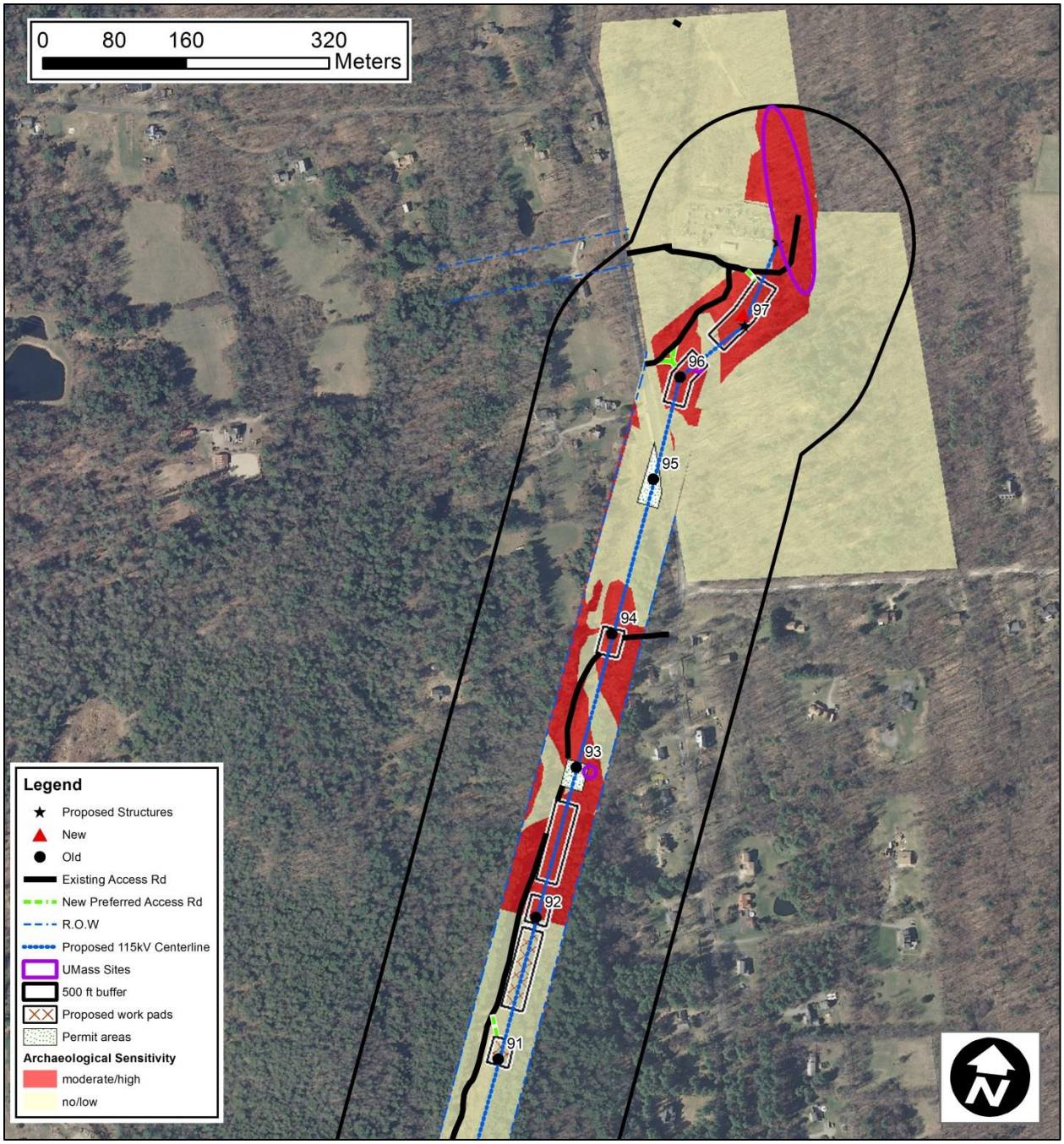


Figure 1, Sheet 1. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

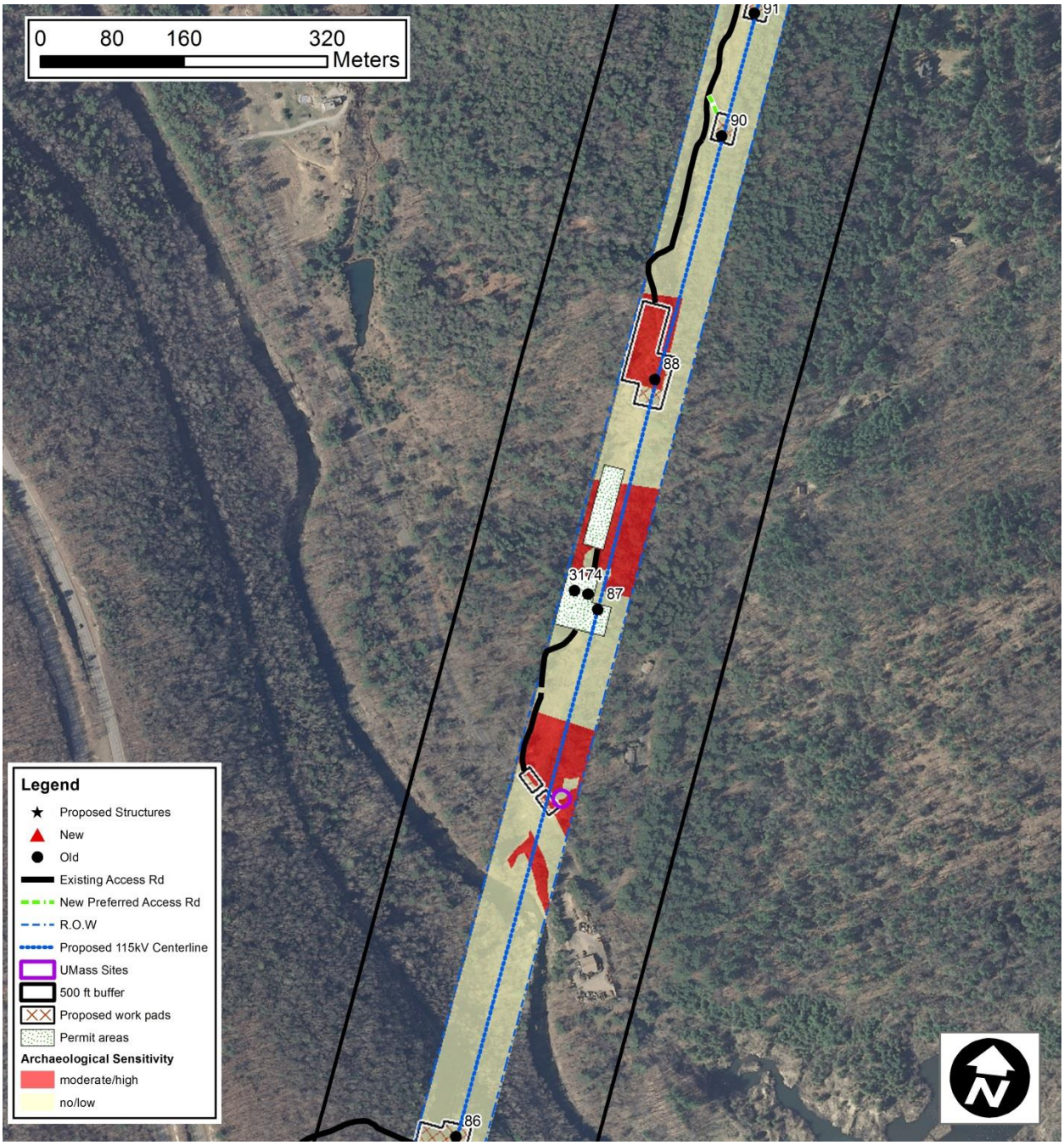


Figure 1, Sheet 2. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

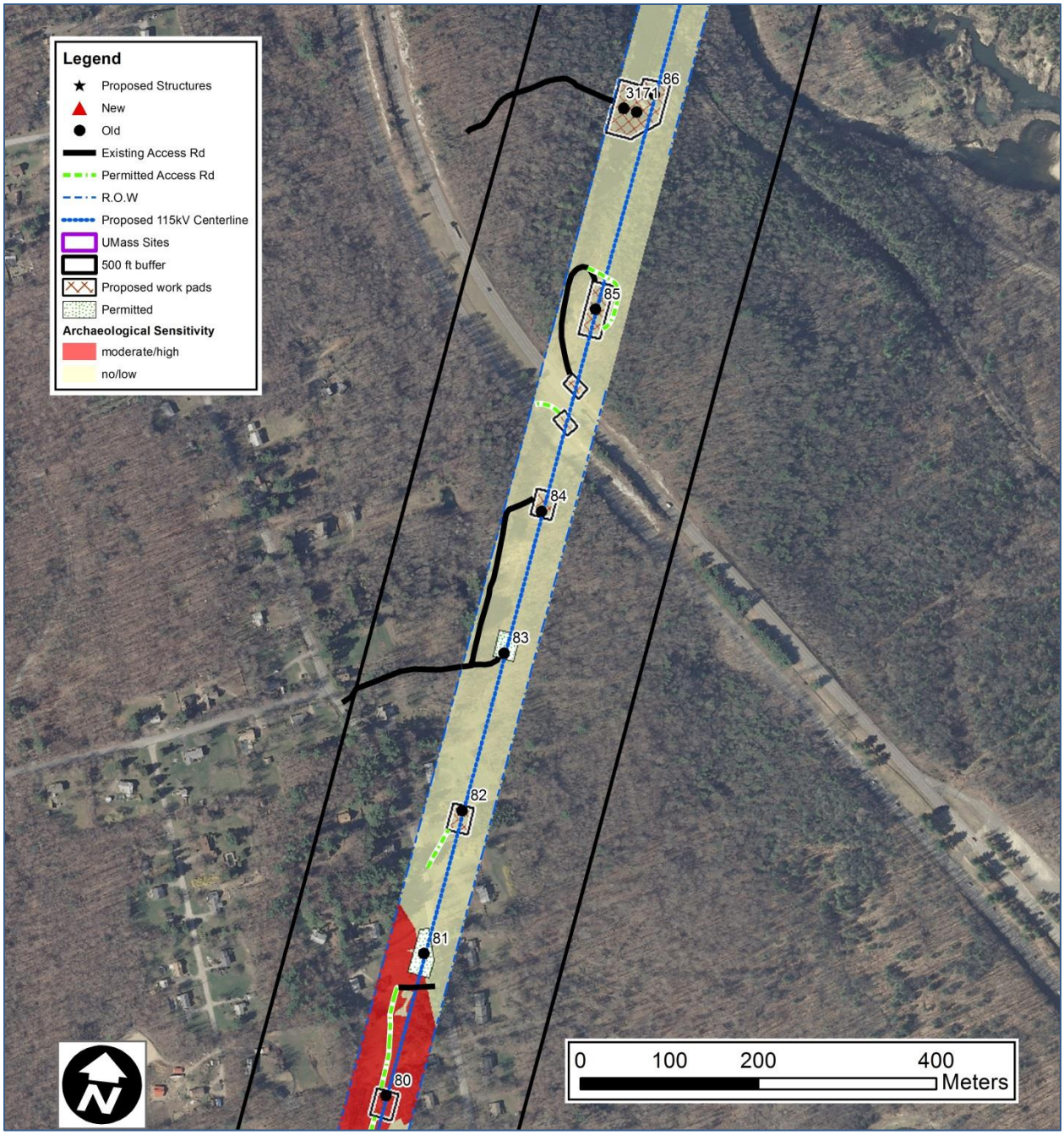


Figure 1, Sheet 3. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

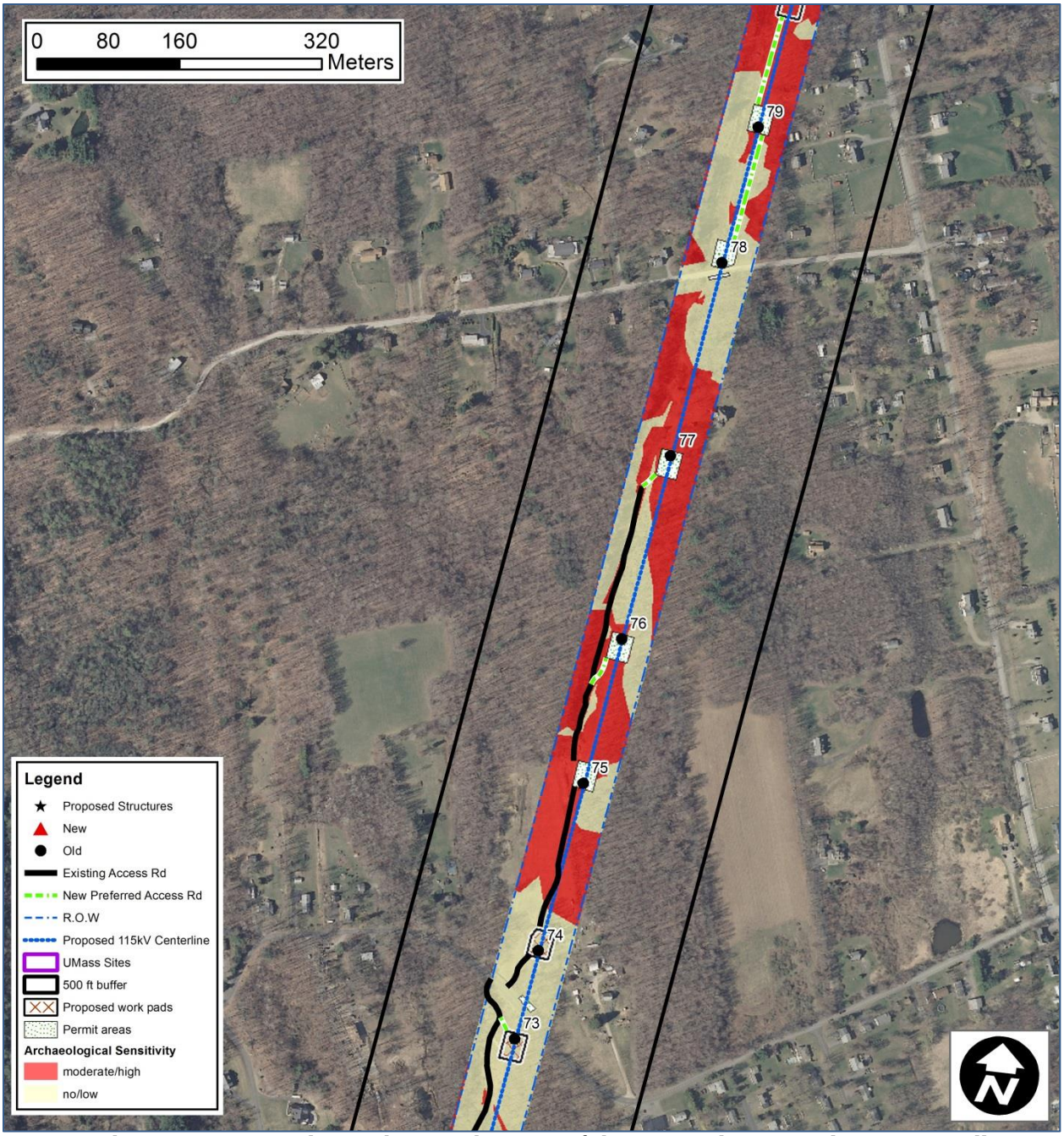


Figure 1, Sheet 4. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

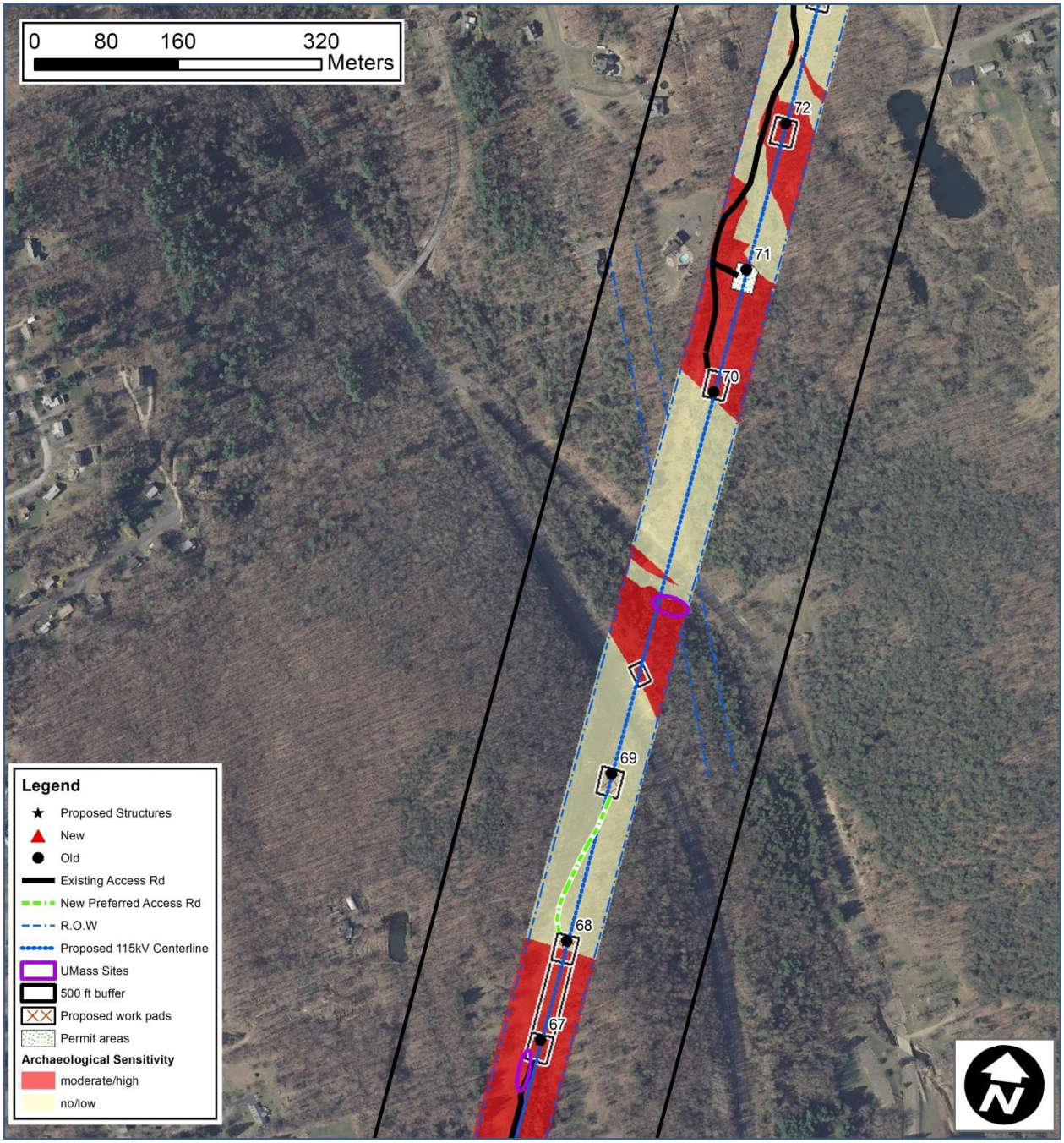


Figure 1, Sheet 5. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

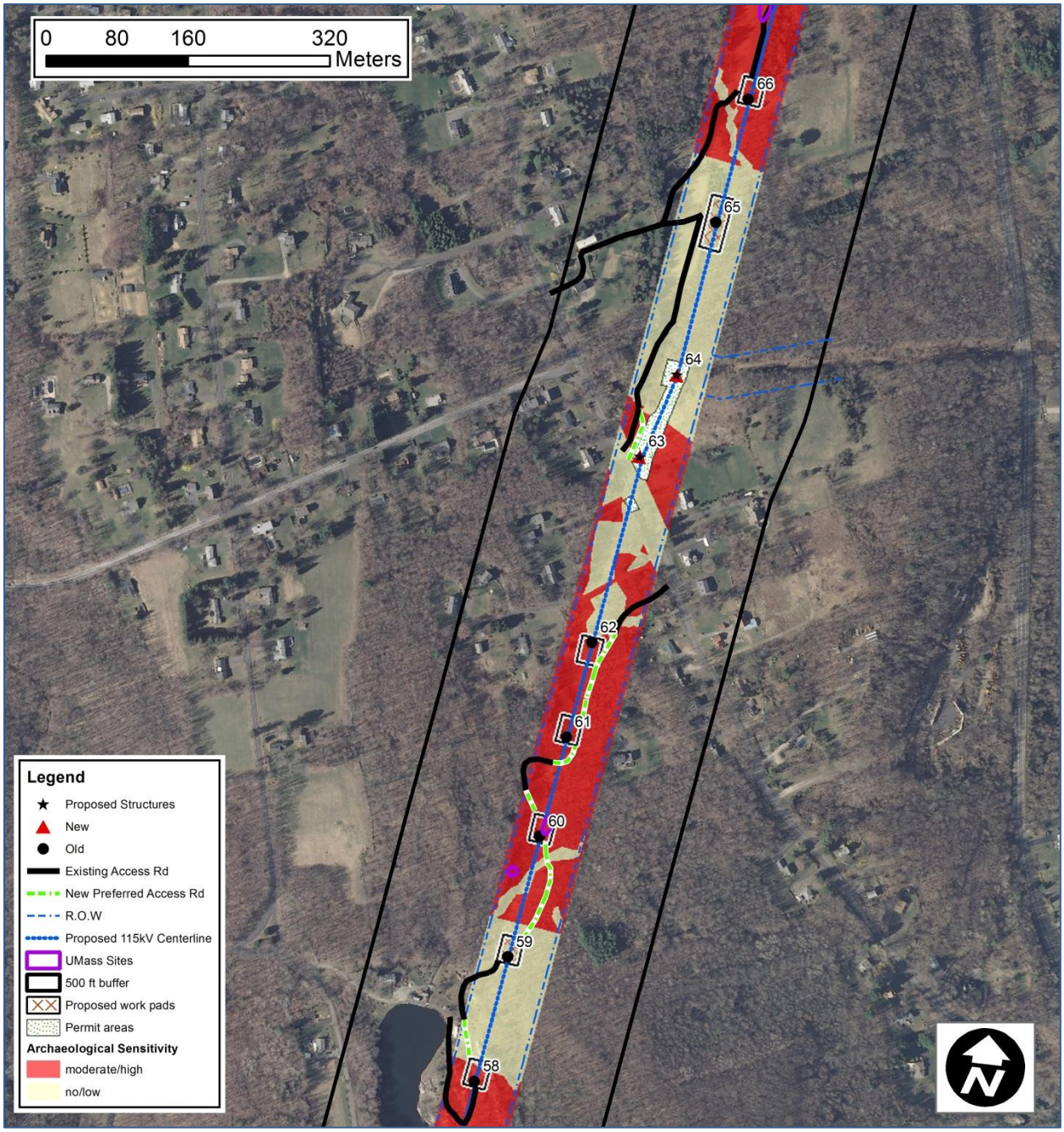


Figure 1, Sheet 6. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

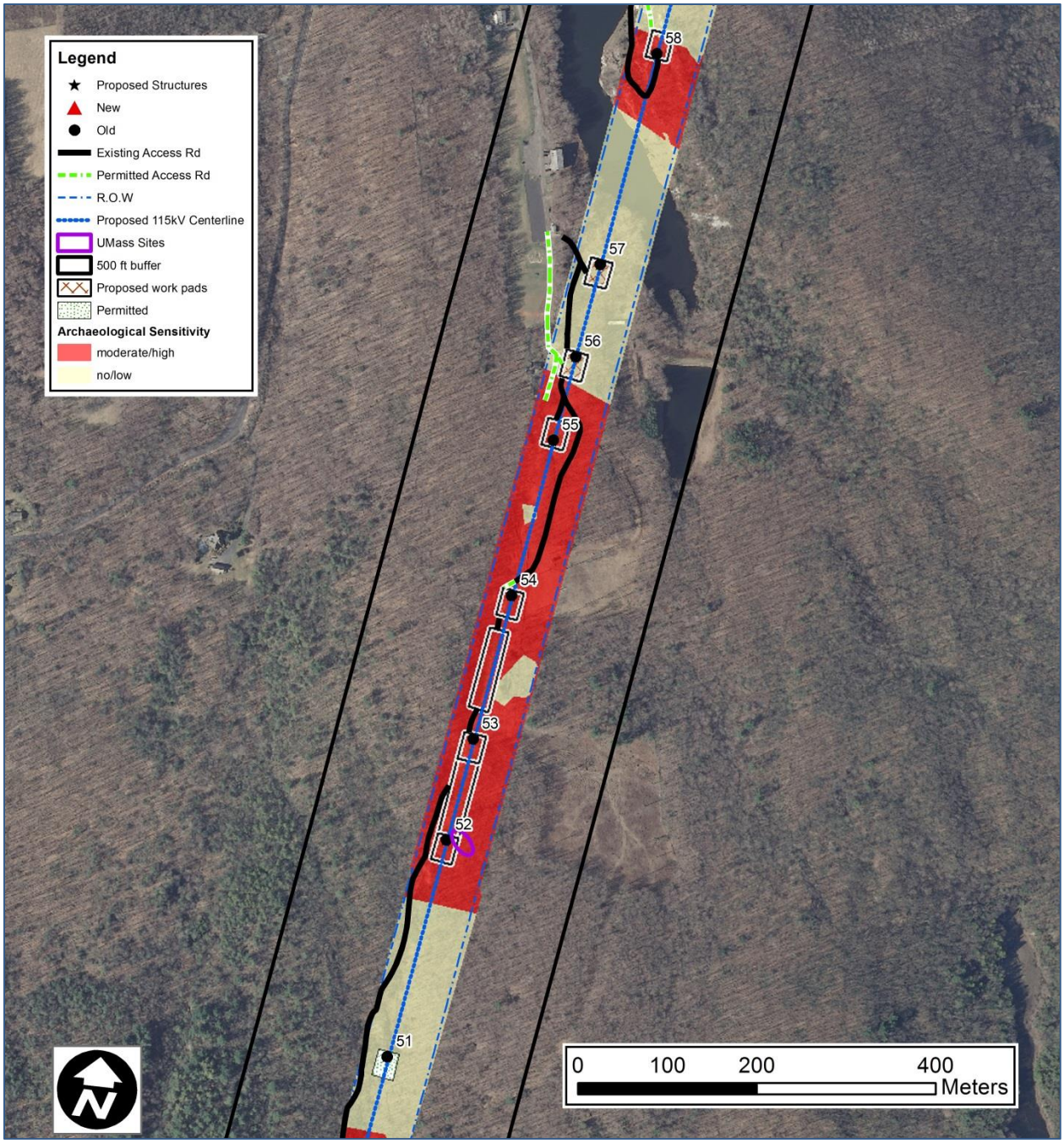


Figure 1, Sheet 7. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

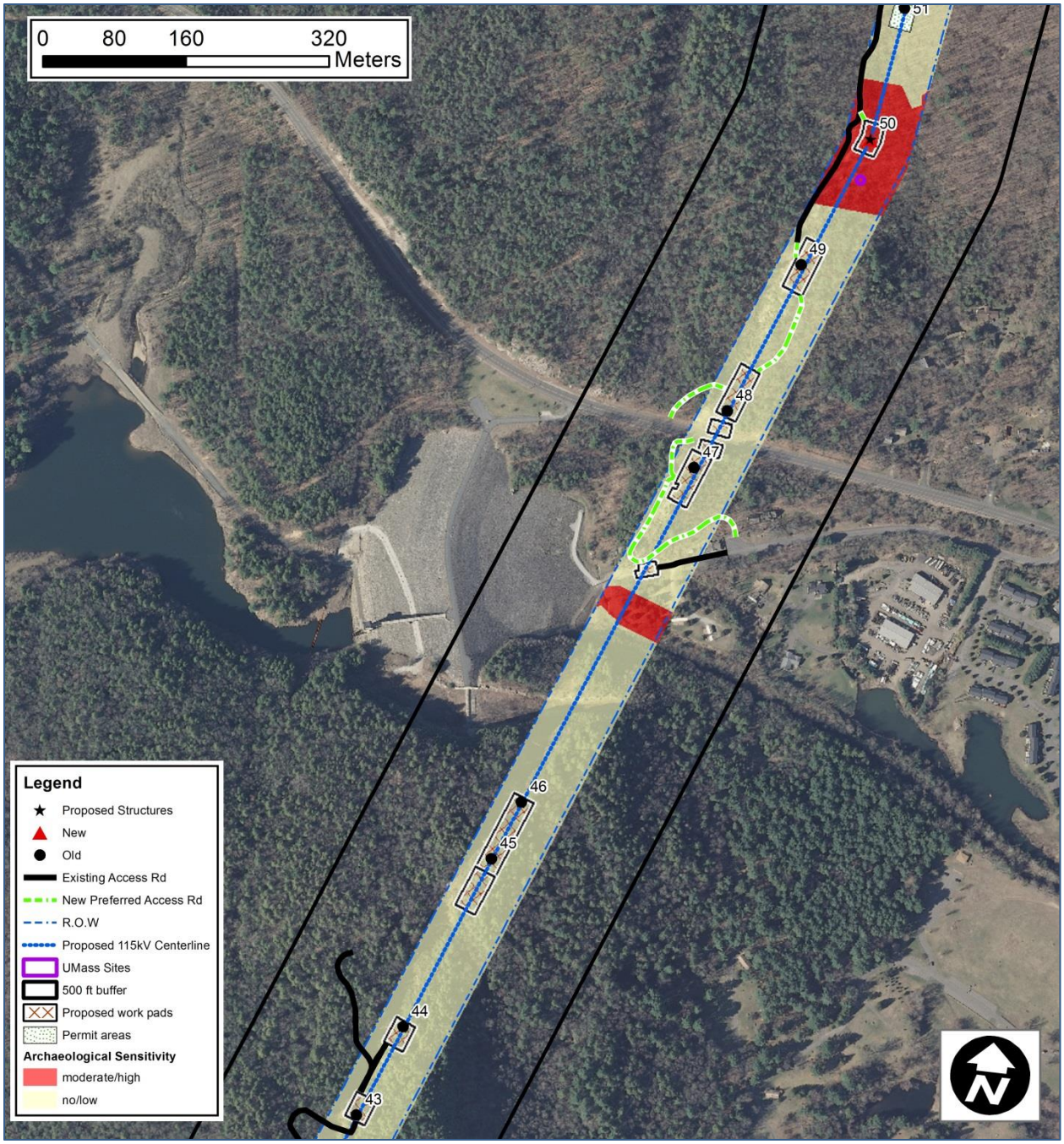


Figure 1, Sheet 8. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

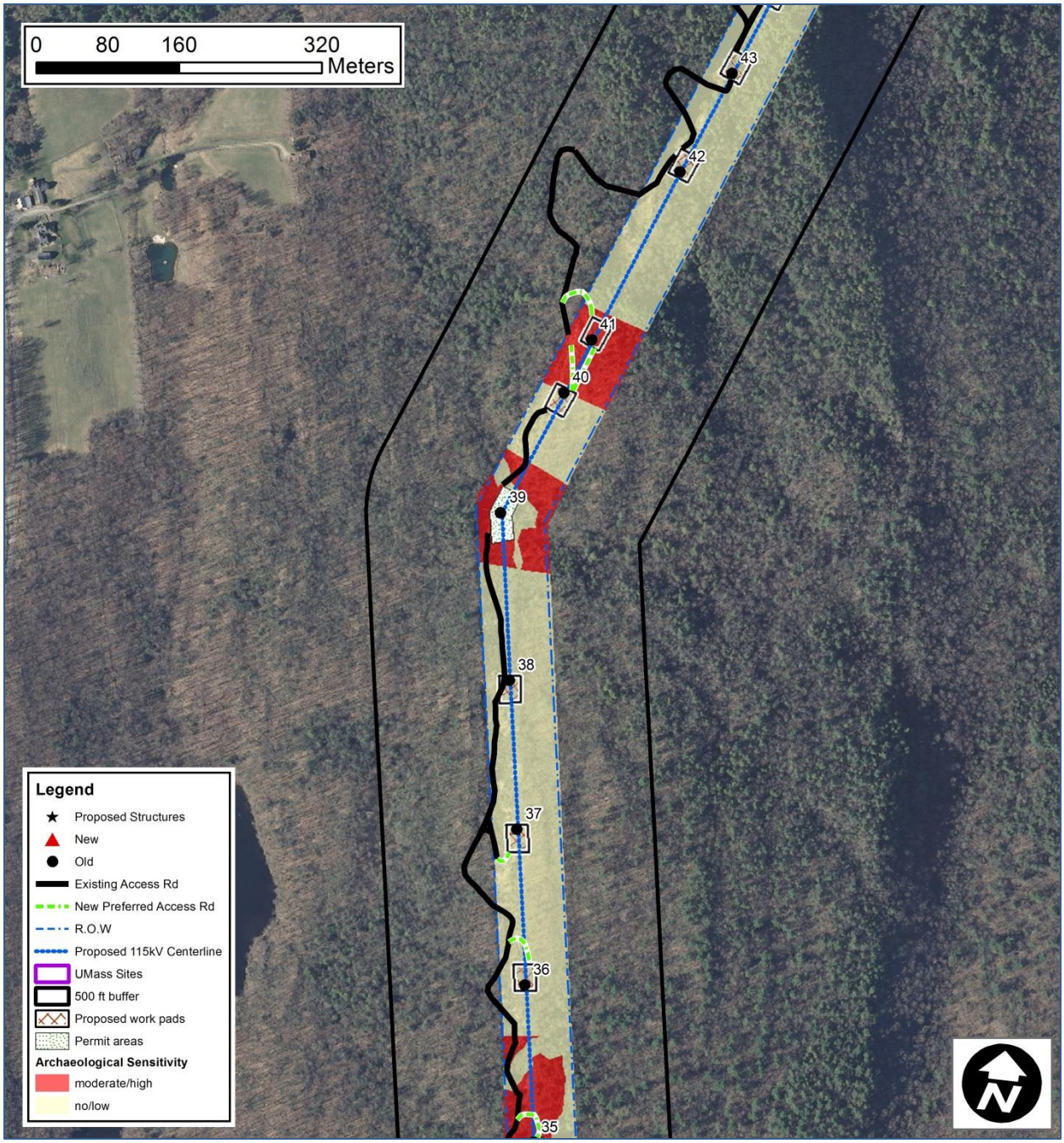


Figure 1, Sheet 9. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

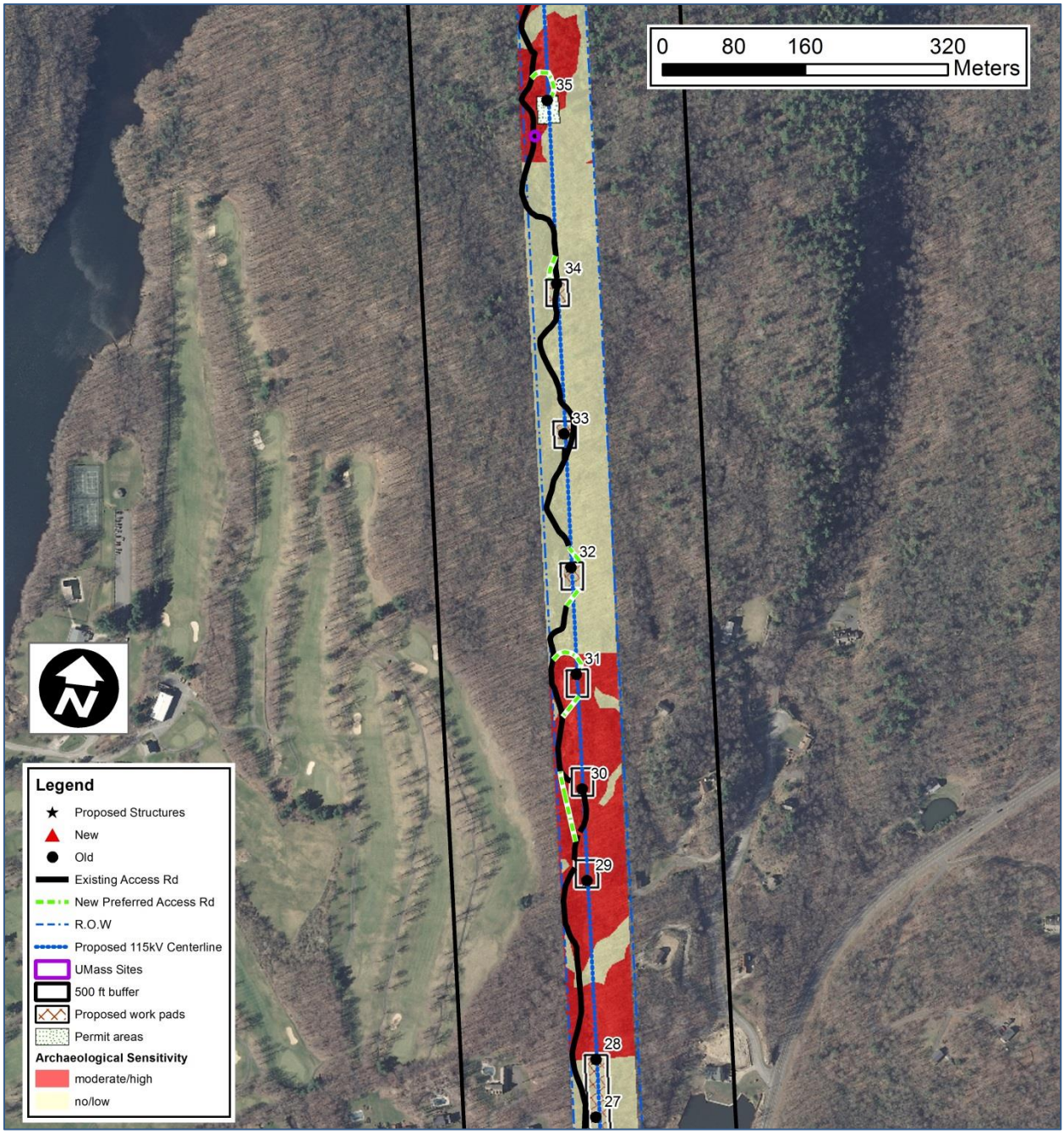


Figure 1, Sheet 10. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

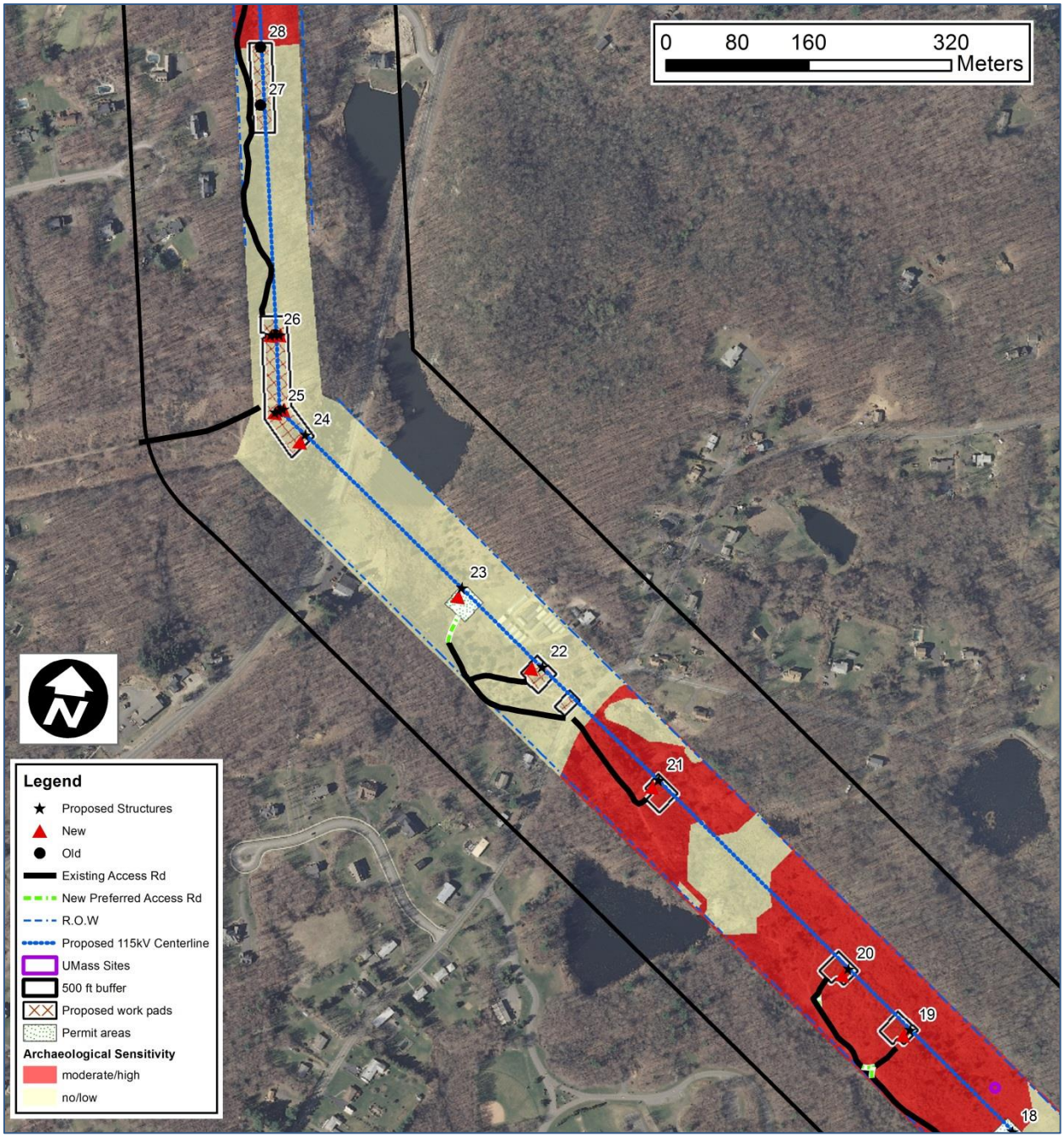


Figure 1, Sheet 11. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

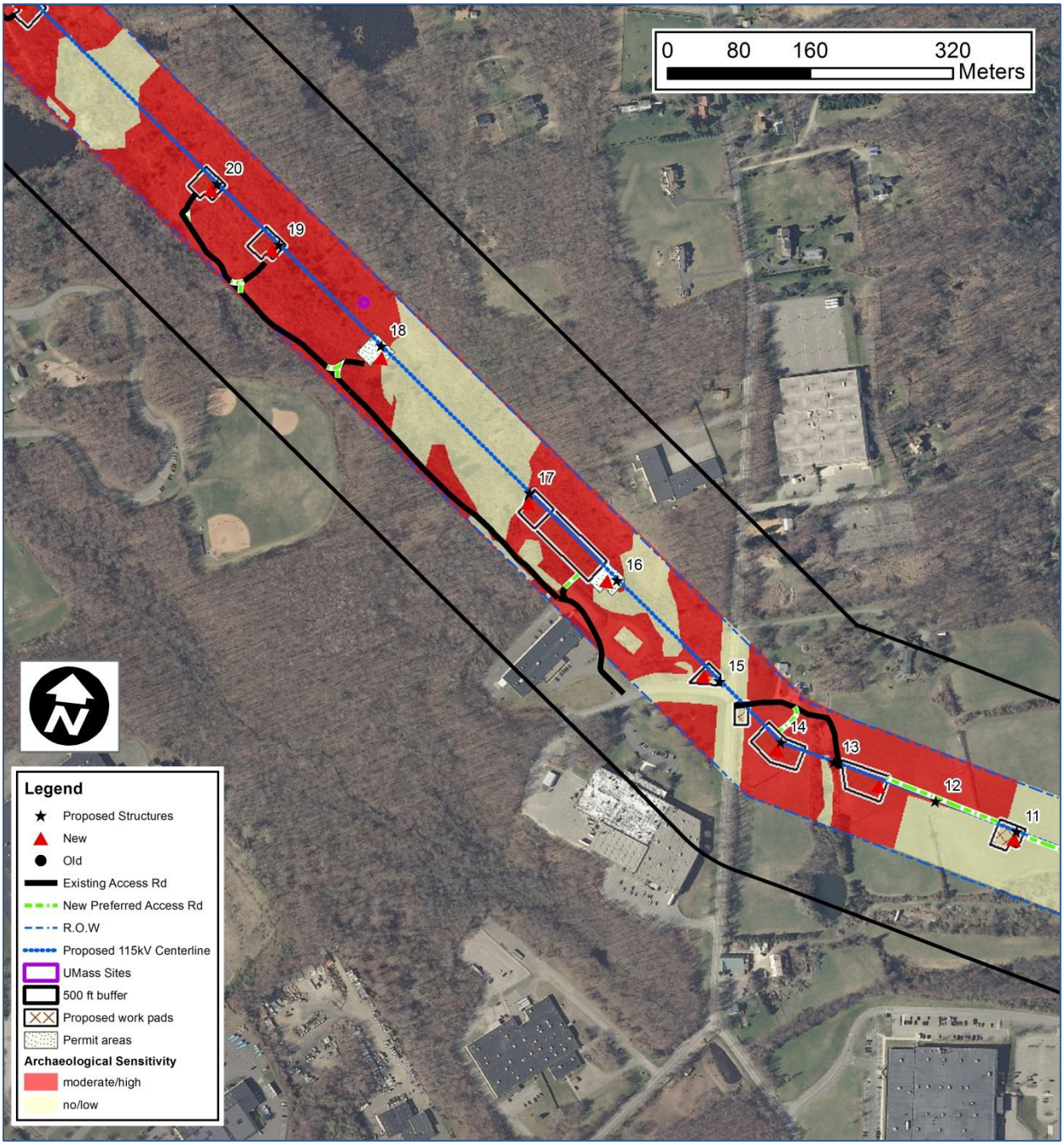


Figure 1, Sheet 12. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

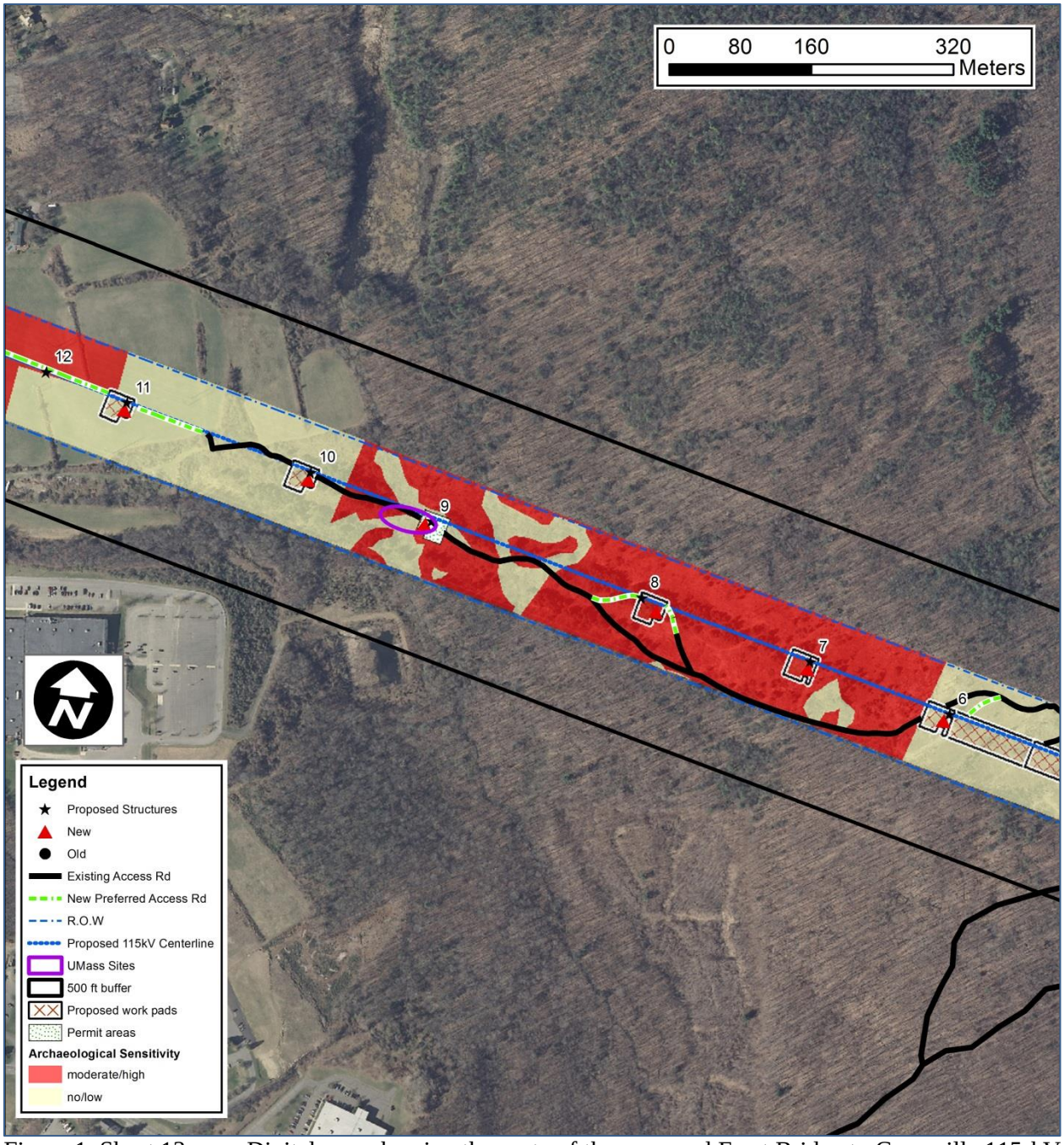


Figure 1, Sheet 13. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

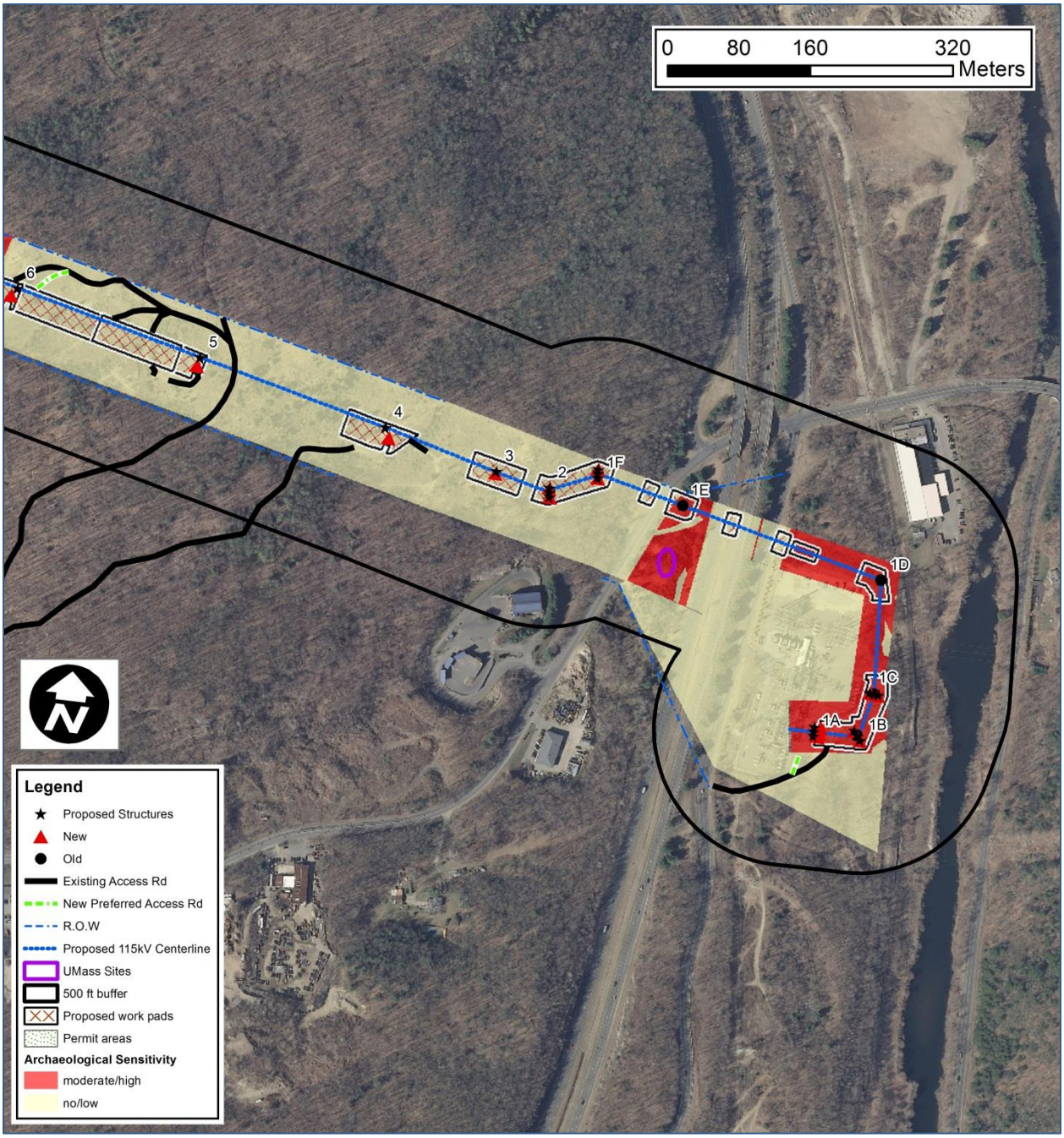


Figure 1, Sheet 14. Digital map showing the route of the proposed Frost Bridge to Campville 115-kV Project in Watertown, Thomaston, Litchfield, and Harwinton, Connecticut.

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EXHIBIT 5: VISUAL RESOURCE ANALYSIS

VISUAL RESOURCE ANALYSIS REPORT

APPENDIX A: PROPOSED LINE ROUTE MAP WITH VISUAL SITES

APPENDIX B: PHOTOGRAPHS OF POTENTIAL VISUAL SITES

APPENDIX C: PHOTO-SIMULATIONS

APPENDIX D: REPRESENTATIVE PHOTOGRAPHS OF THE PROPOSED ROUTE: GENERAL VISUAL SETTING FROM PUBLIC ROAD CROSSINGS

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VISUAL RESOURCES ANALYSIS REPORT

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FROST BRIDGE – CAMPVILLE 115-kV PROJECT

VISUAL RESOURCE ANALYSIS

SEPTEMBER 2015

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APPENDICES

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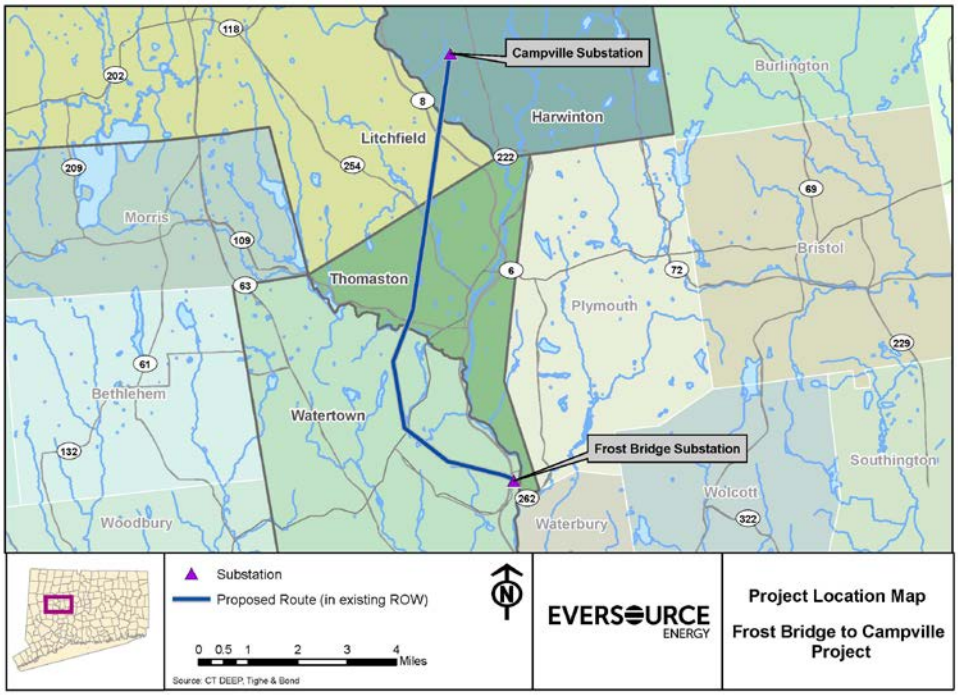
1. INTRODUCTION AND STUDY OBJECTIVES

1.1 PROJECT OVERVIEW

Eversource Energy (Eversource) proposes to construct and operate a new 10.4-mile 115-kilovolt (kV) electric transmission line and to make related modifications to two existing Eversource substations (Frost Bridge Substation and Campville Substation) in central-northwestern Connecticut. Extending between Frost Bridge Substation in the Town of Watertown and Campville Substation in the Town of Harwinton, the proposed 115-kV transmission line would cross portions of four Litchfield County towns (Watertown, Thomaston, Litchfield, and Harwinton).

In addition to the proposed 115-kV transmission line, along a 0.4-mile segment at the Naugatuck River crossing (Litchfield / Harwinton border) where two existing 115-kV circuits are currently supported by common lattice steel transmission structures, Eversource proposes to replace the lattice steel structures and to construct new monopole structures so that each electric transmission line circuit will be supported on its own set of separate structures. These proposed electric transmission system improvements are referred to as the Frost Bridge to Campville Project (the Project; refer to Figure 1-1).

Figure 1-1: Project Location Map



The new 115-kV transmission line (designated by Eversource as the 1304 Line) would be constructed overhead and would be located entirely within an existing Eversource right-of-way (ROW) that was established for utility purposes more than 80 years ago. This ROW ranges in width from 250 to 400 feet. The circuit separation at the Naugatuck River also would be accomplished within Eversource's existing ROW.

This existing ROW is presently occupied by one, two, or three 115-kV transmission lines (depending on the ROW segment) and, along a 2.3-mile segment in Watertown, a 345-kV transmission line. These existing overhead lines are supported on various structure types, including H-frames and monopoles. At the Naugatuck River crossing, two 155-foot-tall steel lattice structures (one on either side of the river) support two 115-kV circuits.

The new overhead 115-kV transmission line would be supported on monopole structures (delta or vertical configurations) that would typically range from 80 to 105 feet in height. At the Naugatuck River crossing, both the new 115-kV line and the separated existing 115-kV circuits would be supported on delta or vertical monopole structures that would be approximately 155 feet in height.

The proposed location of the new 115-kV line structures within the ROW and in relation to the existing transmission line structures are illustrated on the cross-section drawings (refer to Volume 1 [Appendix 3A] and Volume 5).

The Project also involves modifications to both the Frost Bridge and Campville substations; these modifications are required to interconnect the new transmission line to the electric grid. Both the Frost Bridge and Campville substations are located on Eversource properties that were acquired for utility use in the 1920s-1930s. Modifications to the Frost Bridge Substation will be accomplished within the developed portion of the existing substation, whereas the required improvements to the Campville Substation will involve the expansion of the substation by approximately 0.33 acre.

1.2 CONNECTICUT SITING COUNCIL GUIDANCE REGARDING VISUAL RESOURCES

The proposed Project is subject to the jurisdiction of the Connecticut Siting Council (Council), which has established procedures for applicants to follow in applying for a Certificate of Environmental Compatibility and Public Need. These procedures are detailed in the Council's *Application Guide for Electric and Fuel Transmission Line Facilities* (April 2010; *Application Guide*).

With respect to visual resources, the *Application Guide* requires applicants to identify scenic areas in relation to proposed projects and to describe the potential effect that proposed projects would have on such areas. The *Application Guide* also requires applicants to describe and evaluate the potential effects of proposed projects on Connecticut Heritage Areas (as designated by Connecticut General Statutes [C.G.S.] §16a-27) and Connecticut Department of Transportation (ConnDOT) Scenic Lands (C.G.S. §13a-85a).

Prior to the issuance of the April 2010 version of the *Application Guide*, on December 23, 2009, the Council issued a memorandum to routine applicants / participants concerning, among other issues, the consideration of scenic quality and the aesthetic attributes of land that might be affected by projects under the Council's jurisdiction, and specifically referencing the consideration of Connecticut Heritage Areas and ConnDOT Scenic Lands as part of the project planning process. In the same memorandum, the Council advised applicants to provide photographs of aesthetic areas, particularly for use in photo-simulations, which depict "leaf off" conditions. In the absence of deciduous vegetative screening, such "leaf off" conditions would tend to represent "worst case" (or maximum) views of existing facilities (e.g., overhead transmission lines, ROWs) and of potential project facilities.

1.3 PURPOSE OF THE VISUAL RESOURCE STUDY

The objectives of this visual analysis, which was designed to conform to the Council's guidance regarding the consideration of scenic resources, were to:

- Characterize the existing visual setting in the vicinity of designated or potential scenic areas in the vicinity of the Project;
- Prepare photo-simulations of the proposed Project facilities under both "leaf off" conditions, pursuant to the Council's guidance, and "leaf on" conditions, which would be representative of views during the spring – fall months; and
- Assess the potential effects of the Project on such areas, using photo-simulations of the proposed transmission line structures and the associated expansion of the vegetatively managed portions of the ROW to illustrate the incremental changes to the visual environment that would be associated with the development of the new 115-kV transmission line.

The visual analysis focuses on the proposed transmission line. The proposed modifications to the two substations would be located on Eversource properties that are already devoted to utility use and are not in the viewing area of any designated scenic areas or potential scenic sites.

Further, the Project is not located within or near any Connecticut heritage areas, as designated pursuant to state Public Act No. 09-221. As detailed in Public Act No. 09-221, a heritage area is defined as a place within Connecticut that has historic, recreational, cultural, natural, and scenic resources that form an important part of the state's heritage. State agencies must take the resources of the national heritage areas into consideration in planning and project decision-making. To date, only two Connecticut heritage areas have been designated[1]; neither is near the Project.

The proposed 115-kV line route is located approximately 0.25 mile north of two parcels of undeveloped ConnDOT Scenic Lands. Such lands are properties located along highway ROWs that were purchased by the state approximately 40 years ago, using federal Highway Beautification Act funds. The original purpose of the parcels was to preserve the landscape along highway ROWs.

The two ConnDOT Scenic Land parcels in the Project region are along State Route 8. These two parcels are undeveloped, are situated directly adjacent to State Route 8, and have no public access. From the parcels, there are no views of the Project ROW.

[1] These areas are the Upper Housatonic Valley National Heritage Area in northwestern Connecticut and the Quinebaug Shetucket Rivers Valley National Heritage Area in northeastern Connecticut.

2. METHODS

The methods used to conduct the visual resource study involved baseline research, followed by field inspections to photo-document views of the Proposed Route along Eversource's ROW in the vicinity of publicly-designated[2] scenic, recreational, and open space properties (collectively referred to herein as the "visual sites")[3]. The photo-documentation subsequently was used to prepare photo-simulations.

Eversource first conducted research to identify visual sites crossed by or in the vicinity of the proposed Project. These sites were identified based on the review of Project mapping, town plans, Internet research, and other published information, such as the Connecticut Department of Energy and Environmental Protection's (CT DEEP's) data concerning state parks, forests, and trails and the U.S. Army Corps of Engineers (USACE) data regarding flood control projects that also offer recreational opportunities. To identify hiking trails and land trust parcels containing trails or publicly-accessible scenic areas, Eversource also consulted the Connecticut Forest and Park Association's (CFPA's) *Walk Book West* (*The Guide to the Blue-Blazed Hiking Trails of Western Connecticut*, 2006, 19th Edition). In addition, Eversource researched land trusts in the Project region (e.g., the Watertown Land Trust, Litchfield Land Trust, Harwinton Land Conservation Trust, and Heritage Land Preservation Trust) to determine if any parcels preserved by these organizations are located in the vicinity of the Proposed Route. No land trust parcels are located along or near the Project ROW or substations.

In general, sites within approximately 0.5-1 mile of the proposed Project facilities were identified for initial evaluation. Field reconnaissance then was conducted of each of the identified potential visual sites. The objectives of the field review were to:

- Assess the relationship of each potential visual site to the existing Eversource ROW along which the proposed 115-kV transmission line would be located and to the two existing substations that would be modified as part of the Project.

- Determine whether Eversource's existing overhead transmission lines are visible from each potential site.

[2] For the purposes of this study, "publicly designated" areas refer to locations identified by federal, state, or municipal governments, land trusts, or associations (such as the CFPA).

[3] Based on the cultural resource studies conducted for the Project, no standing historic structures on or eligible for the National or State Registers of Historic Places are located in the vicinity of the ROW or substations.

- Photo-document views, if applicable, of the existing transmission line structures / ROW in relation to the visual sites. Sites that were determined to be too geographically remote from the ROW or from which views of the existing overhead transmission line structures were blocked by intervening topography, vegetation, or land uses, were not photographed.

- Take photographs, under both "leaf off" and "leaf on" conditions for use in preparing photo-simulations to illustrate potential views of the proposed 115-kV transmission line in the vicinity of visual sites.

To document visual conditions under "leaf off" conditions (when the existing overhead transmission line structures would be expected to be more visible due to the lack of deciduous vegetative cover), field studies were conducted in April 2015. In May 2015, Eversource conducted follow-up field visits to assess and photo-document conditions at the same sites when deciduous forest vegetation was leafed out. In general, such "leaves on" conditions are representative of the spring through fall seasons when public use of most of the designated recreational or scenic areas near the ROWs can be expected to be highest. Appendix A provides a key map that identifies the visual site locations photographed, while Appendix B includes representative photographs of the visual sites.

Using the "leaf off" and "leaf on" photographs, computer-generated photo-simulations were prepared to illustrate the expected changes to the visual environment as a result of the new 115-kV transmission line (e.g., views of the new transmission line structures and conductors alongside the existing overhead transmission lines, increased width of forest vegetation removal within the existing ROWs). The photo-simulations of the new 115-kV transmission line structures, which are included in Appendix C, were developed based on the proposed structure heights and types as identified on the ROW segment cross-sections for the Proposed Route (refer to Volume 1, Appendix 3A and the Volume 5 maps).

The photo-simulations were developed using 3D software (Autodesk 3D Studio Max 2010-2011®). This software allows the 1:1 re-creation of site depicting the proposed 115-kV facilities, using as input the Project engineering design drawings and related information (e.g., transmission line structure types, line sag, land elevation data). A photo editing program (Adobe Photoshop CS4®) was used to overlay the rendered image on the site-specific photographs.

Appendix D includes other representative photographs and photo-simulations of the general visual setting of the Proposed Route, as viewed from selected public roads traversed by the existing Eversource ROW. These photographs further illustrate the general landscape in the Project region, and also provide typical views of the existing transmission line structures and ROW vegetative communities.

3. VISUAL SETTING AND RESOURCE SITES

3.1 PROJECT SETTING

The proposed 115-kV transmission line would be aligned within Eversource's existing ROW, adjacent to existing overhead transmission lines, whereas the other proposed Project facilities would be similarly located within Eversource's ROW (double-circuit separation) or – in the case of the substation modifications - on Eversource property (refer to Table 3-1). Lands within the portions of the ROW occupied by existing transmission lines are managed to promote shrub or similar low-growth vegetation, consistent with overhead utility use. Lands encompassing the unmanaged portions of the ROW are generally undeveloped and consist of forested, shrub, and agricultural or other open lands. Both the existing overhead transmission lines and the two substations are well-established elements of the local visual environments.

In general, lands in the Project region are characterized by rugged topography and forest vegetation, both of which limit long views of the ROW and transmission line structures. The ROW traverses or is located near a variety of land uses, including designated recreational areas (Mattatuck State Forest, Black Rock State Park, Northfield Brook Recreation Area), as well as scattered areas of agricultural, residential, commercial, and industrial developments. The Proposed Route does not traverse or parallel any traprock ridges.

The Naugatuck River is the major river in the Project region. After the Naugatuck River flooded in 1955, causing significant damage, the USACE implemented a series of extensive flood control projects within the watershed. As part of these projects, the USACE acquired properties and developed dams, creating lakes and recreation areas that are owned by the federal government and managed by the U.S. Army Corps of Engineers (USACE). The USACE properties provide major recreational / scenic features. Aligned within Eversource's existing ROW, the proposed 115-kV transmission line would traverse lands associated with all three of these USACE flood control projects (i.e., Black Rock Dam area at Branch Brook in Watertown / Thomaston; Northfield Dam at Northfield Brook in Thomaston, and the Naugatuck River, which is associated with the Thomaston Dam).

Table 3-1: Existing and Proposed Transmission Facilities, by Town

Town	Existing ROW (Feet, Typical)		Proposed Project Facilities	
	Width (Typical, Feet)	**Existing Transmission Lines (kV, Structure Type, Height, Typical)**	**New 115-kV 1304 Transmission Line (Miles, by Town, and Typical Structure Type, Typical Height)**	**Other**
Watertown				
• Frost Bridge Substation* to Purgatory Junction	400	1191 Line (115 kV, Wood H-Frame) 1238 Line (115 kV, Steel Monopole) 352 Line (345 kV, Wood H-Frame)	4.7 (total town) 2.7 miles; Steel Vertical Monopoles, 105 feet	**Frost Bridge Substation Modifications**: within developed 5.7-acre substation located on 128.5-acre Eversource property
• Purgatory Junction to Walnut Hill Junction	250	1191 Line (115 kV, Wood H-Frame) 1238 Line (115 kV, Steel Monopole)	1.9 miles, Steel Delta Monopoles, 90 feet	
Thomaston				
	250	1191 Line (115 kV, Wood H-Frame)	2.6 Steel Delta Monopoles, 90 feet	N/A
Litchfield				
	250	1191 Line (115 kV, Wood H-Frame / Lattice Tower) 1921 Line (115 kV, Delta Laminate Monopole / Lattice Tower)	1.8 Steel Delta Monopoles, 90 feet; 155-foot at Naugatuck River crossing	One 155-foot-tall lattice steel tower to be replaced with 155-foot tall steel monopole on west side of Naugatuck River crossing
Harwinton				
	250	1191 Line (115 kV, Wood H-Frame) 1921 Line (115 kV, Delta Laminate Monopole	1.3 Steel Delta Monopoles, 90 feet; 155-foot at Naugatuck River crossing	One 155-foot-tall lattice steel tower to be replaced with 155-foot steel monopole on east side of Naugatuck River crossing. **Campville Substation Modifications**: within 42.3-acre Eversource property; existing 1.65-acre substation to be expanded by 0.33 acre.

Notes: *Exiting the Frost Bridge Substation, the proposed transmission line structures would be located on Eversource property.
Typical heights for the proposed 115-kV transmission line are as provided on the cross-sections in Volume 1, Appendix 3A and Volume 5.

3.2 VISUAL SITES

The proposed 115-kV transmission line would be situated within Eversource's existing ROW, adjacent to existing overhead transmission structures, across or near various areas that have scenic attributes. These sites, which are depicted on the USGS maps in Appendix A of this volume and on the Volume 5 maps, include the CFPA's Jericho-Whitestone Connector Trail, Jericho Trail, and Mattatuck Trail; Mattatuck State Forest (Watertown and Thomaston parcels); Veterans Memorial Park; Black Rock State Park and Black Rock Lake; Northfield Brook Lake Recreation Area; and areas along the Naugatuck River in Litchfield and Harwinton that are part of Thomaston Dam Recreation Area. Additional maps depicting the location of the ROW in relation to the Jericho-Whitestone Trail crossing on Eversource property, the Jericho Trail crossing in Mattatuck State Forest, and the Mattatuck Trail crossing in Black Rock State Park are presented at the end of this section (refer to Figures 3-1 and 3-2).

In addition, the Proposed Route traverses two state-designated greenways: the CFPA's Mattatuck Trail and the Naugatuck River[4]. According to Connecticut General Statutes Section 23-100, a "greenway" means a corridor of open space that may protect natural resources, preserve scenic landscapes and historical resources or offer opportunities for recreation or non-motorized transportation; may connect existing protected areas and provide access to the outdoors; may be located along a defining natural feature, such as a waterway, along a man-made corridor, including an unused ROW, traditional trail routes or historic barge canals; or may be a greenspace along a highway or around a village.

At the Naugatuck River crossing, the existing Eversource transmission lines are elevated high above the river such that none of the forested vegetation in the river valley is subject to ROW management. Along the river, long views of the existing steel lattice structures (located on the slopes above either side of the river valley) that support the two existing 115-kV lines are largely screened by intervening vegetation. As a result, the lattice structures are principally visible where the ROW crosses Valley Road in Harwinton and, to a lesser degree, from the ROW crossing of the ATV trails along the western side of the river.

Table 3-2 (located at the end of this section) lists the visual sites identified in the general vicinity of the Proposed Route and correlates the location of these sites to the location maps of the Proposed Route

[4] CT DEEP, *Connecticut Greenways Council: Officially Designated Greenways 2015*. http://www.ct.gov/deep/lib/deep/greenways/greenwaysmap2015.pdf

presented in Appendix A. Eversource's consultants, Phenix Environmental, Inc. and Burns & McDonnell Engineering Company, Inc., visited each of the sites listed in Table 3-2 to determine the visibility (if any) of the existing ROW and transmission line structures under both "leaf off" and "leaf on" conditions.

The visual sites crossed by or near the Eversource ROW are described below:

- **Mattatuck State Forest, All Project Towns**. The Mattatuck State Forest, which is owned and managed by the CT DEEP, encompasses approximately 4,673 acres and is comprised of a variety of parcels located in six towns, including all four of the Project towns. The Proposed Route traverses approximately 1.77 miles through portions of the forest in the towns of Watertown (1.5 miles) and Thomaston (0.27 mile). In Thomaston, the ROW extends across the forest's largest single parcel (1,327 acres), which adjoins Black Rock State Park. CT DEEP manages the forest for a wide variety of recreational uses (e.g., hunting, hiking, mountain biking, letterboxing), as well as for forest products and wildlife habitat. The CFPA's Mattatuck Trail passes through several portions of the forest.

  In addition, a parcel of Mattatuck State Forest land is located in Thomaston, east of and across the Naugatuck River from the Frost Bridge Substation. Although views of the substation and ROW are possible from this parcel, it is designated principally for hunting and includes no identified hiking trails or scenic areas.

- **Jericho-Whitestone Connector Trail, Watertown.** In the Project area, this trail extends along Echo Valley Road near State Route 8 and from there crosses onto the 400-foot-wide ROW (which in this location extends across Eversource property) for a short distance before diverging north into Mattatuck State Forest and eventually joining the Jericho Trail, north of the Project ROW. Along and in the vicinity of the ROW, views from this trail are presently influenced by Echo Valley Road and developments along it, as well as by the multiple existing transmission lines within the ROW. As a result, the development of the new 115-kV line would have only an incremental visual effect. Once the trail diverges north into the state forest, long views of the ROW are generally precluded by the dense vegetative cover.

- **Jericho Trail / Mattatuck Trail, Watertown.** The Mattatuck Trail, which is managed by the CFPA, is a 36-mile hiking trail that stretches across nine towns in central-northwestern Connecticut, extending from the Town of Wolcott northwest to the Town of Cornwall. The Jericho Trail, which connects to the Mattatuck Trail, originates at Echo Lake Road in Watertown and extends north, across the Eversource ROW, to connect to the Mattatuck Trail in the Mattatuck State Forest. At the ROW crossing, the Jericho Trail is a relatively wide asphalt pathway. In addition to the crossing of the Jericho Trail, the Proposed Route crosses the Mattatuck Trail within Black Rock State Park in the Town of Watertown.

- **Veterans Memorial Park, Watertown**. This Town of Watertown park, which encompasses approximately 100 acres, provides year-round multi-use recreational opportunities. The park includes baseball fields, soccer fields, basketball courts, walking trails, a playground, gazebo, covered pavilion, Jericho Brook Pond (fishing), horseshoe pits, bocce courts, and picnic areas. The Eversource ROW extends across the northern boundary of the park land. In this area, the ROW is 400 feet wide; the proposed 115-kV transmission line would be aligned near the middle of the ROW, away from the park and north of the existing 1191 Line.

- **Crestbrook Park and Golf Club, Watertown**. The Town of Watertown's Crestbrook Park and Golf Course encompasses 236 acres and includes an 18-hole golf course, golf pro shop, golf

practice area, swimming pool, tennis courts, park pavilion, and restaurant. The park also includes a lake (Lockwood Pond), which is available in the winter for ice-skating. The 250-foot-wide Eversource ROW extends along the eastern boundary of the park. Due to the hilly terrain, there are no views of the transmission line / ROW from the park.

- **Black Rock State Park and Black Rock Lake, Watertown / Thomaston**. CT DEEP's Black Rock State Park, a multi-use outdoor recreational area, encompasses 439 acres in Watertown. The park includes Black Rock Pond (swimming, fishing), various hiking trails (including the CFPA's Mattatuck Trail and the park's Red Trail), a campground with 78 sites, picnic areas, and a nature center. The park abuts the Mattatuck State Forest on the south, and Branch Brook and Black Rock Lake, which forms the boundary between the towns of Watertown and Thomaston, on the north.

  In 1970, the USACE completed the construction of Black Rock Dam, damming the upstream portion of Branch Brook and creating the 21-acre Black Rock (Conservation) Lake, as well as Wigwam Reservoir. The dam is part of a network of USACE flood control projects within the Naugatuck River basin. The USACE and CT DEEP cooperatively manage approximately 341 acres[5] of land and water resources in the Black Rock Lake area for recreation, wildlife, and forestry resources. Recreational opportunities include fishing and hiking, as well as nature viewing. An overlook on top of the dam is accessible from State Route 109, and a portion of the CFPA's Mattatuck Trail extends west along the south side of the lake and reservoir. The Black Rock Lake recreational area is located in both Watertown and Thomaston, spanning the border between the two towns.

  The new 115-kV transmission line would be aligned within Eversource's existing 250-foot-wide ROW, adjacent to the existing 1191 Line, across the western portion of Black Rock State Park, as well as across part of the USACE's Black Rock Lake property.

  Within the Park, the ROW crosses both the CFPA's Mattatuck Trail and the Park's Red Trail, which is located to the north of the Mattatuck Trail. At the crossing of the Trail, the new 115-kV line would be located east of the existing 1191 Line. In this area, views are limited by the rugged terrain (rock outcrops, steep topography) and dense forested vegetation (coniferous and deciduous). The existing ROW and overhead transmission line are prominently visible to trail users at and in the immediate vicinity of the trail crossing during either "leaf off" or "leaf on" conditions. However, the ROW crosses the trail perpendicularly, and bends in the trail both northwest and southeast of the ROW generally prohibit long views of the transmission line structures except at and close to the ROW crossing. Visual conditions along the Park's Red Trail are similar to those described for the Mattatuck Trail.

- **Thomaston Fish & Game Club, Thomaston**. The Proposed Route would be located within Eversource's existing 250-foot-wide ROW across approximately 0.24 mile of the privately-owned Thomaston Fish and Game Club lands in the Town of Thomaston. The club's property is located off Old Northfield Road.

- **Northfield Brook Lake and Recreation Area, Thomaston**. Northfield Brook Lake Recreation Area is a 208-acre day use park, owned by the USACE and located north of State Route 254. The area includes an 8-acre lake (which CT DEEP stocks with trout), small beach and swimming area, picnic areas (with picnic shelters, grills), and a 1.7-mile self-guided hiking trail. This area also is a CT DEEP-designated deer and turkey bow hunting area. The Eversource ROW crosses approximately 0.07 mile through the northern portion of the recreation area, near the entrance off State Route 254. The self-guided trail crosses the ROW near Northfield Brook, as well as in an

[5] The 314 acres includes approximately 173 acres of USACE land and 141 acres of CT DEEP land.

upland area east of the park access road. The transmission lines are visible across the recreation area's park access road, as well as from the park trail crossing located east of this access road.

- **Humaston Brook State Scenic Reserve, Litchfield**. Located approximately 0.3 mile west of the ROW in the Town of Litchfield, Humaston Brook State Park / Scenic Reserve encompasses approximately 141 acres and is used primarily for hiking and fishing. The park is undeveloped. Because of intervening topography and vegetation, there are no views of the Eversource ROW to or from this park.
- **ConnDOT Scenic Land Strips: State Route 8, Litchfield.** Two small parcels of ConnDOT scenic land strips are located along the State Route 8 corridor, approximately 0.25 mile south/southeast of the Eversource ROW in the Town of Litchfield. Due to topography, vegetation, and bends in State Route 8, there are no views of the ROW from these parcels.
- **Thomaston Dam and Naugatuck River Greenway, Litchfield / Harwinton.** This USACE-owned area encompasses approximately 850 acres along both sides of the Naugatuck River in the towns of Thomaston, Litchfield, Harwinton, and Plymouth. The area includes Thomaston Dam, which is part of the USACE's network of flood control dams built to control flooding in the Naugatuck River Basin. The is managed for a variety of recreational uses, including hiking, snowmobiling, trail biking, fishing, picnicking, model airplane flying, and upland hunting (pheasant, small game, waterfowl, deer bow hunting, turkey).

  The U.S. Department of the Interior, National Park Service ([NPS]; Rivers, Trails and Conservation Assistance Program[6]) is working with towns along the Naugatuck River to create a Naugatuck River Greenway, which would extend for 44 miles along the river between the towns of Torrington and Derby. In the Project area, this trail would extend along the USACE-owned land along the river.

  The Proposed Route would include an approximately 0.4-mile span of the Naugatuck River and associated USACE recreational areas. Along this 0.4-mile segment of ROW, lattice steel structures support the two 115-kV lines that presently cross the river. The existing 115-kV lines and associated lattice steel structures are visible at and in the immediate vicinity of the ROW crossing of the river. Along this 0.4-mile segment of ROW, the lattice steel structures would be replaced with monopoles (one for each 115-kV circuit). The existing 115-kV lines span the river at a higher elevation than the trees that grow in the river valley. As a result, views of the existing lines are limited to at and in the immediate vicinity of the ROW.
- **Hayden Road, Harwinton.** Hayden Road, a town-designated scenic road, abuts Eversource's 42.3-acre property within which the Campville Substation is located. Hayden Road intersects Wildcat Hill Road approximately 200 feet from the Eversource ROW and 0.2 mile south of the Campville Substation.

[6] The NPS's Rivers, Trails, and Conservation Assistance program provides technical assistance to community groups and government agencies that are planning projects to protect natural areas and water resources and to enhance outdoor recreational opportunities.

Table 3-2: Location of Potential Visual Sites in Relation to the Proposed Project

Town / Map Number; refer to Appendix A	Approximate Location in Relation to Proposed Route	Description of Feature
Watertown		
1	Crosses ROW / Views to east of Frost Bridge Substation	CFPA Jericho-Whitestone Connector Trail and Jericho Trail / Mattatuck State Forest (CT DEEP)
1	Crosses	Veteran's Memorial Park (Town of Watertown)
1	Adjacent	Crestbrook Park and Golf Club
1	0.7 mile to west	Watertown Land Trust, Northfield Road, generally across from Crestbrook Park
1	Crosses	Mattatuck State Forest
1/2	Crosses	Black Rock State Park / CFPA Mattatuck Trail, Park "Red" Trail (CT DEEP)
2	Crosses	Black Rock Lake Dam (overlook) (USACE)
Thomaston		
2	Adjacent; spans Branch Brook	Black Rock Lake and Branch Brook (USACE property)
2	Crosses	Mattatuck State Forest (CT DEEP)
2	Crosses	Thomaston Fish and Game Club
2	Adjacent	Town Open Space (Dug Road)
2	Crosses	Northfield Brook Recreation Area (USACE)
2	0.1 mile to west	Mattatuck State Forest (CT DEEP)
Litchfield		
3	0.28 mile to west	Humaston Brook State Park Scenic Reserve (CT DEEP)
3	0.25 mile southeast	ConnDOT Scenic Land Strips along State Route 8
3	Crosses	Thomaston Dam Recreation Area / Naugatuck River Greenway (USACE)
Harwinton		
3	Crosses	Thomaston Dam Recreation Area / Naugatuck River Greenway (USACE)
3	200 feet from ROW– 0.2 mile to south/southeast of Campville Substation	Hayden Road (local scenic road)

Note: Sites in proximity to the Proposed Route also are illustrated on the Volume 5 maps.

Figure 3-1: CFPA Jericho Trail and Mattatuck State Forest: Eversource ROW, Town of Watertown

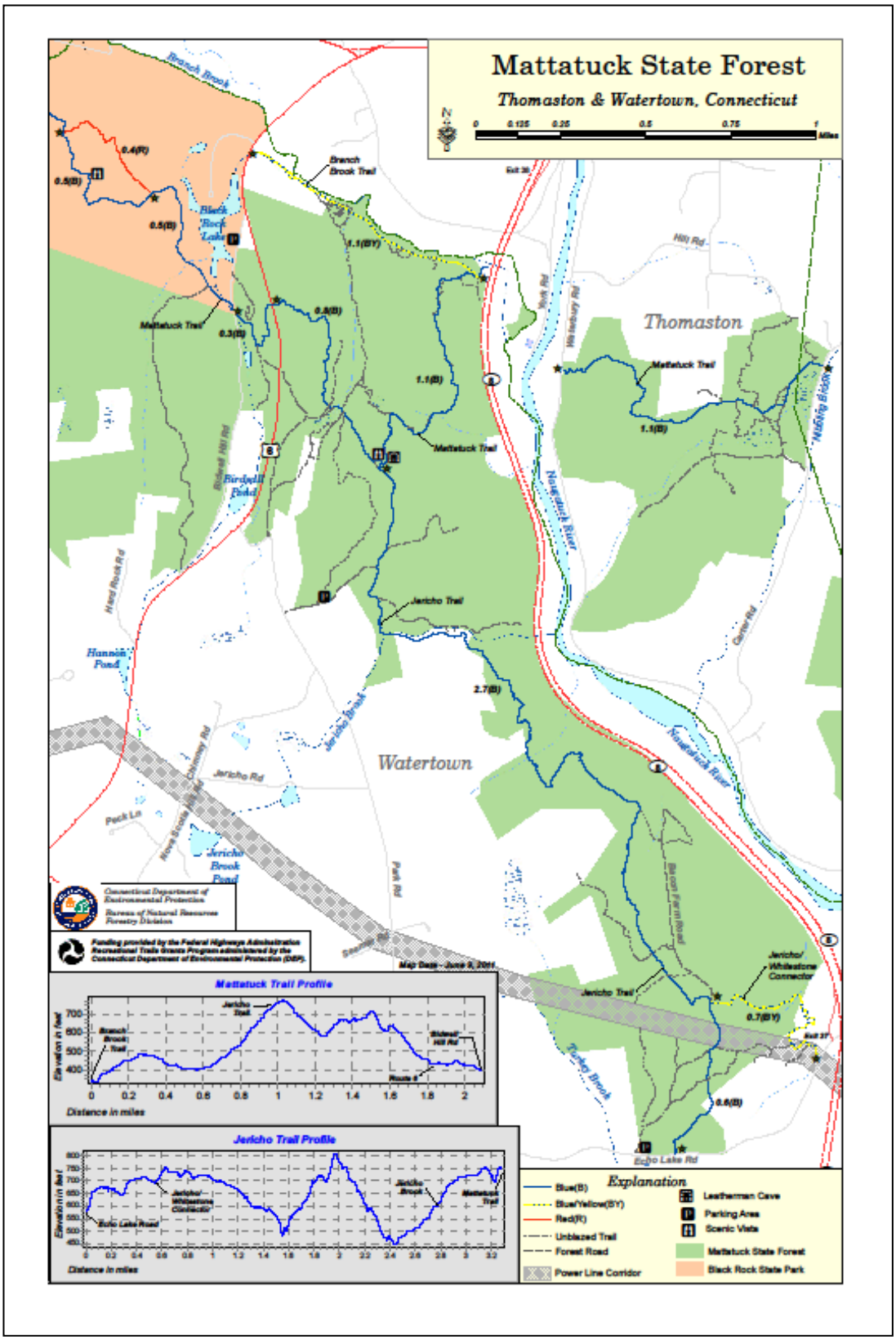
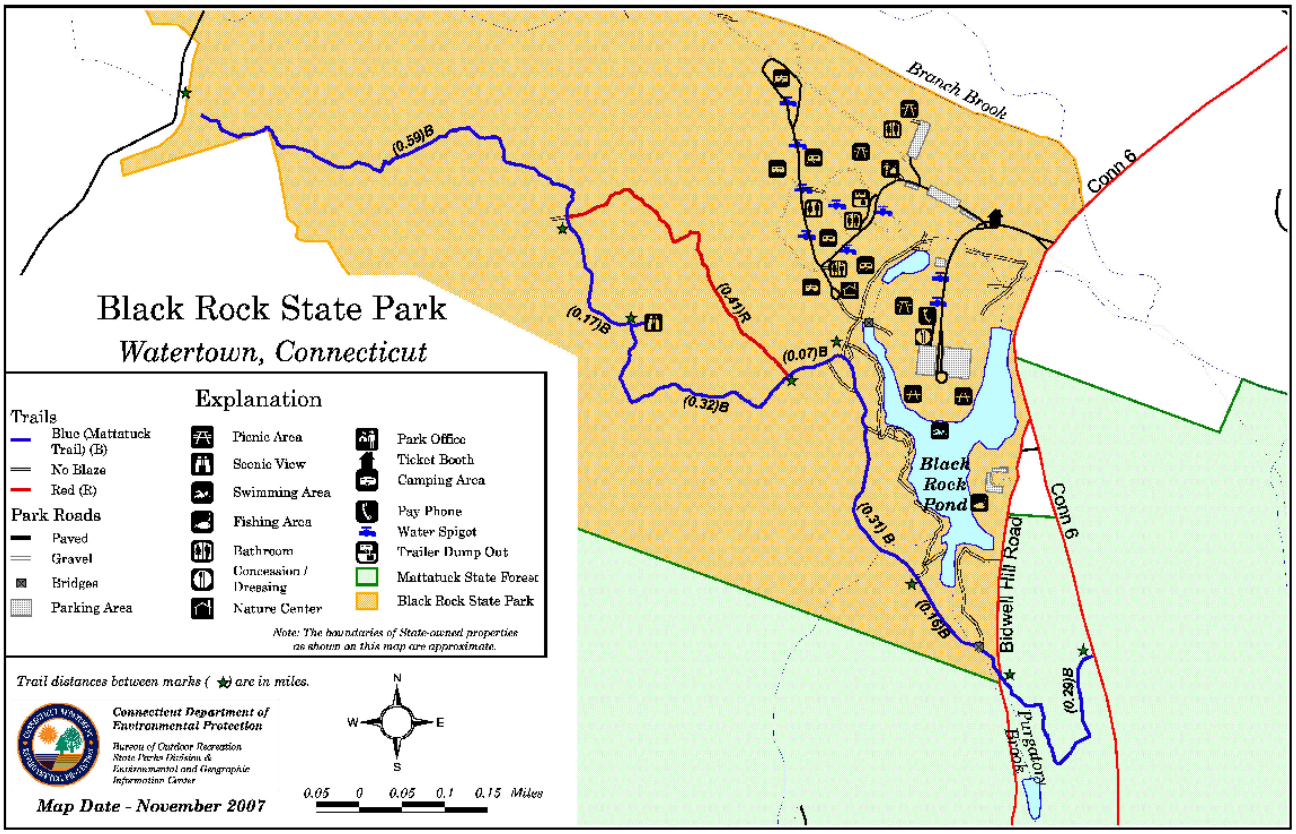
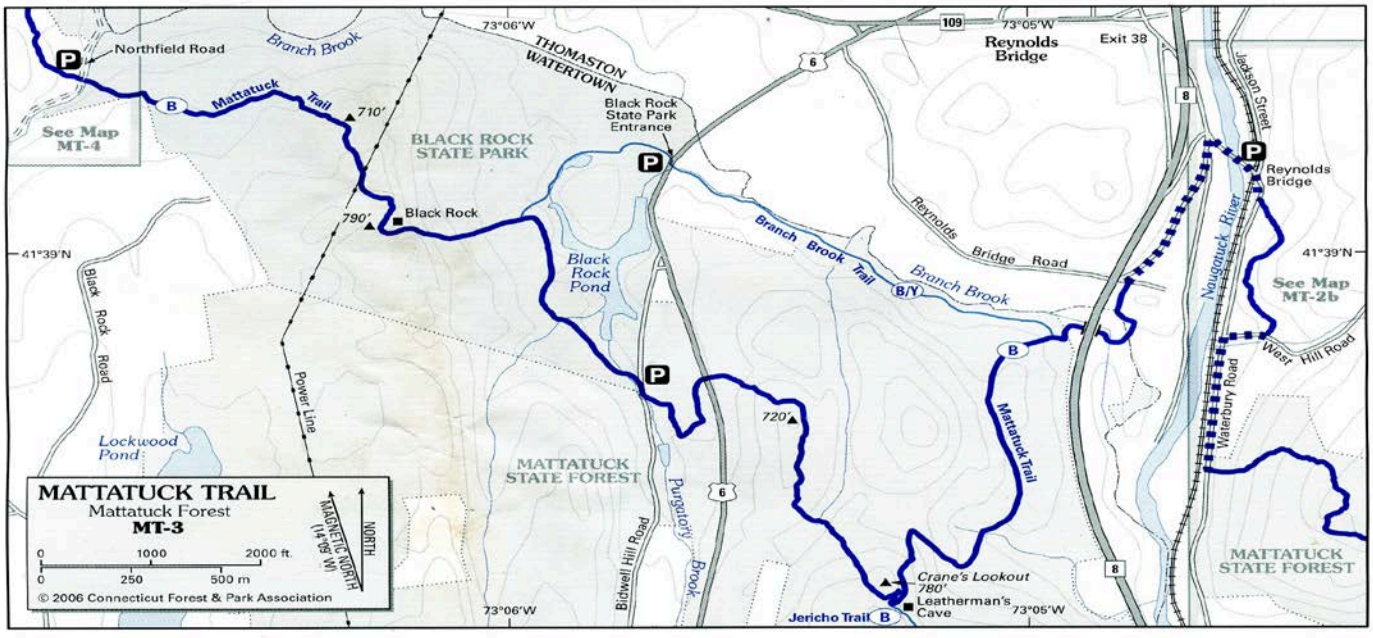


Figure 3-2: **Black Rock State Park / CFPA Mattatuck Trail, Town of Watertown**





4. RESULTS

4.1 SUMMARY OF FIELD VISITS AND PHOTO-SIMULATIONS

Eversource's consultants visited each of the accessible visual sites identified in Table 3-2 and photographed each site from which the existing ROW or transmission line structures are visible. Appendix B includes representative photographs (under both "leaf off" and "leaf on" conditions) of the sites from which the existing transmission lines are visible, either in foreground or background views. Table 4-1 identifies the sites from which the existing Eversource transmission facilities are visible during "leaf off" and "leaf on" conditions, based on the field visits. In most cases, distant views of the existing transmission lines from sites remote from the ROWs were found to be precluded by intervening topography, vegetation, and land uses.

For each site with views of the existing transmission line, Table 4-1 identifies its location in relation to the existing Eversource ROW and summarizes its known aesthetic, recreational, or cultural attributes. Overall, the primary scenic areas from which the existing transmission lines are visible include the Jericho Trail, Mattatuck Trail within Black Rock State Park, Black Rock Lake overlook, Northfield Brook Recreation Area (intra-park trail crossing), and Naugatuck River greenway.

At each of the six location where views of the proposed transmission line were identified as a potentially noticeable component of the local view scape, Eversource prepared photo-simulations depicting views of the ROW (illustrating the new and existing transmission lines) under two conditions:

(1) During the early spring (April 2015), when no deciduous vegetation was present (i.e., "leaf off" conditions); and

(2) During the late spring/summer (late May 2015), when deciduous vegetation had leafed out (i.e., "leaf on" conditions).

While the "leaf off" conditions would represent the time periods when the ROWs and transmission lines would be most visible, the "leaf on" conditions would be more representative of the seasons when the public is most apt to utilize the public recreational facilities in the vicinity of the Proposed Route. Table 4-2 identifies the areas for which photo-simulations were prepared. The photo-simulations are included in Appendix C.

Table 4-1: Summary of Potential Visual Sites Traversed by or in the Vicinity of the Proposed Route with Views of the existing Eversource Transmission Lines

Town / Potential Visual Site / Photo-Simulation	Volume 5 Mapsheet No./ Relation to ROW	Feature Information	Summary Results of Field Review
Watertown			
Jericho Trail / Mattatuck State Forest PS-1	1 Crosses	The Jericho Trail is a CFPA "blue-dot" trail that connects to the CFPA's Mattatuck Trail. The Jericho Trail is accessible from Echo Lake Road, through the Mattatuck State Forest.	The Jericho Trail crosses the 400-foot-wide ROW, most of which Eversource presently manages in low-growth vegetation consistent with overhead transmission line use. At the ROW crossing, the Jericho Trail is a relatively wide, asphalt pathway. A steep slope extends to the northwest, limiting views along the ROW in that direction. However, views to the east are unobstructed, with the existing transmission lines and Frost Bridge Substation clearly visible. Due to topography and forest vegetation adjacent to the ROW, views of the transmission lines / ROW from other portions of the trail are precluded or limited.
Veterans Memorial Park PS-2	2 Crosses	Town of Watertown park that provides year-round recreational opportunities	Eversource ROW crosses the northeastern boundary of the park. The new 115-kV line will be located toward the center of the existing 400-foot-wide ROW. The existing transmission lines are slightly visible above the tree line from the park's ball fields that border the ROW, as well as from the park's entrance road, across Jericho Brook Pond.
Black Rock State Park / Mattatuck Trail PS-3	4 Crosses	CFPA Trail that extends through Black Rock State Park, also connecting to the Park's "Red Trail"	The 250-foot-wide Eversource ROW extends along the western portion of the park, crossing the trail in a rugged location. Views of the ROW are limited to the immediate vicinity of the crossing, due to the topography, dense vegetation, and bends in the Trail.
Watertown/Thomaston			
Black Rock Lake Dam Overlook PS-5	4 Crosses	Public access on top of dam that offers views of the lake, and to the hills to the east and north	From portions of this overlook, the existing and proposed 115-kV transmission structures are visible on a wooded slope that extends north-northeast from State Route 109.
Thomaston			
Northfield Brook Recreation Area PS-6	6 Crosses	"Yellow" trail located north of the recreation areas's access road	The "Yellow Trail", a narrow hiking trail, crosses the Eversource ROW, which is occupied by two 115-kV lines. At the trail crossing, the ROW is visible along the hillside to the south of State Route 254, toward Walnut Hill Junction.
Litchfield / Harwinton			
Naugatuck River / Thomaston Dam Trails PS-7	8 Crosses	ATV / Snowmobile / hiking trails / fishing area along Naugatuck River greenway	Eversource ROW spans the river and river valley in an area characterized by rugged topography and dense forest. The transmission lines span the river above the height of the riparian forest vegetation, requiring no clearing along the ROW at the river. This vegetation limits views of the transmission lines from most areas other than at the immediate ROW crossing. Removal of existing lattice steel structures and replacement with monopoles on either side of the river (double circuit separation) will potentially improve the visual setting. . ROW and transmission line structures are / will be visible from Valley Road in Harwinton.

Table 4-2: Locations of "Leaf Off" and "Leaf On" Photo-Simulations: Visual Sites

Town	Location of Photo-Simulation	General View
Watertown	Jericho Trail, crossing within Mattatuck State Forest	Looking south from the Hop River Trail, located south of U.S. Route 6.
Watertown	Veterans Memorial Park	View from park baseball field, looking north toward ROW.
Watertown	Mattatuck Trail Crossing, Black Rock State Park	View from road looking east along ROW
Watertown / Thomaston	Black Rock Lake Dam overlook	Looking northeast from overlook toward ROW extending up hillside in Thomaston
Thomaston	Northfield Brook Recreation Area	View to south (toward Walnut Hill Junction) from recreation area's "Yellow" Trail
Harwinton	Naugatuck River Crossing (Naugatuck Greenway / Thomaston Dam Recreational Trails	View from Valley Road in Harwinton toward ROW on west side of Naugatuck River in Litchfield

4.2 CONCLUSIONS

Based on the field inspections and photo-simulations, the proposed Project would not have a significant effect on the aesthetic environment near most visual sites and – in the case of the removal of the lattice steel structures at the Naugatuck River crossing and their replacement with less-intrusive monopoles – would have a positive visual effect. For the most part, views of the proposed transmission facilities from visual sites, like the views of the existing ROW and existing overhead transmission lines, will be limited as a result of combinations of distance from the ROW, topography, dense vegetative cover, and/or intervening land development. Further, any visual impacts associated with the new 115-kV transmission line will be incremental because the aesthetic environmental along and in the vicinity of the Eversource ROW is already influenced by the various existing overhead transmission lines facilities.

At certain visual sites traversed by the Eversource ROW, the new transmission line would be visible at or in the immediate vicinity of the ROW crossing. The photo-simulations show that the new transmission line would have a focused, incremental effect on the visual environment in these areas. This effect would result from both views of the transmission line structures / conductors and additional removal of forested vegetation along the ROW near the new 115-kV line.

Because of topography and vegetation, the new transmission line would be most apparent in the foreground at the actual ROW crossing locations. Distant views of the new transmission lines would generally be limited by the juxtaposition of the ROW, topography, and vegetation. Long views of the ROW are, however, apparent from Black Rock Lake Dam (view to the northeast) and from the eastern "yellow trail" crossing in Northfield Brook Recreation Area (view to the southwest).

Vegetation particularly limits the view of the ROW and transmission line structures during "leaf on" conditions, but also provides effective screening from most locations during "leaf off" conditions (due to the density of deciduous vegetation [i.e., tree trunks] or the presence of coniferous vegetation that provides year-round visual screening). In addition, at some visual sites (e.g., the Jericho Trail, Mattatuck Trail, and short trails within Black Rock State Park and Northfield Brook Recreation Area), the bends in the trails preclude long views of the ROW and transmission line structures except at the actual ROW crossings.

From the recreational trails adjacent to the Naugatuck River, views of the existing transmission lines are limited to directly at or in the immediate vicinity of the ROW. The colored marker balls on the conductors are visually apparent from portions of the trails close to the ROW and at/near the ROW crossing along Valley Road in Harwinton. At and close to the actual ROW crossing, views of the existing lattice steel towers located on either side of the river are apparent. The existing transmission lines span the river and river valley at a high elevation; except along the ROW east of Valley Road in Harwinton, Eversource performs no forest vegetation removal for ROW management in this area. As a result, the existing forest vegetation, combined with bends in the river, serves to minimize views of the existing transmission lines. It is expected that views of the new transmission line and the separated existing 115-kV circuits would be similarly screened, since no ROW forested vegetation removal is planned in the Naugatuck River valley. Further, the removal of the lattice steel structures and replacement with less-intrusive monopoles (all within the existing Eversource ROW) would have an incremental positive effect on the visual setting in this area.

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APPENDIX A: PROPOSED LINE ROUTE MAP WITH VISUAL SITES

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Black Rock Lake
Black Rock State Park
Mattatuck Trail
Mattatuck Trail
Town of Watertown
Waterbury YMCA
Crestbrook Park & Golf Club
Town Open Space (Rear of Linkfield Road)
Town Open Space (Rear of Honey Hill Road)
Purgatory Jct.
PS-3
Watertown
Veterans Memorial Park
PS-2
Mattatuck State Forest
Thomaston
Carter Road (473)
Wilton Pond
Mount Tobe
Camp Mattatuck (Boy Scouts)
Whitestone Cliffs Trail
Jericho Trail
Jericho/ Whitestone Connector
PS-1
Frost Bridge
Mount Saint James Cemetery
Echo Lake Park
Polk School
Key Map
Harwinton
Litchfield
3 of 3
2 of 3
Thomaston
Watertown
1 of 3

Substation
Junction
Proposed 115-kV Transmission Line Route within Existing Eversource ROW
Photo Simulation Location/Number (PS-X)
Representative Photo Location
Site Visited (No Views of ROW)

Hiking Trails
Blue Trail
Red Trail
Yellow Trail

Protected Open Space
Federal
State
Municipal
Private

Thomaston Dam Off Highway Vehicle Trail
DOT Scenic Land Strips
Town Boundary

Note: Scale is 1"=2,000' (1:24,000) when printed at 11" x 17".

NORTH
2,000 1,000 0 2,000
Scale in Feet

EVERSOURCE

Frost Bridge to Campville Project
Photo Locations on USGS Maps
Proposed Line Route
Sheet 1 of 3

Issued: 6/29/2015

Source: USGS 7.5-Minute Quadrangles, CT DEEP, CT ECO, ESRI, and Burns & McDonnell Engineering.

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Humaston Brook State Park Scenic Reserve
Northfield Cemetery
Northfield Brook Lake Trail
Thomaston Dam (USACE)
PS-7
Litchfield
Northfield Brook Lake (USACE)
Humiston Park (owned By Thomaston)
Walnut Hill Jct.
PS-6
Nystroms Park
Saint Thomas Cemetery
Plymouth Center School
Plymouth Land Trust
Thomaston
Plymouth Center Playground
Thomaston Fish & Game Club
West Side Cemetery
Town Open Space (Dug Road)
Hillside Cemetery
Mattatuck Trail
Black Rock Lake
PS-5
Black Rock Elementary & Thomaston High Schools
Watertown
Mattatuck Red Trail
Mattatuck Trail
PS-4
Black Rock State Park
Mattatuck State Forest
Hancock Brook Dam (USACE)
Crestbrook Park & Golf Club

Key Map

Harwinton
Litchfield
3 of 3
2 of 3
Thomaston
Watertown
1 of 3

Substation
Junction
Proposed 115-kV Transmission Line Route within Existing Eversource ROW
Photo Simulation Location/Number (PS-X)
Representative Photo Location
Site Visited (No Views of ROW)

Hiking Trails
Blue Trail
Red Trail
Yellow Trail

Protected Open Space
Federal
State
Municipal
Private

Thomaston Dam Off Highway Vehicle Trail
DOT Scenic Land Strips
Town Boundary

Note: Scale is 1"=2,000' (1:24,000) when printed at 11" x 17".

NORTH

2,000 1,000 0 2,000
Scale in Feet

EVERSOURCE

Frost Bridge to Campville Project
Photo Locations on USGS Maps
Proposed Line Route
Sheet 2 of 3

Issued: 6/29/2015

Source: USGS 7.5-Minute Quadrangles, CT DEEP, CT ECO, ESRI, and Burns & McDonnell Engineering.

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Litchfield Conservation Trust, Inc.

Mattatuck State Forest

Campville

PS-11

PS-10

Thomaston Dam Off Highway Vehicle Trails

Roraback Wildlife Area

Harwinton

Litchfield

Thomaston Rod & Gun Club

PS-9

PS-8

DOT Scenic Land Strip

Humaston Brook State Park Scenic Reserve

Northfield Cemetery

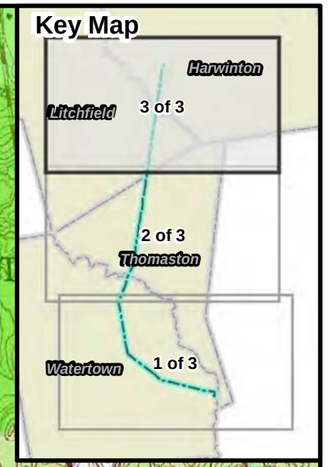
Thomaston Dam (USACE)

Thomaston

Minor Pond

Holt Hill

Key Map



Substation
Junction
Proposed 115-kV Transmission Line Route within Existing Eversource ROW
Photo Simulation Location/Number (PS-X)
Representative Photo Location
Site Visited (No Views of ROW)

Hiking Trails
Blue Trail
Red Trail
Yellow Trail

Protected Open Space
Federal
State
Municipal
Private

Thomaston Dam Off Highway Vehicle Trail
DOT Scenic Land Strips
Town Boundary

NORTH

2,000 1,000 0 2,000
Scale in Feet

Note: Scale is 1"=2,000' (1:24,000) when printed at 11" x 17".

EVERSOURCE

Frost Bridge to Campville Project
Photo Locations on USGS Maps
Proposed Line Route
Sheet 3 of 3

Issued: 6/29/2015

Source: USGS 7.5-Minute Quadrangles, CT DEEP, CT ECO, ESRI, and Burns & McDonnell Engineering.

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APPENDIX B: PHOTOGRAPHS OF POTENTIAL VISUAL SITES

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REPRESENTATIVE PHOTOGRAPHS

“LEAF OFF” CONDITIONS APRIL

2015

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Photographs of Visual Sites: "Leaf Off Conditons" April 2015

Photo 1: Jericho Trail, Mattatuck State Forest, Watertown. View to north of Trail (asphalt) crossing at Eversource ROW.

Photo 2: View of Frost Bridge Substation from Jericho Trail, Watertown. View to east along ROW from Trail crossing.

Photo 3: Jericho Trail, Mattatuck State Forest, Watertown. View of trail, looking south along ROW at existing 1238 Line (115 kV).

Photo 4: Jericho Trail, Mattatuck State Forest, Watertown. View of trail to south of ROW crossing. Trail is typically located in dense woods, which preclude long views of ROW.

Photographs of Visual Sites: "Leaf Off Conditons" April 2015

Photo 5: Veterans Memorial Park, Watertown. View from park access road across pond, toward ROW. Existing transmission line structures and conductors visible.

Photo 6: Veterans Memorial Park, Watertown. View from parking area / walking path near southern portion of park. Existing transmission line structure visible.

Photo 7: Veterans Memorial Park, Watertown. View of park playscape and pavilion, looking north toward ROW. Existing transmission line structures and conductors not visible due to intervening vegetation and distance.

Photo 8: Nova Scotia Hill Road, Watertown. View southeast along ROW, toward Veterans Memorial Park, illustrating types of existing structures that occupy the ROW.

Photographs of Visual Sites: "Leaf Off Conditons" April 2015

Photo 9: Crestbrook Park &Golf Course, Watertown. View from park access road across, east toward park facilities and ROW. Existing transmission line structures and conductors not visible.

Photo 10: Crestbrook Park & Golf Course, Watertown. View northeast across lake, toward ROW. Existing transmission line structures not visible.

Photo 11: Black Rock State Park, Mattatuck Trail, Watertown. View to north along Eversource ROW at Trail crossing.

Photo 12: Black Rock State Park, Mattatuck Trail, Watertown. View to south of existing Eversource ROW, vicinity of Trail crossing. Eversource gravel access road.

Photographs of Visual Sites: "Leaf Off Conditons" April 2015

Photo 13: Black Rock State Park, Mattatuck Trail, Watertown. View of trail through dense woods near Eversource ROW. Vegetation precludes views of ROW except at/near crossing.

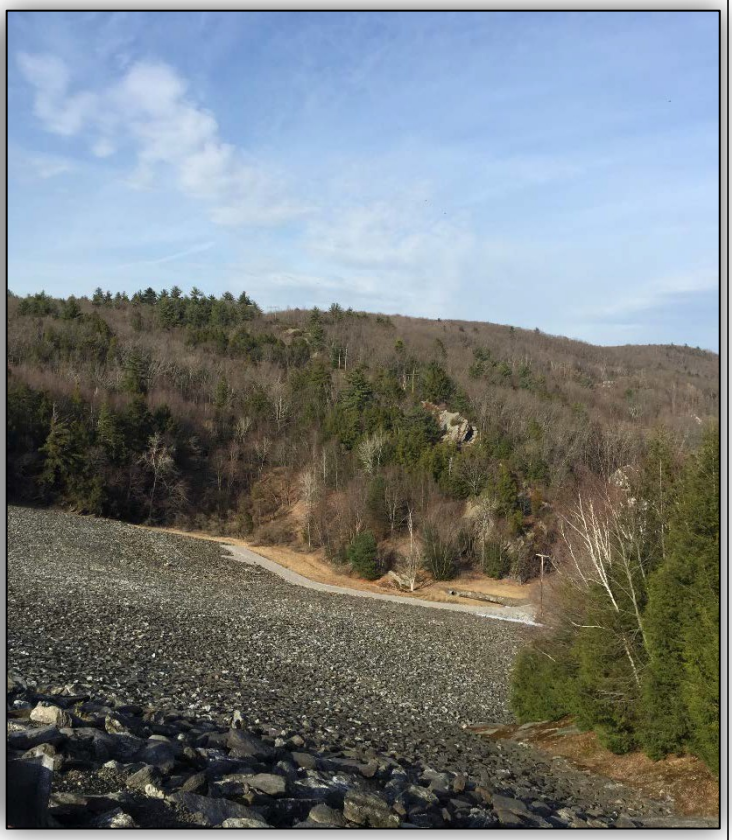

Photo 14: Black Rock Lake Dam, Watertown/Thomaston. View from dam overlook to northeast toward view of ROW traversing hillside north of State Route 109.

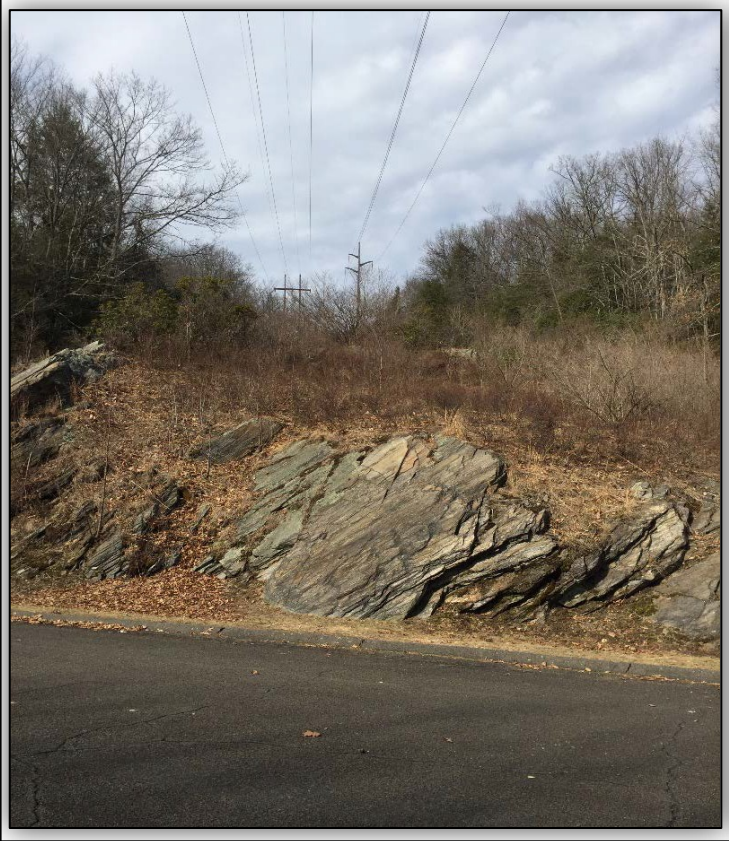

Photo 15: Northfield Brook Recreation Area, Thomaston. View to north of ROW crossing, recreation area access road.

Photo 16: Northfield Brook Recreation Area, Thomaston. View to south (toward Walnut Hill Junction) from "Yellow" hiking trail crossing of Eversource ROW.

Photographs of Visual Sites: "Leaf Off Conditons" April 2015

Photo 17: Naugatuck River, Litchfield / Harwinton. View south from Campville Road Bridge, toward ROW. Existing transmission line structures and conductors are not visible.

Photo 18: Valley Road, Harwinton. View south toward existing transmission line; conductors and marker balls span the road. Naugatuck River is to the west (not visible in photograph).

Photo 19: Valley Road, Harwinton. View to northeast of existing transmission line ROW.

Photo 20: Valley Road, Harwinton. View to southwest of existing transmission line ROW, looking across Naugatuck River toward State Route 8.

Photographs of Visual Sites: "Leaf Off Conditons" April 2015

Photo 21: Wildcat Hill Road, Harwinton. View west along ROW near Campville Substation.

Photo 22: Wildcat Hill Road, Harwinton. View east along ROW toward Campville Substation.

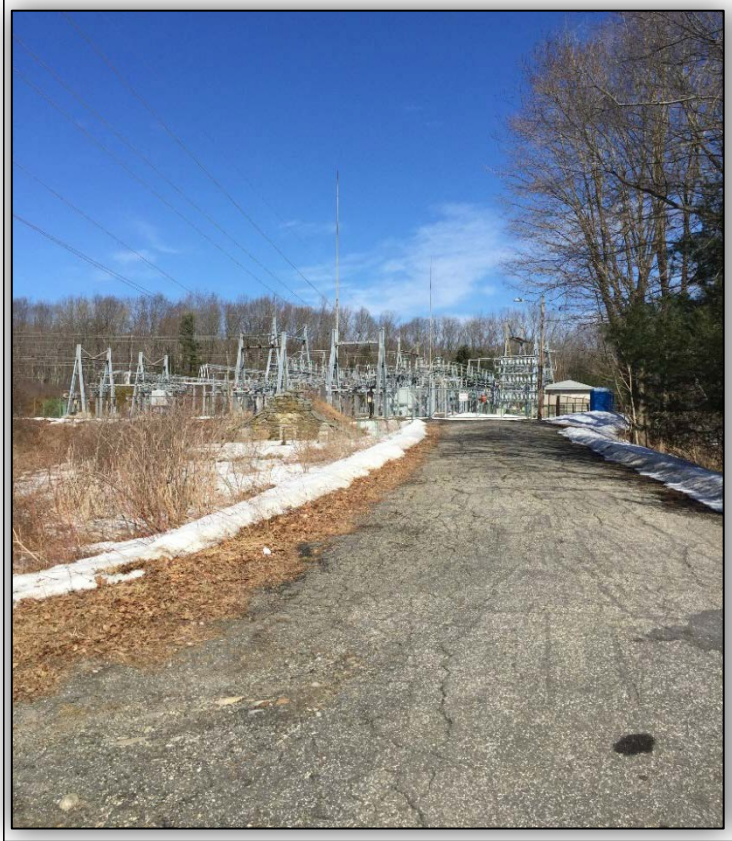

Photo 23: Campville Substation, Harwinton. View to east, substation access road entrance off Wildcat Hill Road.

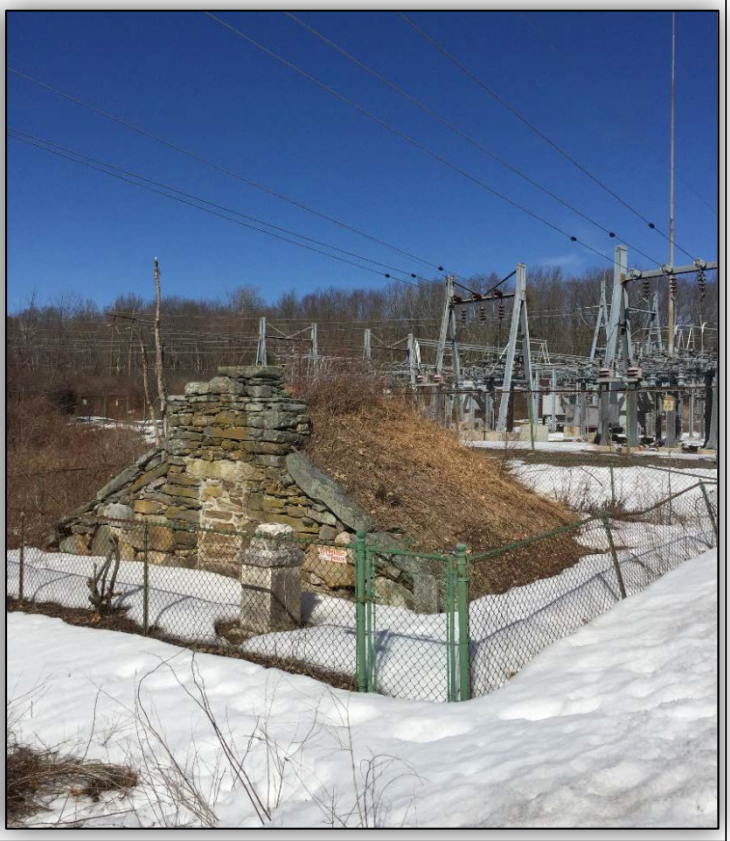

Photo 24: Campville Substation, Harwinton. Grave marker (and burial site) fenced off in front of substation entrance.

REPRESENTATIVE PHOTOGRAPHS

“LEAF ON” CONDITIONS

MAY 2015

(Note: No photographs taken at potential visual sites where no views of ROW were observed under “leaf off” conditions.)

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Photographs of Visual Sites: "Leaf On Conditons" May 2015

Photo 1: Echo Valley Road, Watertown. View of Jericho Whitestone Connector Trail marking / trail along road and ROW.

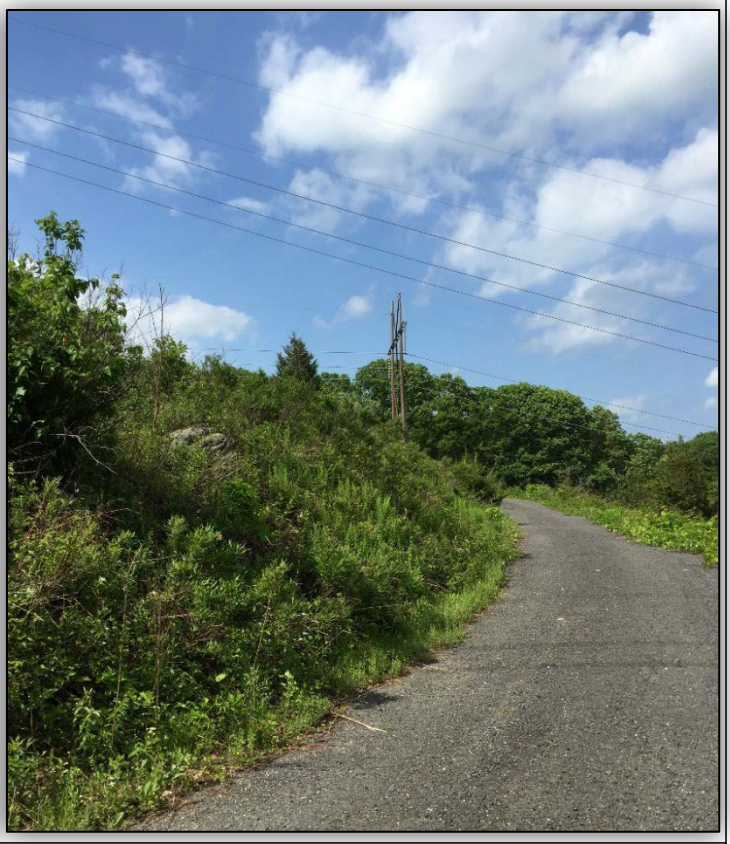

Photo 2: Jericho Trail, Mattatuck State Forest, Watertown. View to north of Trail (asphalt) crossing at Eversource ROW.

Photo 3: View of Frost Bridge Substation from Jericho Trail, Watertown. View to east along ROW from Trail crossing.

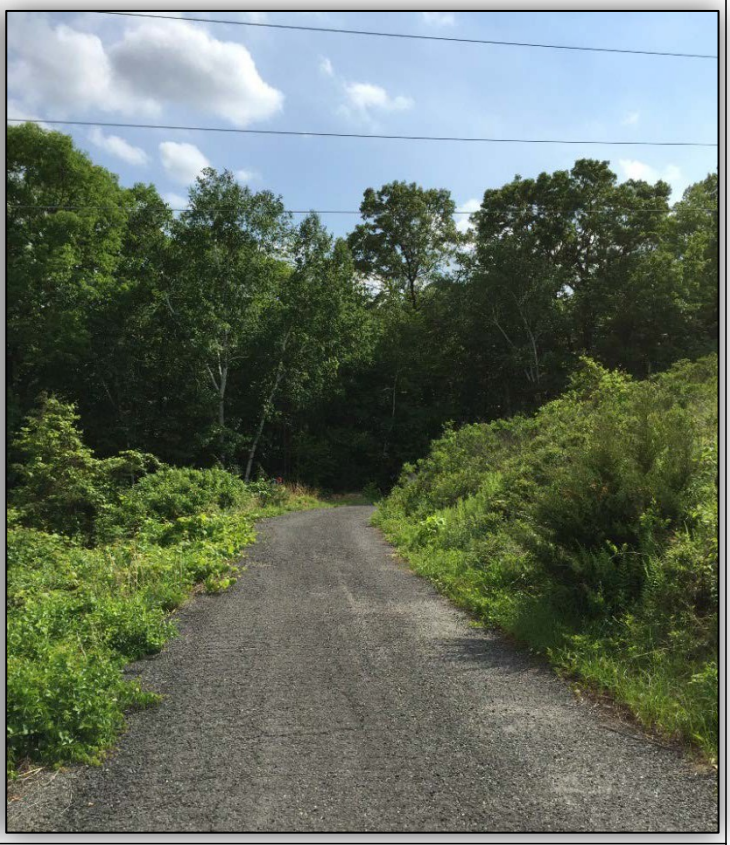

Photo 4: Jericho Trail, Mattatuck State Forest, Watertown. View of trail, looking south along ROW.

Photographs of Visual Sites: "Leaf On Conditons" May 2015

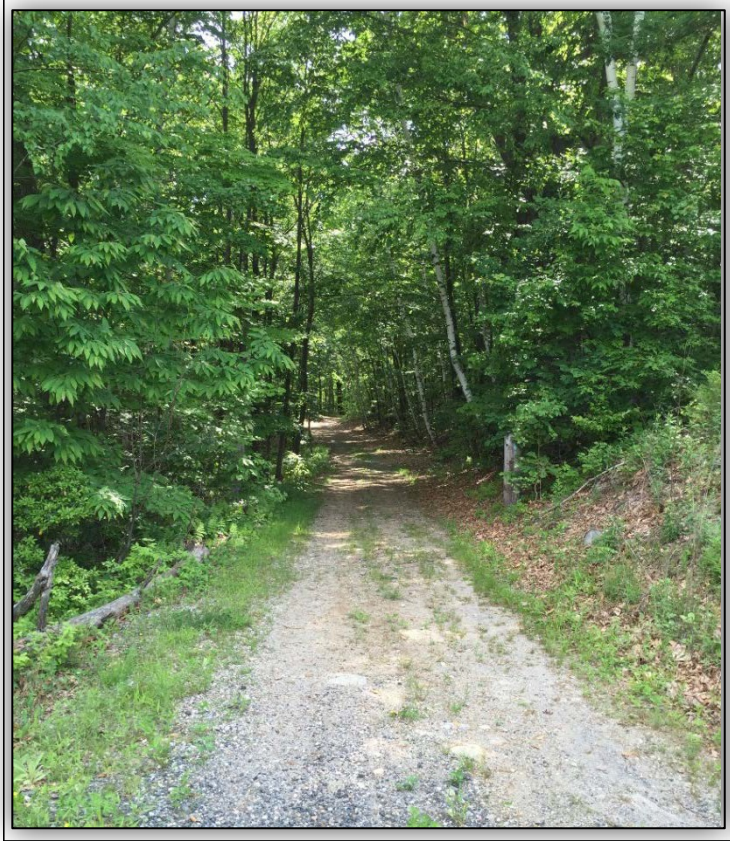

Photo 5: Jericho Trail, Mattatuck State Forest, Watertown. View of trail extending into woods south of ROW. Trail is typically located in dense woods, which preclude long views of ROW.

Photo 6: Veterans Memorial Park, Watertown. View from park access road across pond, toward ROW. Existing transmission line structures and conductors visible.

Photo 7: Veterans Memorial Park, Watertown. View from parking area / walking path near southern portion of park near ball fields. Existing transmission line structure visible above tree line.

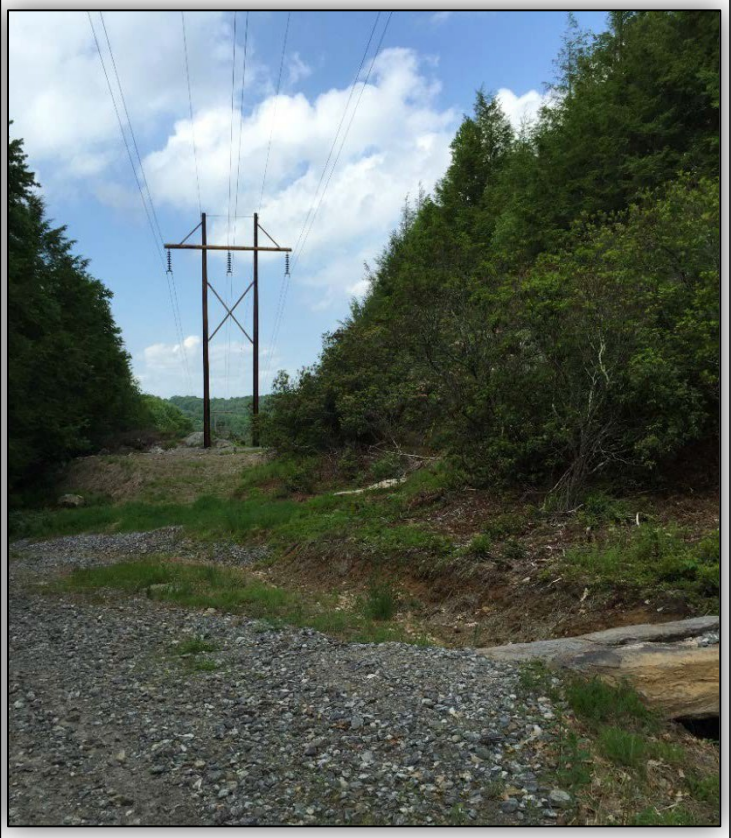

Photo 8: Black Rock State Park, Mattatuck Trail, Watertown. View to north along Eversource ROW at Trail crossing.

Photographs of Visual Sites: "Leaf On Conditons" May 2015

Photo 9: Black Rock State Park, Mattatuck Trail, Watertown. View to south of existing Eversource ROW, vicinity of Trail crossing. Eversource gravel access road.

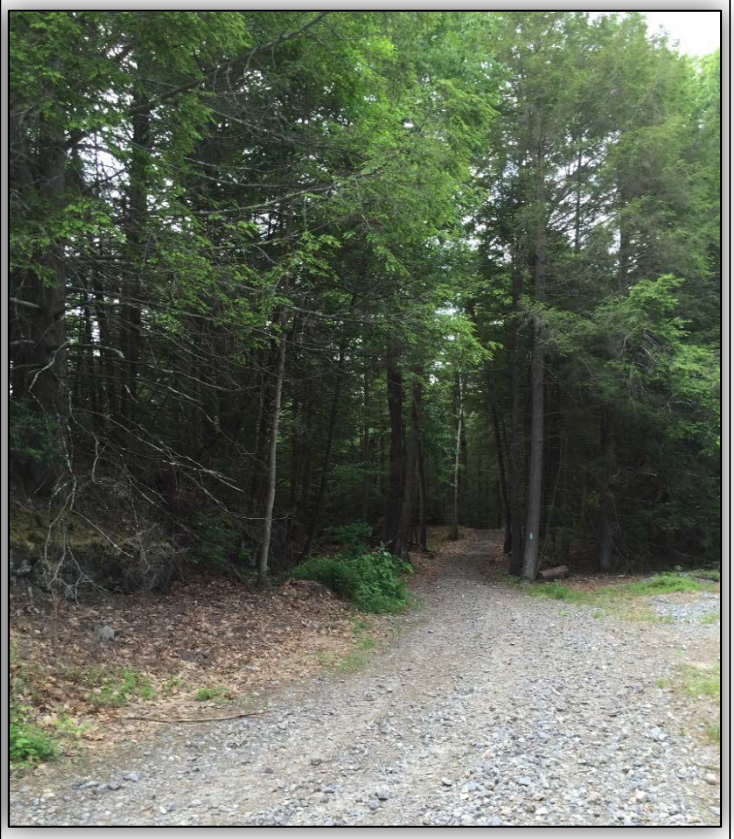

Photo 10: Black Rock State Park, Mattatuck Trail, Watertown. View of trail through dense woods near ROW. Vegetation precludes views of ROW except directly near crossing.

Photo 11: Northfield Brook Recreation Area, Thomaston. View to north of ROW crossing, recreation area access road.

Photo 12: Northfield Brook Recreation Area, Thomaston. View to south of ROW crossing, from recreation area access road.

Photographs of Visual Sites: "Leaf On Conditons" May 2015

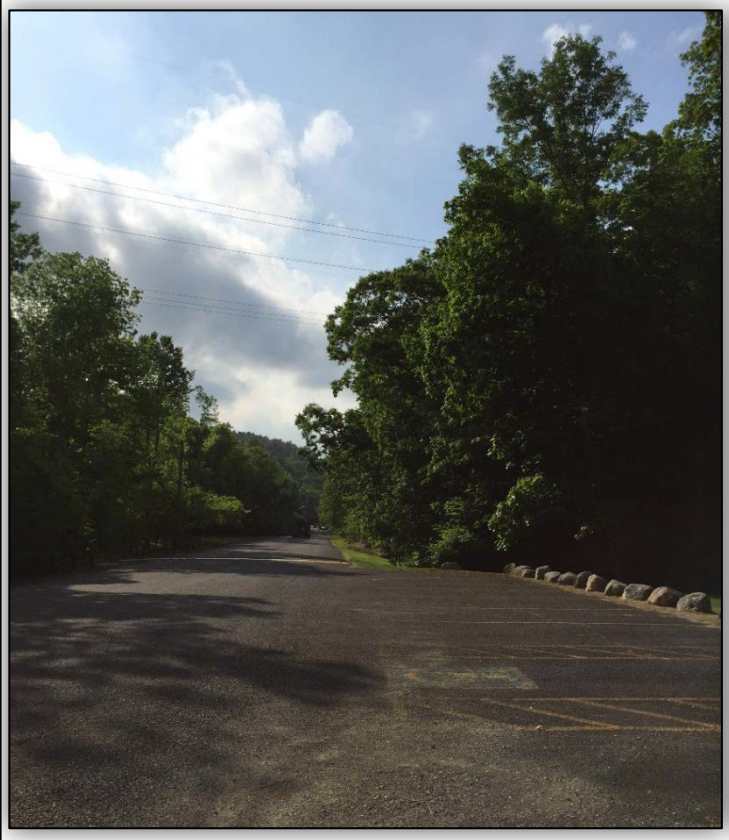

Photo 13: Northfield Brook Recreation Area, Thomaston. View to west of Eversource ROW across recreation area access road. Photographed from picnic area.

Photo 14: Valley Road, Harwinton. View south toward existing transmission line; conductors and marker balls span the road. Naugatuck River is to the west (not visible in photograph).

Photo 15: Valley Road, Harwinton. View to northeast of existing transmission line ROW and double-circuit steel lattice tower to be replaced.

Photo 16: Valley Road, Harwinton. View to southwest of existing transmission line ROW, looking across Naugatuck River toward State Route 8.

APPENDIX C: PHOTO-SIMULATIONS

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Frost Bridge to Campville Project
Connecticut Forest and Parks Association (CFPA) Jericho (Blue-Dot) Trail in Mattatuck State Forest – Town of Watertown
Transmission Rights-of-Way
Typical Cross Section XS-2 / Photo Location PS-1

The two existing 115-kV lines and the one existing 345-kV line will remain and a new delta-configured 115-kV line will be installed.

(Existing Transmission Right-of-Way – Leaf-off Condition)

Existing electric transmission line structures looking west from the CFPA Jericho (Blue-Dot) Trail in the Mattatuck State Forest, located north of Echo Lake Road in Watertown.

(Simulation of the Existing Transmission Right-of-Way – Leaf-off Condition)

Preliminary design of electric transmission line structures looking west from the CFPA Jericho (Blue-Dot) Trail in the Mattatuck State Forest, located north of Echo Lake Road in Watertown.

NOTE: See Drawing XS-2 for a representation of the typical transmission structures, typical heights of the structures, and ROW width for this cross section.

Frost Bridge to Campville Project
Connecticut Forest and Parks Association (CFPA) Jericho (Blue-Dot) Trail in Mattatuck State Forest – Town of Watertown
Transmission Rights-of-Way
Typical Cross Section XS-2 / Photo Location PS-1

The two existing 115-kV lines and the one existing 345-kV line will remain and a new delta-configured 115-kV line will be installed.

(Existing Transmission Right-of-Way – Leaf-on Condition)

Existing electric transmission line structures looking west from the CFPA Jericho (Blue-Dot) Trail in the Mattatuck State Forest, located north of Echo Lake Road in Watertown.

(Simulation of the Existing Transmission Right-of-Way – Leaf-on Condition)

Preliminary design of electric transmission line structures looking west from the CFPA Jericho (Blue-Dot) Trail in the Mattatuck State Forest, located north of Echo Lake Road in Watertown.

NOTE: See Drawing XS-2 for a representation of the typical transmission structures, typical heights of the structures, and ROW width for this cross section.

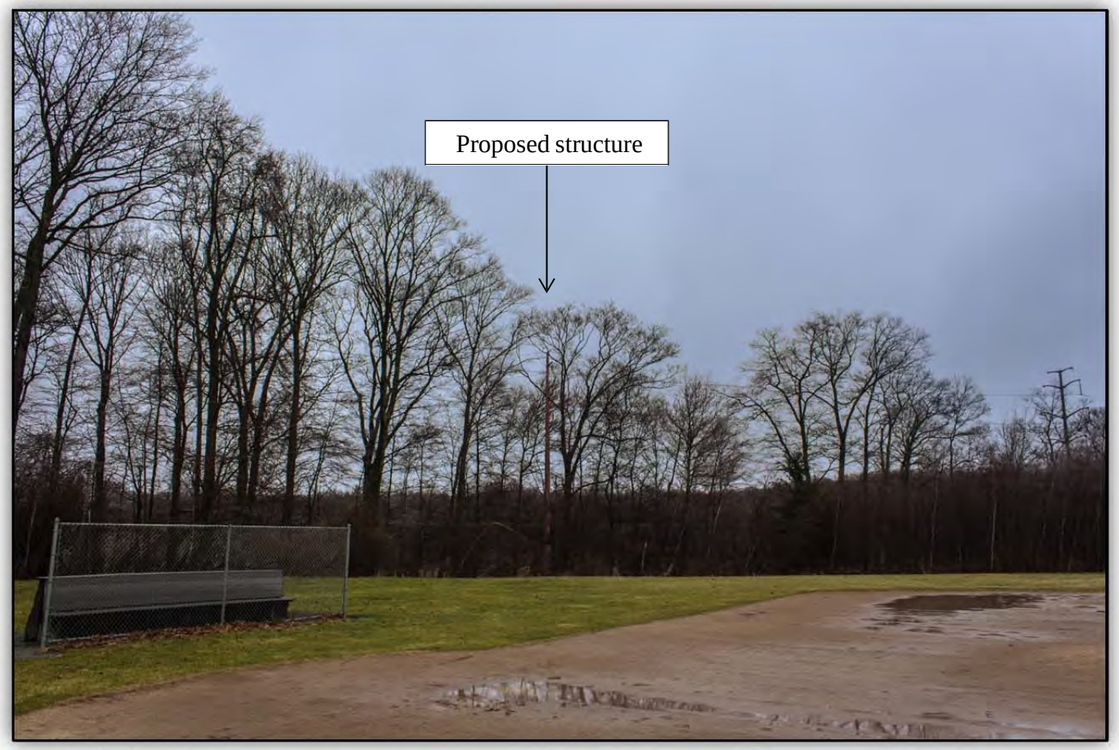
Frost Bridge to Campville Project
Veteran's Memorial Park – Town of Watertown
Transmission Rights-of-Way
Typical Cross Section XS-2 / Photo Location PS-2

The two existing 115-kV lines and the one existing 345-kV line will remain and a new delta-configured 115-kV line will be installed.

(Existing Transmission Right-of-Way – Leaf-off Condition)

Existing electric transmission line structures looking northeast from a baseball field in Veteran's Memorial Park, toward the right-of-way.

(Simulation of the Existing Transmission Right-of-Way – Leaf-off Condition)



Preliminary design of electric transmission line structures looking northeast from a baseball field in Veteran's Memorial Park, toward the right-of-way. Proposed structure is barely visible through the trees, as indicated.

NOTE: See Drawing XS-2 for a representation of the typical transmission structures, typical heights of the structures, and ROW width for this cross section.

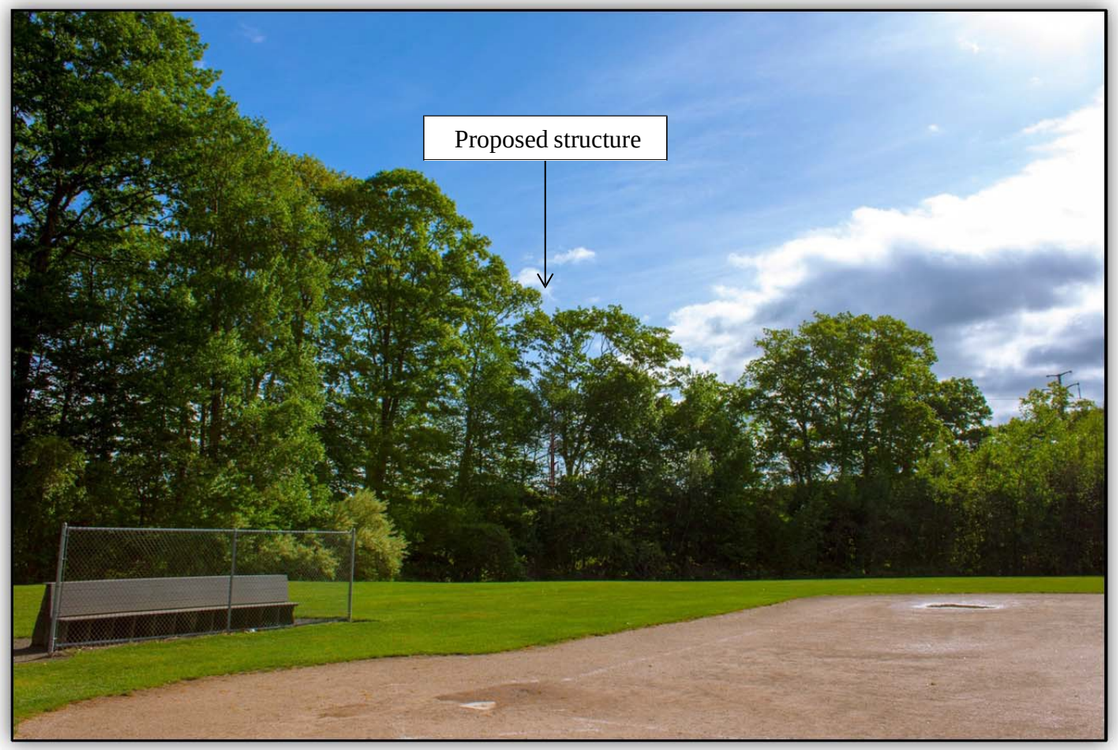
Frost Bridge to Campville Project
Veteran's Memorial Park – Town of Watertown
Transmission Rights-of-Way
Typical Cross Section XS-2 / Photo Location PS-2

The two existing 115-kV lines and the one existing 345-kV line will remain and a new delta-configured 115-kV line will be installed.

(Existing Transmission Right-of-Way – Leaf-on Condition)

Existing electric transmission line structures looking northeast from a baseball field in Veteran's Memorial Park, toward the right-of-way.

(Simulation of the Existing Transmission Right-of-Way – Leaf-on Condition)



Preliminary design of electric transmission line structures looking northeast from a baseball field in Veteran's Memorial Park, toward the right-of-way. Proposed structure is barely visible through the trees, as indicated.

NOTE: See Drawing XS-2 for a representation of the typical transmission structures, typical heights of the structures, and ROW width for this cross section.

Frost Bridge to Campville Project
Connecticut Forest and Parks Association (CFPA) Mattatuck (Blue-Dot) Trail in Black Rock State Park – Town of Watertown
Transmission Rights-of-Way
Typical Cross Section XS-3 / Photo Location PS-4

The existing 115-kV line will remain and a new delta-configured 115-kV line will be installed.

(Existing Transmission Right-of-Way – Leaf-off Condition)

Existing electric transmission line structure looking northeast from the CFPA Mattatuck (Blue-Dot) Trail crossing in Black Rock State Park, located west of Thomaston Road (State Highway 6) in Watertown.

(Simulation of the Existing Transmission Right-of-Way – Leaf-off Condition)

Preliminary design of electric transmission line structure looking northeast from the CFPA Mattatuck (Blue-Dot) Trail crossing in Black Rock State Park, located west of Thomaston Road (State Highway 6) in Watertown.

NOTE: See Drawing XS-3 for a representation of the typical transmission structures, typical heights of the structures, and ROW width for this cross section.

Frost Bridge to Campville Project
Connecticut Forest and Parks Association (CFPA) Mattatuck (Blue-Dot) Trail in Black Rock State Park – Town of Watertown
Transmission Rights-of-Way
Typical Cross Section XS-3 / Photo Location PS-4

The existing 115-kV line will remain and a new delta-configured 115-kV line will be installed.

(Existing Transmission Right-of-Way – Leaf-on Condition)

Existing electric transmission line structure looking northeast from the CFPA Mattatuck (Blue-Dot) Trail crossing in Black Rock State Park, located west of Thomaston Road (State Highway 6) in Watertown.

(Simulation of the Existing Transmission Right-of-Way – Leaf-on Condition)

Preliminary design of electric transmission line structure looking northeast from the CFPA Mattatuck (Blue-Dot) Trail crossing in Black Rock State Park, located west of Thomaston Road (State Highway 6) in Watertown.

NOTE: See Drawing XS-3 for a representation of the typical transmission structures, typical heights of the structures, and ROW width for this cross section.

Frost Bridge to Campville Project
Black Rock Lake Dam – Towns of Watertown and Thomaston
Transmission Rights-of-Way
Typical Cross Section XS-3 / Photo Location PS-5

The existing 115-kV line will remain and a new delta-configured 115-kV line will be installed.

(Existing Transmission Right-of-Way – Leaf-off Condition)

Existing electric transmission line structures looking northeast from the Black Rock Lake dam, located south of Branch Road (State Highway 109) in Watertown and Thomaston.

(Simulation of the Existing Transmission Right-of-Way – Leaf-off Condition)

Preliminary design of electric transmission line structures looking northeast from the Black Rock Lake dam, located south of Branch Road (State Highway 109) in Watertown and Thomaston.

NOTE: See Drawing XS-3 for a representation of the typical transmission structures, typical heights of the structures, and ROW width for this cross section.

Frost Bridge to Campville Project
Black Rock Lake Dam – Towns of Watertown and Thomaston
Transmission Rights-of-Way
Typical Cross Section XS-3 / Photo Location PS-5

The existing 115-kV line will remain and a new delta-configured 115-kV line will be installed.

(Existing Transmission Right-of-Way – Leaf-on Condition)

Existing electric transmission line structures looking northeast from the Black Rock Lake dam, located south of Branch Road (State Highway 109) in Watertown and Thomaston.

(Simulation of the Existing Transmission Right-of-Way – Leaf-on Condition)

Preliminary design of electric transmission line structures looking northeast from the Black Rock Lake dam, located south of Branch Road (State Highway 109) in Watertown and Thomaston.

NOTE: See Drawing XS-3 for a representation of the typical transmission structures, typical heights of the structures, and ROW width for this cross section.

Frost Bridge to Campville Project
Yellow Trail (Northern Crossing) in Northfield Brook Lake Recreation Area – Town of Thomaston
Transmission Rights-of-Way
Typical Cross Section XS-4 / Photo Location PS-7

The two existing 115-kV lines will remain and a new delta-configured 115-kV line will be installed.

(Existing Transmission Right-of-Way – Leaf-off Condition)

Existing electric transmission line structures looking south from the Yellow Trail (Northern Crossing) in Northfield Brook Lake Recreation Area, located northeast of Northfield Road (State Highway 254) in Thomaston.

(Simulation of the Existing Transmission Right-of-Way – Leaf-off Condition)

Preliminary design of electric transmission line structures looking south from the Yellow Trail (Northern Crossing) in Northfield Brook Lake Recreation Area, located northeast of Northfield Road (State Highway 254) in Thomaston.

NOTE: See Drawing XS-4 for a representation of the typical transmission structures, typical heights of the structures, and ROW width for this cross section.

Frost Bridge to Campville Project
Yellow Trail (Northern Crossing) in Northfield Brook Lake Recreation Area – Town of Thomaston
Transmission Rights-of-Way
Typical Cross Section XS-4 / Photo Location PS-7

The two existing 115-kV lines will remain and a new delta-configured 115-kV line will be installed.

(Existing Transmission Right-of-Way – Leaf-on Condition)

Existing electric transmission line structures looking south from the Yellow Trail (Northern Crossing) in Northfield Brook Lake Recreation Area, located northeast of Northfield Road (State Highway 254) in Thomaston.

(Simulation of the Existing Transmission Right-of-Way – Leaf-on Condition)

Preliminary design of electric transmission line structures looking south from the Yellow Trail (Northern Crossing) in Northfield Brook Lake Recreation Area, located northeast of Northfield Road (State Highway 254) in Thomaston.

NOTE: See Drawing XS-4 for a representation of the typical transmission structures, typical heights of the structures, and ROW width for this cross section.

Frost Bridge to Campville Project
Valley Road and Naugatuck River Crossing – Towns of Litchfield and Harwinton
Transmission Rights-of-Way
Typical Cross Section XS-5 / Photo Location PS-10

The two existing 115-kV lines will remain with the existing lattice structure removed and placed on new vertical deadend structures.
A new delta-configured 115-kV line will also be installed.

(Existing Transmission Right-of-Way – Leaf-off Condition)

Existing electric transmission line structures looking south from Valley Road (Harwinton) across the Naugatuck River Valley toward an existing lattice steel tower (Litchfield) that supports both the 1191 and 1921 Lines. Marker balls visible on the shield wires.

(Simulation of the Existing Transmission Right-of-Way – Leaf-off Condition)

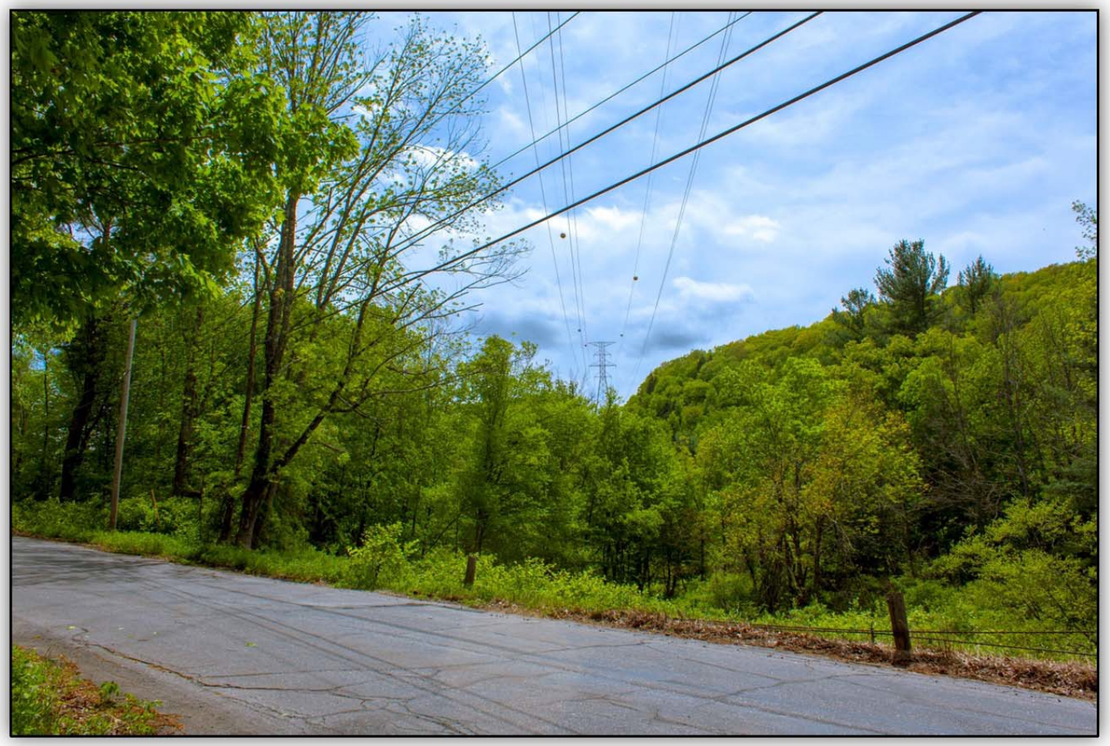
Preliminary design of electric transmission line structures looking south from Valley Road (Harwinton) across the Naugatuck River Valley toward the new 115-kV line and separate monopoles for the 1191 and 1921 Lines (Litchfield). Marker balls visible on the shield wires.

NOTE: See Drawing XS-5 for a representation of the typical transmission structures, typical heights of the structures, and ROW width for this cross section.

Frost Bridge to Campville Project
Valley Road and Naugatuck River Crossing – Towns of Litchfield and Harwinton
Transmission Rights-of-Way
Typical Cross Section XS-5 / Photo Location PS-10

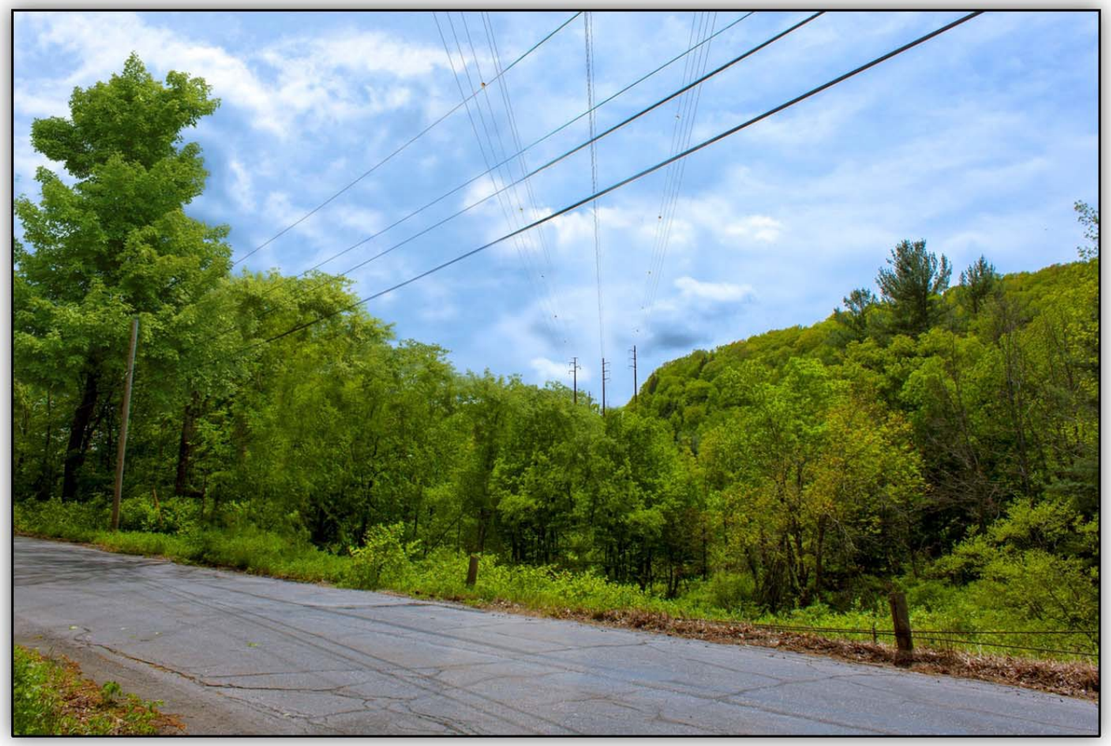
The two existing 115-kV lines will remain with the existing lattice structure removed and placed on new vertical deadend structures.
A new delta-configured 115-kV line will also be installed.

(Existing Transmission Right-of-Way – Leaf-on Condition)



Existing electric transmission line structures looking south from Valley Road (Harwinton) across the Naugatuck River Valley toward an existing lattice steel tower (Litchfield) that supports both the 1191 and 1921 Lines. Marker balls visible on the shield wires.

(Simulation of the Existing Transmission Right-of-Way – Leaf-on Condition)



Preliminary design of electric transmission line structures looking south from Valley Road (Harwinton) across the Naugatuck River Valley toward the new 115-kV line and separate monopoles for the 1191 and 1921 Lines (Litchfield). Marker balls visible on the shield wires.

NOTE: See Drawing XS-5 for a representation of the typical transmission structures, typical heights of the structures, and ROW width for this cross section.

APPENDIX D: REPRESENTATIVE PHOTOGRAPHS OF THE PROPOSED ROUTE: GENERAL VISUAL SETTING FROM PUBLIC ROAD CROSSINGS

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REPRESENTATIVE PHOTOGRAPHS

GENERAL VISUAL SETTING: VIEWS OF TRANSMISSION LINE ROW FROM PUBLIC ROAD CROSSINGS

APRIL 2015

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Photographs of ROW from Road Crossings: "Leaf Off Conditons" April 2015

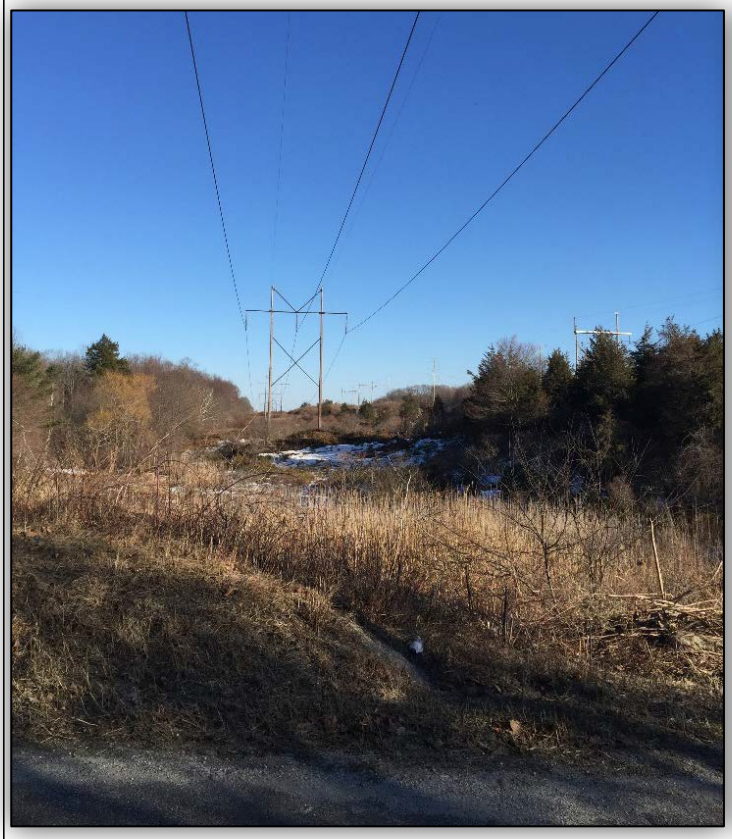

Photo 1: Nova Scotia Hill Road area, Watertown. View to southeast of Eversource ROW.

Photo 2: Park Road, Watertown. View to northwest of transmission line ROW crossing near industrial park.

Photo 3: Park Road / Seemar Road area, Watertown. View to southeast of Eversource ROW.

Photo 4: Thomaston Road (U.S. Route 6), Watertown. View of ROW looking southeast from ROW crossing of road.

Photographs of ROW from Road Crossings: "Leaf Off Conditons" April 2015

Photo 5: State Route 109 (Branch Road), Thomaston. View of existing 1191 Line structure on north side of road, Mattatuck State Forest.

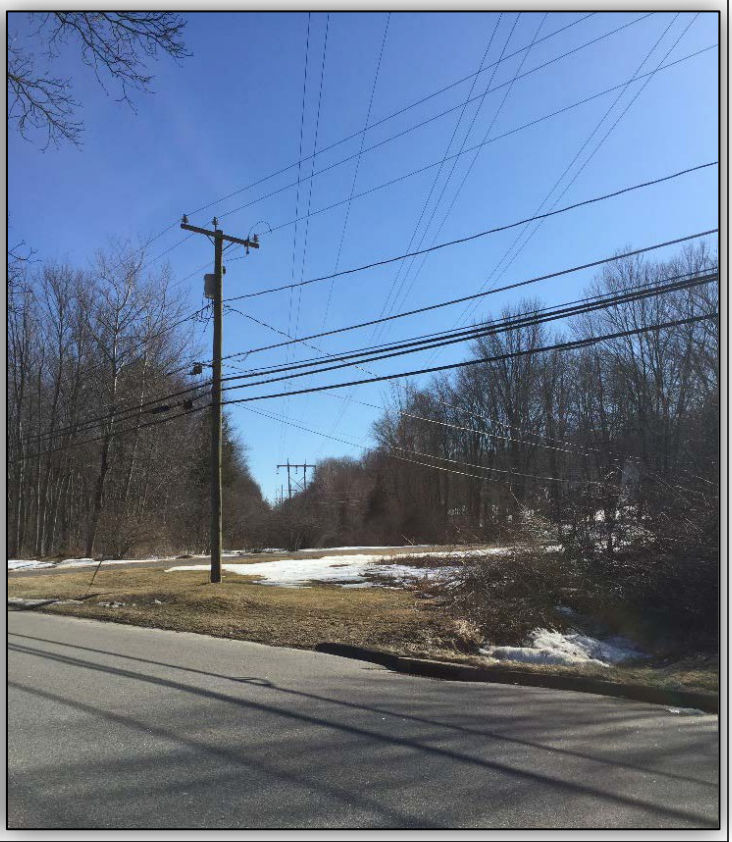

Photo 6: Walnut Hill Road, Thomaston. View to south from road crossing.

Photo 7: Mason Hill Road, Litchfield. View to the south.

Photo 8: Mason Hill Road, Litchfield. View to the north.

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Photographs of ROW from Road Crossings: "Leaf Off Conditons" April 2015

Photo 9: Campville Road, Litchfield. View to the south.

Photo 10: Campville Road, Litchfield. View to the north.

Photo 11: Wildcat Hill Road, Harwinton. View to south along ROW.

Photo 12: Campville Substation, Harwinton. View of substation, looking north from station access road off Wildcat Hill Road