EVERSOURCE ENERGY

56 Prospect Street
P.O. Box 270
Hartford, CT 06103

Kathleen M. Shanley
Manager – Transmission Siting
Tel: (860) 728-4527

June 12, 2017

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

Dear Chairman Stein:

Attached are an original and fifteen (15) copies of a petition submitted on behalf of The Connecticut Light and Power Company doing business as Eversource Energy ("Eversource" or the "Company") requesting a Declaratory Ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction of a new steel monopole in Killingly ("Petition").

Prior to submitting this Petition, representatives from Eversource briefed municipal officials from the Town of Killingly. Written notice was provided to all direct abutters notifying them of the proposed work and the Petition being filed with the Council. A map and line list identifying the abutting property owners who were notified of the Petition are included in the Petition. The letter to the abutters and Affidavit of Service are provided in Attachment 2: Letter to the Abutters and Affidavit.

A check in the amount of $625 for the required filing fee is also attached.

Sincerely,

Attachment 1: Petition
Attachment 2: Letter to Abutters and Affidavit

CC: Sean Hendricks, Town Manager, Town of Killingly

P.O. Box 270
Hartford, CT 06141-0270

EVERSOURCE

June 9, 2017

Dear Neighbor,

As part of its everyday effort to deliver reliable energy and superior customer service, Eversource is planning to reconfigure and upgrade the telecommunications system at one of its facilities in your area.

Eversource is submitting a petition to the Connecticut Siting Council (CSC) in the next few weeks to reconfigure and upgrade the existing telecommunications system at the Eversource Danielson Area Work Center located at 173 Mechanic Street in Killingly, CT. Since this Area Work Center borders your property, we are committed to keeping you informed.

The proposed upgrades are necessary to improve reliability of the electrical system serving our state, including restoration work during a power outage. The new modern communication devices also provide communications to Eversource work centers across the state.

The proposed reliability improvements include:

- Removing the existing steel communication pole and all existing antennas on both the steel and wood monopoles and replacing/consolidating them onto one new roof-mounted steel monopole
- The existing facility is approximately 92 feet above ground level. The proposed facility will be 97 feet above ground level.
- The wood pole structure would remain in place to accommodate new fiber and telephone lines.
- All work will be within the fenced area at the Danielson Area Work Center.

If approved, the work is scheduled to begin in July 2017, with restoration of the affected areas expected to be completed by the end of 2017. This schedule is subject to change due to weather delays or unexpected circumstances.

Our Commitment to You:
Keeping the lines of communication open is an important part of our work in your community. If you have questions about this work, please contact Steven Florio at 866-665-5611 or send an email to steven.florio@eversource.com

If you would like to send comments or concerns regarding Eversource's petition to the CSC, please send them via e-mail to siting.council@ct.gov or a letter to the following address:

Melanie Bachman, Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Thank you.

Sincerely,

Steve Florio
Eversource Project Engineer

AFFIDAVIT OF SERVICE OF NOTICE

STATE OF CONNECTICUT)
) ss. Hartford
COUNTY OF HARTFORD)

Sec. 16-SOj-40 of the Regulations of Connecticut State Agencies ("RCSA") provides that proof of notice to the affected municipalities, property owners and abutters shall be submitted with a petition for declaratory ruling to the Connecticut Siting Council ("Council"). In accordance with that RCSA section, I hereby certify that I caused notice of proposed construction of The Connecticut Light and Power Company doing business as Eversource Energy to be served by mail or courier upon the following municipal official:

Sean Hendricks, Town Manager
Town of Killingly
172 Main St.., 2nd Floor
Killingly, CT 06239

I also certify that I caused notice of the proposed modifications to be served by mail or courier upon 14 owners of abutting properties shown on the map in Figure 4 in the Petition.

Susan J Bellion

Susan J. Bellion
Project Siting Specialist

On this the 9th day of June, 2017, before me, the undersigned representative, personally appeared, Susan J. Bellion, known to me (or satisfactorily proven) to be the person whose name is subscribed to the foregoing instrument and acknowledged that he executed the same for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

Susan Napolitano

Notary Public
My Commission expires: 10/31/17

SUSAN NAPOLITANO NOTARY PUBLIC MY COMMISSION EXPIRES 10/31/17 STATE OF CONNECTICUT

THE CONNECTICUT LIGHT AND POWER COMPANY
Doing Business As
EVERSOURCE ENERGY

PETITION TO THE CONNECTICUT SITING COUNCIL
FOR A DECLARATORY RULING OF
NO SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT
FOR THE PROPOSED REPLACEMENT OF TWO EXISTING COMMUNICATIONS POLES WITH ONE STEEL ROOF-MOUNTED MONOPOLE IN THE TOWN OF KILLINGLY, CONNECTICUT

A. Introduction

Pursuant to Sections 16-50j-38 and 16-50j-39 of the Regulations of Connecticut State Agencies, The Connecticut Light and Power Company doing business as Eversource Energy ("Eversource" or the "Company"), hereby petitions the Connecticut Siting Council (the "Council") for a declaratory ruling ("Petition") that no Certificate of Environmental Compatibility and Public Need ("Certificate") is required under Section 16-50k(a) of the Connecticut General Statutes ("C.G.S.") to replace two existing radio communications poles with appurtenances with a new approximately 63.6-foot tall, roof-mounted steel monopole with appurtenances ("Proposed Facility") at its Danielson Work Center, the same Site as described herein. See Figure 1, *Site Location Map*.

B. Background

Eversource currently owns and operates two telecommunications towers located at 173 Mechanic Street in Killingly, Connecticut (the "Site"). The Site is an approximately 3.8-acre parcel owned by the Company and is used as a work center and maintenance yard. The Company has two (2) existing radio communication poles ("Existing Facility") at the Site, consisting of one (1) steel pole and one (1) wooden pole that currently include multiple operative radio communication antennas. The Existing Facility's 77-foot tall steel communications pole includes a 15-foot omnidirectional antenna mounted at the top. The total height of the existing steel communications pole, including the top mounted antenna, is approximately 92 feet above ground level ("AGL"). The Existing Facility's 55-foot tall wooden communications pole includes a 20-foot omnidirectional antenna mounted at the top. The total height of the existing wooden communications pole, including the top mounted antenna, is approximately 75 feet AGL.

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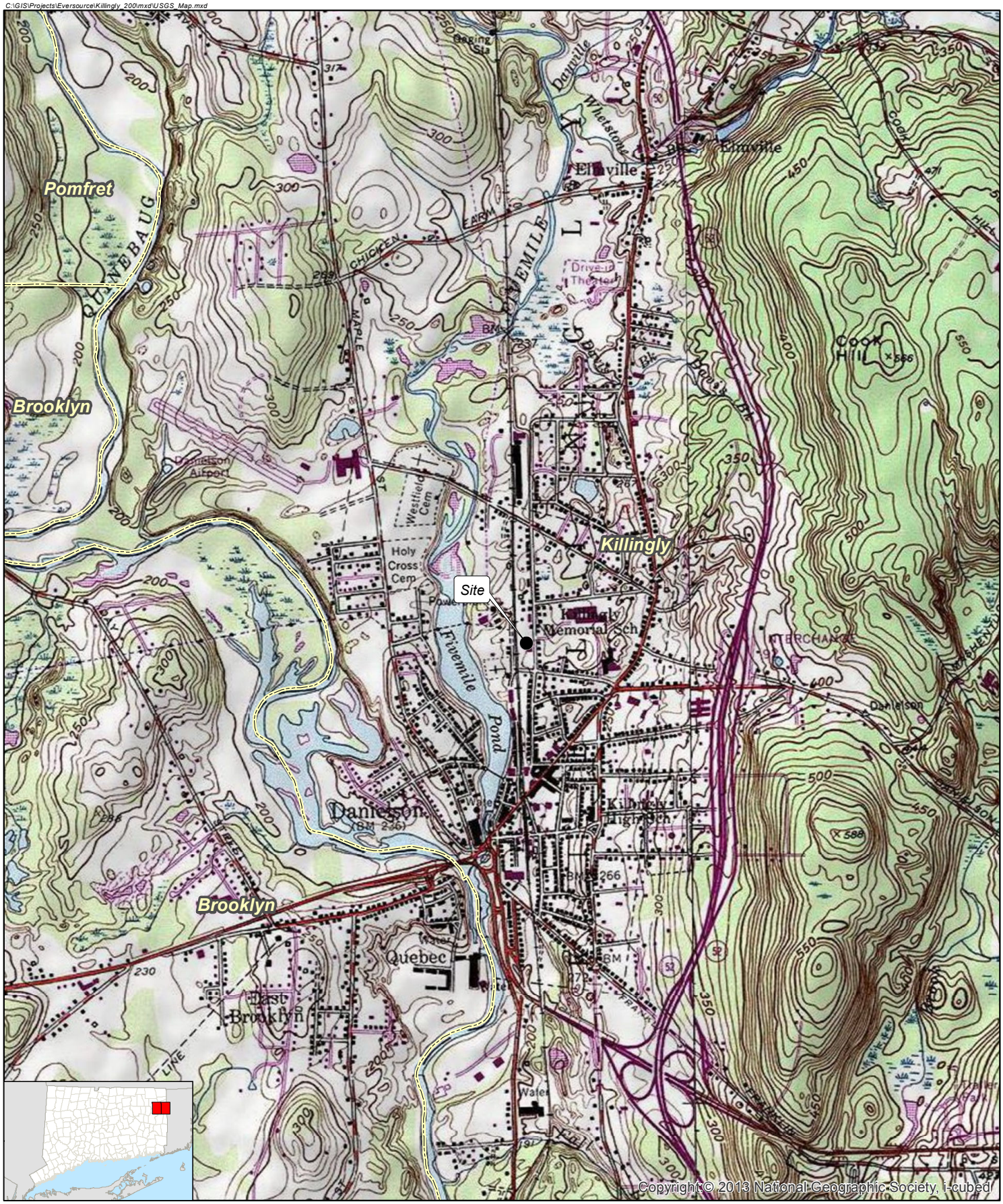

Legend

- Site
- Municipal Boundary

Figure 1
Site Location Map

Danielson Work Center
173 Mechanic Street
Killingly, Connecticut

Base Map Source: USGS 7.5 Minute Topographic Quadrangle Maps, Danielson (1970) and East Killingly (1974), CT
Site is located on the Danielson, CT Quadrangle
Map Date: April 2016

1,000 500 0 1,000 Feet

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ALL-POINTS TECHNOLOGY CORPORATION

Eversource is in the process of consolidating its work centers throughout the State of Connecticut, which requires the reconfiguration of its communications system. In Killingly, this reconfiguration includes removing the existing steel communication pole and all existing antennas[1] on both the steel and wood monopoles and replacing/consolidating them onto one (1) new roof-mounted steel monopole that will allow for upgrades and newer technologies (the "Project"). The ages, heights and structural conditions of the Existing Facility make it unfeasible to support the proposed reconfiguration and required equipment upgrades. In order to address the limitations of the Existing Facility and allow for the system reconfiguration and future expansion, the Company is requesting to install the Proposed Facility.

The Proposed Facility and antennas would provide critical radio communications for Eversource field crews that operate in Killingly and the surrounding area, paging services for area employees, and load management.[2]

C. Description of the Project

The Company proposes to remove the Existing Facility and replace it with one (1) steel monopole with appurtenances mounted on a 14-foot by 16-foot steel dunnage frame atop of the roof of the existing work center building. The Proposed Facility would be erected approximately 76 feet south of the location of the Existing Facility. The ground elevation at this portion of the Site is similar to that of the Existing Facility, approximately 258 feet above mean sea level. The height of the building is 15 feet AGL. The proposed roof-mounted dunnage frame would rise approximately 3.5 feet above the roof. The new monopole would measure approximately 60 feet in height above the dunnage frame. Three whip antennas would extend a maximum of 18.5 feet[3] above the top of the monopole, raising the total height of the Proposed Facility to approximately 97 feet AGL, which is about 5 feet higher than the total height of the existing steel pole and antenna. See Figure 2, *Site Schematic and* Attachment 1, *Project Plans* (completed by the Company on April 7, 2017). Eversource would own the Proposed Facility. After the Proposed Facility is constructed and operative, the existing steel pole would be removed and the wood pole (sans antenna) left in place.

[1] The antenna would be removed from the existing wood pole but this pole would remain in place to accommodate new fiber and telephone lines

[2] This includes System Control and Data Acquisition (SCADA) systems for both electric and gas Distribution operations to allow control and monitoring of switching devices from a remote location.

[3] Two (2) 20-foot tall whip antennas and one (1) 15-foot tall whip antenna are proposed to be collar-mounted 1.5 feet below the top of the monopole.

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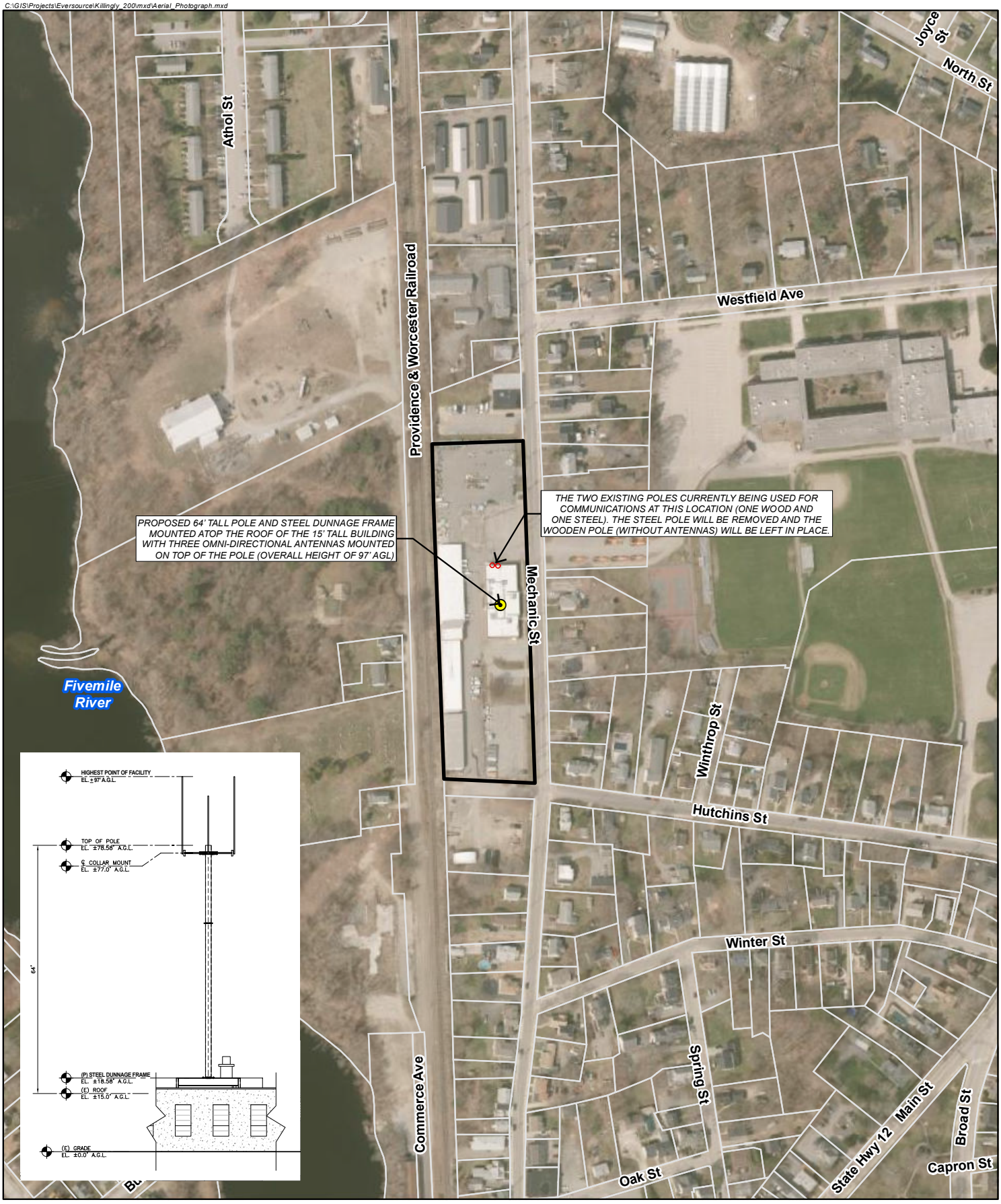


Legend

- Proposed Communications Pole
- Subject Property
- Approximate Parcel Boundary (CTDEEP)

Figure 2
Site Schematic

Danielson Work Center
173 Mechanic Street
Killingly, Connecticut

N
W E
S

300 150 0 300
Feet

Base Map: 2016 Aerial Photograph (CTECO)
Map Scale: 1 inch = 300 feet
Map Date: June 2017

EVERSOURCE ENERGY

ALL-POINTS TECHNOLOGY CORPORATION

Specifications for the Company's new antennas are included in Attachment 2, *Antenna Specifications*. The Company would maintain its radio equipment and electrical power supply connections inside the existing work center building. The Proposed Facility would use an existing on-site, diesel-powered, emergency standby generator for back-up power. No new underground connections would be required for the Proposed Facility.

Table 1, *Antenna Schedule* summarizes the antenna types and vertical locations proposed on the new tower.

TABLE 1 - ANTENNA SCHEDULE

Antenna Type	Antenna Make/Model	Antenna Center Line Elevation (ft. AGL)	Comments	Frequency
20-ft. Omni	DB Spectra DS4C06F36D-N	±87.0	EDACS	450 MHz
20-ft. Omni	Telewave ANT150-F6	±87.0	Paging and Yankee Gas Voice & SCADA-shared antenna	154.46375 MHz 173.25 MHz 158.4225 MHz
15-ft. Omni	Kreco CO-36-AN	±84.5	CL&P Line Dept.	47.74 MHZ

For additional elevation information and location drawings of the proposed installation, please refer to the *Project Plans* in Attachment 1.

A structural loading analysis has been performed to ensure that the building would be structurally capable of supporting the loading from the proposed framing, monopole and antenna system. A review of the design and structural analysis for the Proposed Facility is included in Attachment 3, *Independent Structural Engineer's Review*, which was completed by Centek Engineering on April 7, 2017.

D. Environmental Discussion

The Proposed Facility would not have a substantial adverse environmental effect because it will be constructed on top of the existing work center and maintenance building.

1) Wetlands and Watercourses

Groundwork for the Proposed Facility is limited to the removal of the existing steel pole located along the north side of the work center building within a maintained lawn area. No wetlands or watercourses are located on the Site. The closest wetland resource, the east bank of Five Mile Pond, is located approximately 850 feet to the southwest of the Site. Details of this wetland determination are provided in Attachment 4, *Wetland Inspection Report*.

2) Soil Erosion, Sediment Control, and Soil Remediation

Limited ground disturbance would be associated with the removal of the existing steel pole. This work will be limited to a level maintained lawn area located between the north side of the work center building and a paved area. Therefore, soil erosion is not anticipated.

3) Wildlife and Vegetation

The Proposed Facility would not have a significant adverse effect on wildlife or vegetation because the replacement tower, appurtenant equipment, and the associated construction work would be primarily confined to the roof of the existing work center building. Ground disturbance would be limited to removal of the existing steel pole within a relatively small maintained lawn area located adjacent to the north side of the work center building. The Site, being completely developed with various buildings, paved parking and storage areas and maintained lawn, does not support any significant wildlife habitat. Therefore, the Proposed Facility would not result in an adverse impact to wildlife.

No migratory bird species are anticipated to be impacted by the Project. The Proposed Facility is not proximate to any Important Bird Area ("IBA"); the nearest IBA, Bafflin Sanctuary Complex in Pomfret, is located approximately 3.5 miles to the northwest. Further, the design and siting of the proposed replacement monopole would comply with the U.S. Fish and Wildlife Service ("USFWS") guidelines for minimizing potential impacts to bird species. Therefore, no migratory bird species are anticipated to be impacted by the Proposed Facility. A complete evaluation of avian resources proximate to the Site and explanation of the reasons why the Proposed Facility would not result in a

likely adverse impact to bird species is provided in Attachment 5, *Avian Resources Evaluation*.

According to the available Connecticut Department of Energy & Environmental Protection ("CTDEEP") Wildlife Division Natural Diversity Data Base ("NDDB") maps, the Proposed Facility is not located within a shaded NDDB buffer area. Eversource submitted a review request with respect to this project to confirm that no known populations of Federal or State Endangered, Threatened or Special Concern Species occur on this Site. A response from CTDEEP was received on May 12, 2017 stating that the CTDEEP does "*not anticipate negative impacts to State-listed species (RCSA Sec. 26-306) resulting from your proposed activity at the site based upon the information contained within the NDDB*". A copy of CTDEEP's letter is included in Attachment 6, *CTDEEP Correspondence*.

One federally-listed threatened species is known to occur in the vicinity of the Site, documented as the northern long-eared bat ("NLEB"; *Myotis septentrionalis*). Northern long-eared bat's range encompasses the entire State of Connecticut. Consultations with CTDEEP Wildlife Division revealed that the Site is not within 150 feet of a known occupied maternity roost tree and is not within 0.25 mile of a known NLEB hibernaculum. The nearest NLEB habitat resource to the proposed activity is a hibernaculum located in East Granby ±44 miles to the northwest of the Project. Based on this information, it is the Company's opinion that the Project is not likely to adversely affect NLEB. However, in order to satisfy Federal Communications Commission ("FCC") rules implementing the National Environmental Policy Act ("NEPA") and Section 7 of the Endangered Species Act, a NLEB streamlined consultation form was submitted to the USFWS. The USFWS did not respond to this request within 30 days (received on April 27, 2016) and, as such, it is presumed that no adverse effect would occur to NLEB from the Project[4].

4) Noise

No noise audible to exterior locations would be emitted by the Proposed Facility. Electrical components and other supporting telecommunication equipment will be internally installed within the work center building. As a result, noise emissions would be consistent with present day levels.

[4] If the USFWS does not respond within 30 days from submittal of the Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form, it is presumed that the USFWS concurs with the consultant's determination of no adverse effect and project responsibilities under 7(a)(2) of the Endangered Species Act with respect to the NLEB are fulfilled in accordance with the USFWS January 5, 2016 intra-Service Programmatic Biological Opinion (BO).

5) Safety and Health

The Proposed Facility would not create any safety or health hazards to persons or property. Eversource does not anticipate the need for specific traffic control measures during construction on the Site or equipment and materials delivery. Subsequent to completion of construction, the Proposed Facility would not generate any additional traffic to the area other than continued periodic maintenance visits.

Radio-signal emissions from the proposed equipment after installation on the Site would not exceed the total radio-frequency ("RF") electromagnetic power density level permitted by the Federal Communications Commission ("FCC"). To ensure compliance with the applicable standard, the Company commissioned C Squared Systems to conduct RF power density calculations for the proposed installation using site-specific data and the methodology prescribed by the FCC's Office of Engineering and Technology Bulletin No. 65, Edition 97-01 (August 1997). The calculations indicate that the cumulative power density level for the proposed installation (3 antennas) would be 3.94% of the FCC Standard for public exposure to RF emissions. Please refer to Attachment 7, *Calculated Radio Frequency Emissions Report,* dated April 7, 2017, for a copy of the methodology and calculations.

6) Visual

The Proposed Facility would not result in a substantial change to existing conditions nor would it have a significant adverse visual impact on the environment or character of the community. The Existing Facility includes two (2) separate poles with whip antennas, approximately 75 and 92 feet AGL, respectively. The Proposed Facility, with its single, roof-top mounted replacement monopole and whip antennas, would rise to a height of approximately 97 feet AGL. The size and style of the replacement tower would result in a modest change in the character of most existing views but would not substantially alter the current viewshed footprint of the Existing Facility. Relatively dense development and vegetative cover throughout the general area would result in few unobstructed near-views of the Proposed Facility once beyond the Site limits. For example, at approximately 0.9 mile from the Site, views generally become seasonal and/or non-visible in all directions. For a visual comparison of the existing and proposed tower, please refer to Attachment 8, *Visibility Analysis*, dated April 2017.

7) Historical and Archaeological Resources

A review of relevant historic and archaeological information was conducted to determine whether the Project area holds potential historical and/or archaeological significance.

Two (2) historic properties previously listed or deemed eligible for the National Register of Historic Places were identified within the Area of Potential Effect (APE - 0.5 mile) for Direct Effects. These include the Danielson Main Street National Register Historic District (NR# 92000265), and the Broad Street-Davis Park National Register Historic District (NR# 98001556), which are located south and southeast of the Site. The uppermost portions of the Proposed Facility may be visible from some areas within the historic districts.

A review of cultural resources on file with the Connecticut State Historic Preservation Office revealed that no previously recorded archaeological sites have been identified on the Site or within the APE. It is evident that the Project area has been thoroughly disturbed and no intact soils remain. Thus, this area retains no potential to yield intact prehistoric or historic period cultural deposits. Furthermore, the Proposed Facility will be constructed on the roof of the existing work center building and all associated equipment will be housed within said building. No new ground disturbances are proposed.

Eversource submitted historic/cultural information to the State Historic Preservation Office ("SHPO") for agency review and comment on May 26, 2016. The submission included a determination by an architectural historian that the Project would have no adverse effect on historic properties. Similarly, an archaeologist provided a professional determination that the Project area has low archaeological potential and no additional research of the Project area is recommended prior to construction. SHPO responded to the Company's submission on August 4, 2016 with the determination *"that the proposed undertaking…will have no adverse effect on the contributing resources listed on or eligible for listing on the National Register of Historic Places…"* A copy of the SHPO response is included in Attachment 9, *SHPO Correspondence*.

8) Forests and Parks

The Site contains no areas of recreation or public interest administered by any federal, state, local, or private agencies. No State or locally-designated scenic roads or other scenic areas are located proximate to the Project. Davis Park is located 0.3 mile southeast of the

Site and may have seasonal views of the Proposed Facility. The locations of non-residential development and other resources within two miles of the Site are listed in Table 2 on the following page and depicted on Figure 3, *Surrounding Features Map*.

9) Physical Environmental Effects

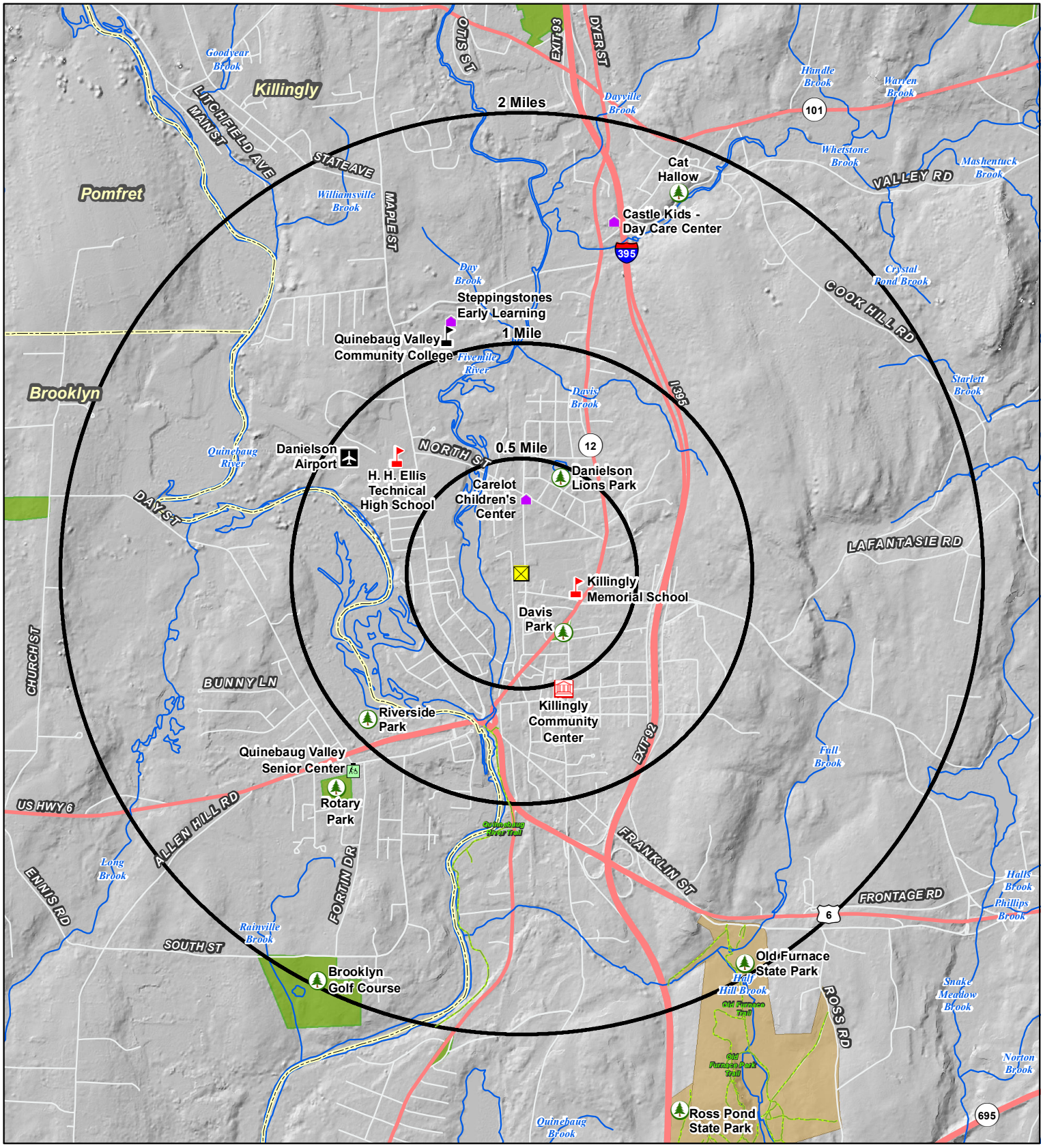
Eversource respectfully submits that the construction of the Proposed Facility, approximately 76 feet to the south of the two (2) existing radio communications poles, would not involve a significant alteration in the physical or environmental characteristics of the Site or the surrounding area. In order to minimize ground disturbance, the Proposed Facility will utilize the roof space of the existing work center building located in the approximate center of the Site. The proposed rooftop location will require no earthwork or re-grading and no trees or vegetation would need to be removed to accommodate construction. Utilities would be re-routed into the existing work center building such that no supporting equipment would be located outside. Vehicular access to the Company's work center would not change in any way. The removal of the existing steel pole will allow an area adjacent to the work center building to be restored to grass lawn.

10) Federal Aviation Administration ("FAA") Registration

The Proposed Facility's coordinates, height, and structure type were submitted to the FAA to determine if it requires FAA registration and lighting or marking. Based on a response letter dated August 3, 2016 the Proposed Facility has been assigned an Antenna Structure Registration ("ASR") Number (ASR 1299950) and has been determined *"…that the structure does not exceed obstruction standards and would not be a hazard to air navigation…".* A copy of the FAA determination letter with ASR information's and conditions can be found in Attachment 10, *FAA Registration*.

Table 2: SURROUNDING FEATURES WITHIN 2 MILES OF THE SITE

Resource Type	Name	Address	Distance from Site
Daycare	Carelot Children's Center	155 North St, Killingly	0.3 mile N
	Castle Kids	17 Dog Hill Rd, Killingly	1.6 miles NE
	Steppingstones Early Learning	742 Upper Maple St, Killingly	1.1 miles NW
Community Center	None		
Senior Center	Quinebaug Valley Senior Center	69 S Main St #4, Brooklyn	1.1 mile SW
Airport	Danielson Airport	Danielson / Killingly, CT	0.8 mile NW
Hospital	None		
School	H. H. Ellis Technical High School	613 Upper Maple St, Danielson	0.67 mile NW
	Killingly Memorial School	339-Main Street, Danielson, CT	0.22 mile E
	Quinebaug Valley Community College	742 Upper Maple St, Killingly	1.1 mile NW
Park / Recreational	Brooklyn Golf Course	170 South St, Brooklyn	1.8 miles SW
	Cat Hallow	Cat Hallow Rd, Killingly	1.8 miles NE
	Danielson Lions Park	Killingly, CT	0.4 mile NE
	Davis Park	Killingly, CT	0.3 mile SE
	Old Furnace State Park	Killingly, CT	1.7 miles SE
	Quinebaug River Trail	Danielson / Killingly, CT	0.7 mile SW
	Riverside Park	Day St, Brooklyn	0.9 mile SW
	Rotary Park	Brooklyn, CT	1.2 miles SW
National Register of Historic Places	Broad Street Davis Historic District	Danielson / Killingly, CT	0.22 mile SE
	Danielson Main Street Historic District	Danielson / Killingly, CT	0.28 mile S
	Quinebaug Mill Quebec Square HD	Brooklyn, CT	0.68 mile SW
Youth Camp	None		



Legend

- Site
- 0.5-2-Mile Radii
- Trail
- Municipal and Private Open Space
- State Forest/Park
- Municipal Boundary

Surrounding Features

- Airport
- Community Center
- College
- Public School
- Licensed Child Day Care
- Park / Recreation
- Senior Center

N W E S

3,000 1,500 0 3,000 Feet

Base Map Source: ESRI & CTECO Shaded Relief
Map Scale:1 in = 3,000 ft Map Date: June 2016

Figure 3
Surrounding Features Map

Danielson Work Center
173 Mechanic Street
Killingly, Connecticut

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11) Location of Nearest Residence

The Site is accessed from Mechanic Street which is densely developed with both residential neighborhoods and commercial businesses. The nearest residential property to the Site is located approximately 90 feet to the east at 154 Mechanic Street. See Figure 4, *Nearest Residence*.

Direct abutters were served notice of this Petition concurrent with its submission to the Council. Those abutters are depicted on Figure 4 and are included in Table 3, *Direct Abutters* below.

TABLE 3 – DIRECT ABUTTERS

Line List Designation	Owner Name	Site Address	Town	State
101	THE ARC OF QUINEBAUG VALLEY INC	193 MECHANIC ST	Killingly	CT
105	PROVIDENCE & WORCESTER RR CO	4 RAILROAD AV	Killingly	CT
114	YANKEE GAS SERVICES COMPANY (EVERSOURCE)	105 MECHANIC ST	Killingly	CT
120	BELINDA J KING	110 MECHANIC ST	Killingly	CT
124	MICHAEL LEOTSAKOS	94 HUTCHINS ST	Killingly	CT
125	MARY JANE GRIMSHAW	130 MECHANIC ST	Killingly	CT
126	CHRISTY J BRANSFIELD JR	136 MECHANIC ST	Killingly	CT
127	T & S HOMES & ELECTRIC LLC	140 MECHANIC ST	Killingly	CT
128	JACK C & JUDITH A WEAVER	146 MECHANIC ST	Killingly	CT
129	DONALD & JESSICA E ALEXANDER	154 MECHANIC ST	Killingly	CT
130	KILLINGLY TOWN OF-034	79 WESTFIELD AV	Killingly	CT
131	KILLINGLY TOWN OF-095	160 MECHANIC ST	Killingly	CT
132	STACEY SOLOMON	172 MECHANIC ST	Killingly	CT
133	DANIEL E LANGEVIN TRUSTEE	180 MECHANIC ST	Killingly	CT
134	LISA MEAGHER & JOHN OGDEN	184 MECHANIC ST	Killingly	CT

12) Restoration

The five (5) existing antennas and appurtenances would be removed from the steel and wood poles. The 77-foot tall steel pole would be removed at ground level and the 55-foot tall wood pole left in place to accommodate new fiber and telephone lines entering the Site from an existing utility pole on Mechanic Street. The Existing Facility area would be maintained as grass lawn, similar to current conditions.

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Legend

- Proposed Communications Pole
- Subject Property
- Nearest Residence
- Approximate Parcel Boundary (CTDEEP)

N
W E
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300 150 0 300
Feet

Base Map: 2016 Aerial Photograph (CTECO)
Map Scale: 1 inch = 300 feet
Map Date: June 2017

Figure 4
Nearest Residence

Danielson Work Center
173 Mechanic Street
Killingly, Connecticut

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E. Schedule

Construction of this facility would begin as soon as practical after issuance of the requested declaratory ruling by the Council and would be approximately three months in duration. Eversource anticipates that construction would be completed in 2017. Removal of the existing antennas and steel pole would be completed as soon as practical following the completion of installation of all antenna systems onto the replacement tower.

F. Conclusion

Connecticut General Statutes Section 16-50k(a) provides that a Certificate of Environmental Compatibility and Public Need is needed for a proposed installation of a facility that the Council determines would have a "substantial adverse environmental effect." Based on evaluation of the environmental effect of the Proposed Facility, Eversource respectfully submits that the installation of the Proposed Facility would not result in a substantial adverse effect on the environment or ecology, nor would it damage existing scenic, historical or recreation values.

Accordingly, Eversource requests that the Council issue a declaratory ruling that no Certificate is required because the Proposed Facility would not have a substantial adverse environmental effect.

G. Communications with Company

Communications regarding this Petition for a Declaratory Ruling should be directed to:

Kathleen M. Shanley
Manager – Transmission Siting
Eversource Energy
56 Prospect Street
Hartford, CT 06103
Telephone: (860) 728-4527

EVERSOURCE ENERGY by:

Kathleen M. Shanley
Manager – Transmission Siting

Attachment 1 – Project Plans

EVERSOURCE ENERGY

DANIELSON WORK CENTER
173 MECHANIC STREET
KILLINGLY, CT

SITE INFORMATION

THE GENERAL SCOPE OF WORK IS DESCRIBED AS FOLLOWS:

1. THE CONSTRUCTION OF A 60-FT TALL POLE MOUNTED A 14'x16' STEEL DUNNAGE FRAME ATOP THE ROOF OF THE EXISTING BUILDING.
2. THE ANTENNA INSTALLATION TO CONSIST OF TWO (2) 20-FT AND ONE (1) 15-FT OMNI-DIRECTIONAL ANTENNAS ON THREE (3) 4-FT STANDOFF ARMS.

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2016 CONNECTICUT SUPPLEMENT, NFPA 101 WITH 2005 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS-BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING BUILDING'S OPERATIONS, COORDINATE WORK WITH BDG. OWNER.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE CLIENT DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. THE BUILDING WILL BE OCCUPIED DURING THE COURSE OF THIS PROJECT. THE CONTRACTOR SHALL NOTIFY THE MANAGEMENT OF ANY AND ALL ACTIVITIES THAT MAY DISRUPT DAILY BUILDING OPERATIONS IN WRITING A MINIMUM OF THREE (3) DAYS IN ADVANCE. WORK SHALL BE ARRANGED FOR CONTINUOUS PERFORMANCE WHENEVER POSSIBLE. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LABOR, INCLUDING OVERTIME, IF REQUIRED, TO ASSURE THAT EXISTING OPERATING SERVICES WILL BE SHUT DOWN ONLY DURING THE TIME ACTUALLY REQUIRED TO MAKE NECESSARY CONNECTIONS.
18. ALL CORE DRILLING REQUIRED SHALL BE DONE BY GENERAL CONTRACTOR. ALL ROOF PENETRATIONS, FLASHING AND WATER PROOFING SHALL BE DONE BY GENERAL CONTRACTOR, WORK SHALL BE PERFORMED BY AN APPLICATOR CERTIFIED BY THE EXISTING ROOF SYSTEM MANUFACTURER.
19. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
20. ANY DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ANY REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
21. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED PRIOR TO ANY EXCAVATION WORK.
22. CONTRACTOR SHALL COMPLY WITH EVERSOURCE'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
23. COORDINATE ALL CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS FOR THE LOCATION OF ALL OPENINGS, RECESSES, BUILT-IN-WORK, ETC.

SITE DIRECTIONS

FROM: 107 SELDEN STREET, BERLIN, CONNECTICUT

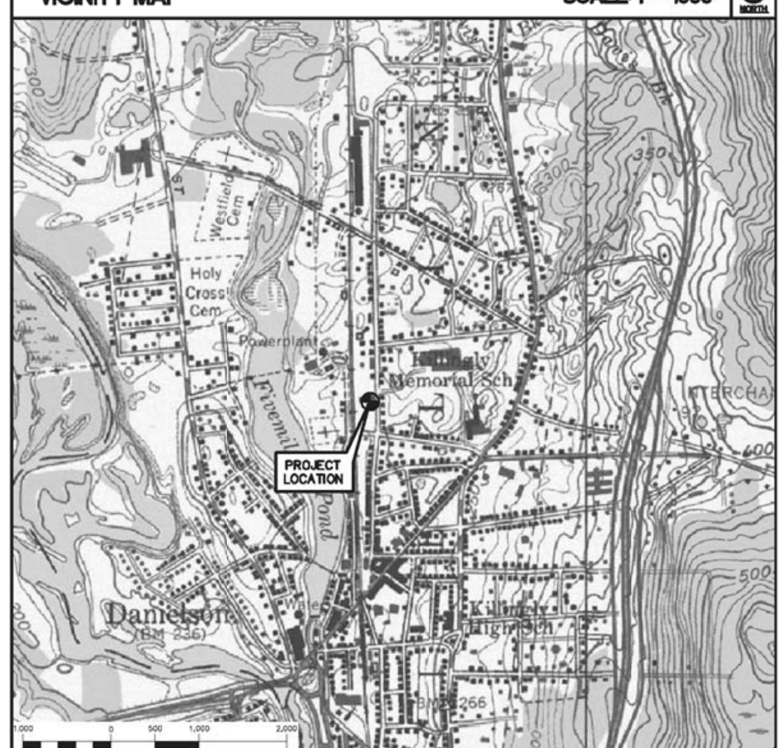
TO: 173 MECHANIC STREET, KILLINGLY, CONNECTICUT

1.	HEAD WEST TOWARD SELDEN STREET	59 FT
2.	TURN RIGHT ONTO SELDEN STREET	0.2 MI
3.	TURN RIGHT NTO BERLIN TURNPIKE	4.5 MI
4.	USE RIGHT 2 LANES TO TAKE THE US-5/CT-15 RAMP TO 1-91/HARTFORD	0.3 MI
5.	CONTINUE ONTO CT-15 N/US-5 N	3.8 MI
6.	CONTINUE ONTO CT-15 N	0.8 MI
7.	USE THE LEFT 2 LANES TO MERGE ONTO I-84 TOWARD E TOWARD BOSTON	19.7 MI
8.	TAKE EXIT 69 FOR CONNECTICUT 74 TOWARD U.S. 44/WILLINGTON/PUTNAM	0.3 MI
9.	TURN RIGHT ONTO CT-74 E	7.5 MI
10.	TURN LEFT ONTO US-44 E	11.9 MI
11.	CONTINUE STRAIGHT ONTO CT-101 E	3.9 MI
12.	TURN RIGHT ONTO UPPER MAPLE STREET	1.9 MI
13.	TURN LEFT ONTO NORTH STREET	0.5 MI
14.	TURN RIGHT ONTO MECHANIC STREET	0.3 MI

VICINITY MAP

SCALE: 1" = 1000'

NORTH



PROJECT SUMMARY

SITE NAME:	DANIELSON WORK CENTER
SITE ADDRESS:	173 MECHANIC STREET KILLINGLY, CT 06289
APPLICANT:	EVERSOURCE 107 SELDEN STREET BERLIN, CT. 06037
CONTACT PERSON:	STEVE FLORIO TELECOMMUNICATION ENGINEERING - EVERSOURCE 860-665-5611
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT. 06405
PROJECT COORDINATES:	LATITUDE: 41°-48'-40.60"N LONGITUDE: 71°-53'-01.60"W GROUND ELEVATION: 255'± AMSL

LEGEND

SYMBOL	DESCRIPTION
	SECTION OR DETAIL NUMBER SHEET WHERE DETAIL/SECTION OCCURS
1	ELEVATION NUMBER SHEET WHERE ELEVATION OCCURS

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
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N-1	DESIGN BASIS AND STRUCTURAL NOTES	3
C-1	ROOF PLAN AND ELEVATION	3
S-1	DUNNAGE FRAME DETAILS	3
S-2	MONOPOLE & ROOFING DETAILS	3
E-1	SCHEMATIC GROUNDING, PLAN AND NOTES	3
E-2	ELECTRICAL DETAILS	3
E-3	ELECTRICAL SPECIFICATIONS	3

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
3	4/07/17	TJL	CFC	REVISED TOWER/SUPPORT FRAME LOCATION
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DANIELSON WORK CENTER

173 MECHANIC STREET
KILLINGLY, CT 06239

DATE:	03/10/16
SCALE:	AS NOTED
JOB NO.	15277.000

TITLE SHEET

T-1

Sheet No. 1 of 8

STRUCTURAL SPECIFICATIONS

DESIGN BASIS

GOVERNING CODE/STANDARD(S): 2012 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2016 CT STATE SUPPLEMENT.

SNOW LOAD

GROUND SNOW LOAD (Pg)	40 PSF	(2016 CSBC: APPENDIX 'N')

WIND

NOMINAL DESIGN WIND SPEED	101 MPH	(2016 CSBC: APPENDIX 'N')
EXPOSURE CATEGORY	C	(TIA-222-G SECTION 2.6.5.1)
STRUCTURE CLASSIFICATION	III	(TIA-222-G TABLE 2-1)
IMPORTANCE FACTOR (Iw)	1.15	(TIA-222-G TABLE 2-3)

SPECIAL INSPECTIONS

1. SPECIAL INSPECTIONS ARE TO BE PROVIDED BY AN APPROVED AGENCY HIRED BY EVERSOURCE. REFER TO THE STATEMENT OF SPECIAL INSPECTIONS PREPARED BY CENTEK ENGINEERING, INC.

CONCRETE CONSTRUCTION

1. CONCRETE CONSTRUCTION SHALL CONFORM TO THE FOLLOWING STANDARDS:

   ACI 211 – STANDARD PRACTICE FOR SELECTING PROPORTIONS FOR NORMAL AND HEAVYWEIGHT CONCRETE.

   ACI 301 – SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.

   ACI 302 – GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION

   ACI 304 – RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE.

   ACI 306.1 STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING

   ACI 318 – BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.

2. CONCRETE SHALL DEVELOP COMPRESSIVE STRENGTH IN 28 DAYS AS FOLLOWS:
   ALL CONCRETE 4,000 PSI
3. REINFORCING STEEL SHALL BE 60,000 PSI YIELD STRENGTH.
4. ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, MUST FOLLOW THE LATEST ACI CODE AND LATEST ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
5. CONCRETE COVER OVER REINFORCING SHALL CONFORM TO THE FOLLOWING, UNLESS OTHERWISE SHOWN:
   BOTTOM OF FOOTING 3 INCHES
   ALL OTHER SURFACES 1-1/2 INCHES
6. NO STEEL WIRE, METAL FORM TIES, OR ANY OTHER METAL SHALL REMAIN WITHIN THE REQUIRED COVER OF ANY CONCRETE SURFACE.
7. ALL REINFORCEMENT SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED. SPLICES SHALL BE WELL STAGGERED. SUCH DETAILS SHALL COMPLY WITH ACI 315 RECOMMENDATIONS UNLESS OTHERWISE SHOWN.
8. NO TACK WELDING OF REINFORCING WILL BE PERMITTED.
9. NO CALCIUM CHLORIDE OR ADMIXTURES CONTAINING MORE THAN 1 % CHLORIDE BY WEIGHT OF ADMIXTURE SHALL BE USED IN THE CONCRETE.
10. UNLESS OTHERWISE NOTED, ALL LAP SPLICES SHALL BE 48 BAR DIAMETERS.
11. INSPECTION AND TESTING OF CONCRETE WORK SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY, PAID BY THE OWNER, AND APPROVED BY THE ENGINEER. THE INSPECTOR SHALL OBSERVE CONDITION OF SOILS AND FORMWORK, SIZE, SPACING AND LOCATION OF REINFORCEMENT, AND PLACEMENT OF CONCRETE.
12. THE TESTING COMPANY SHALL ALSO OBTAIN A MINIMUM OF THREE (3) COMPRESSIVE STRENGTH TEST SPECIMENS FOR EACH CONCRETE MIX DESIGN. ONE SPECIMEN TESTED AT 7 DAYS, ONE AT 28 DAYS, AND ONE HELD IN RESERVE FOR FUTURE TESTING, IF NEEDED.
13. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

STRUCTURAL STEEL NOTES

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD):

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992, (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36, (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   C. CONNECTION BOLTS---ASTM A325-N
   D. ANCHOR RODS---ASTM F 1554
   E. REBAR---ASTM A-615 GRADE 60, (FY = 60 KSI)
   E. WELDING ELECTRODE---ASTM E 70XX

2. EXISTING DIMENSIONS OF STRUCTURE SHOWN ON THESE PLANS ARE NOT GUARANTEED. CONTRACTOR SHALL TAKE FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF ALL FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR REVIEW TO THE ENGINEER.
3. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE REVIEWER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
4. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
5. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
6. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
7. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
8. FABRICATE BEAMS WITH MILL CAMBER UP.
9. THE STRUCTURE IS DESIGNED TO BE SELF SUPPORTING AND STABLE AFTER THE WORK IS FULLY COMPLETED.
10. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
11. BOLT HOLES SHALL BE PUNCHED OR DRILLED, FLAME CUT HOLES ARE NOT ACCEPTABLE.
12. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
13. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325-N. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
16. ALL BOLTED JOINTS SHALL BE SNUG TIGHT (ST) UNLESS OTHERWISE DESIGNATED AS PRETENSIONED (PT) OR SLIP CRITICAL (SC) ON THE DRAWINGS.
17. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1 WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLET J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION" 9TH EDITION. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.
18. USE PRECAUTIONS & PROCEDURES PER AWS D1.1 WHEN WELDING GALVANIZED METALS.
19. ALL WELDING SHALL BE PERFORMED BY A CERTIFIED WELDER IN ACCORDANCE WITH AWS STANDARDS. SUBMIT WELDER CERTIFICATION FOR REVIEW BY ENGINEER.
20. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
21. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
22. NOTIFY THE ENGINEER PRIOR TO FIELD CUTTING OR MODIFYING APPROVED FABRICATIONS.
23. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
24. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.

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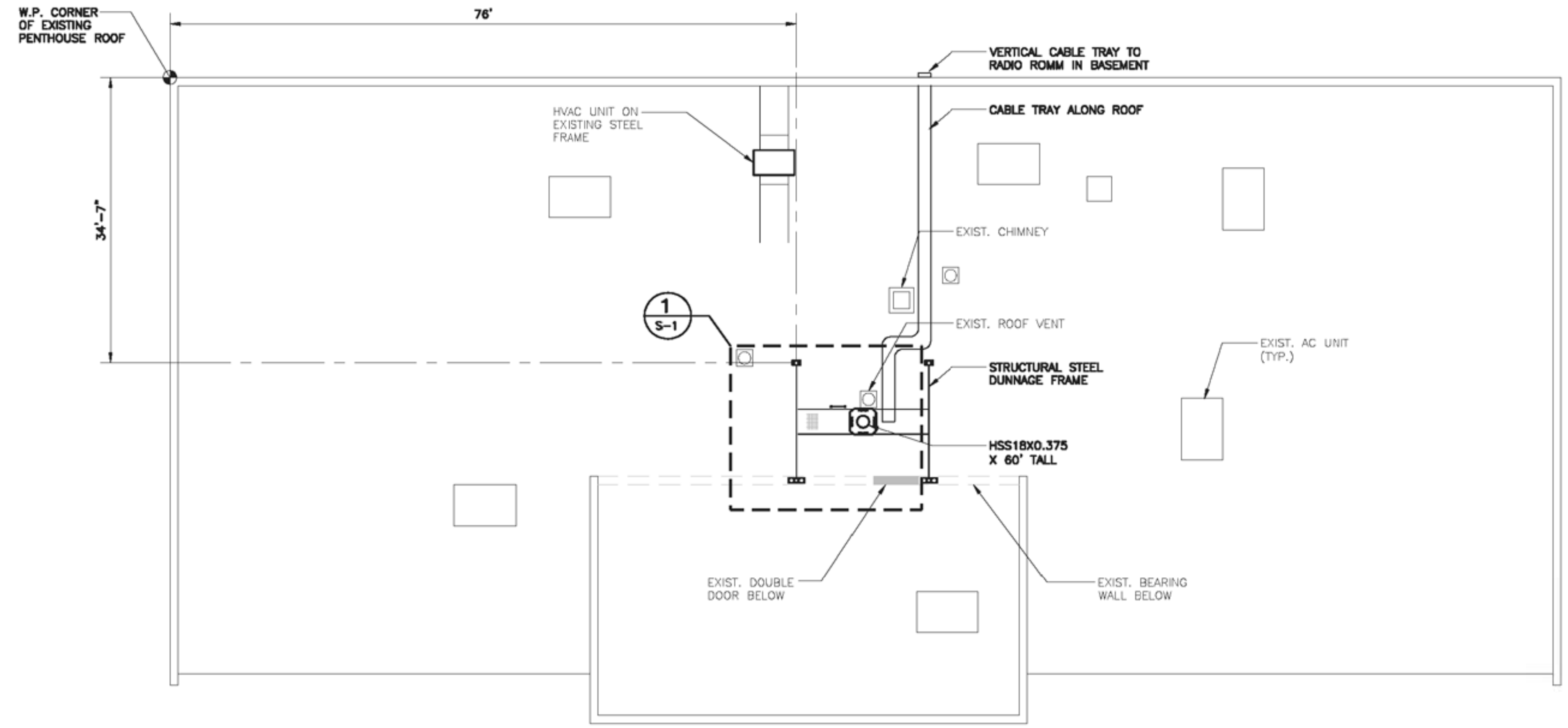
SCALE: AS NOTED
JOB NO. 15277.000

NOTES

N-1

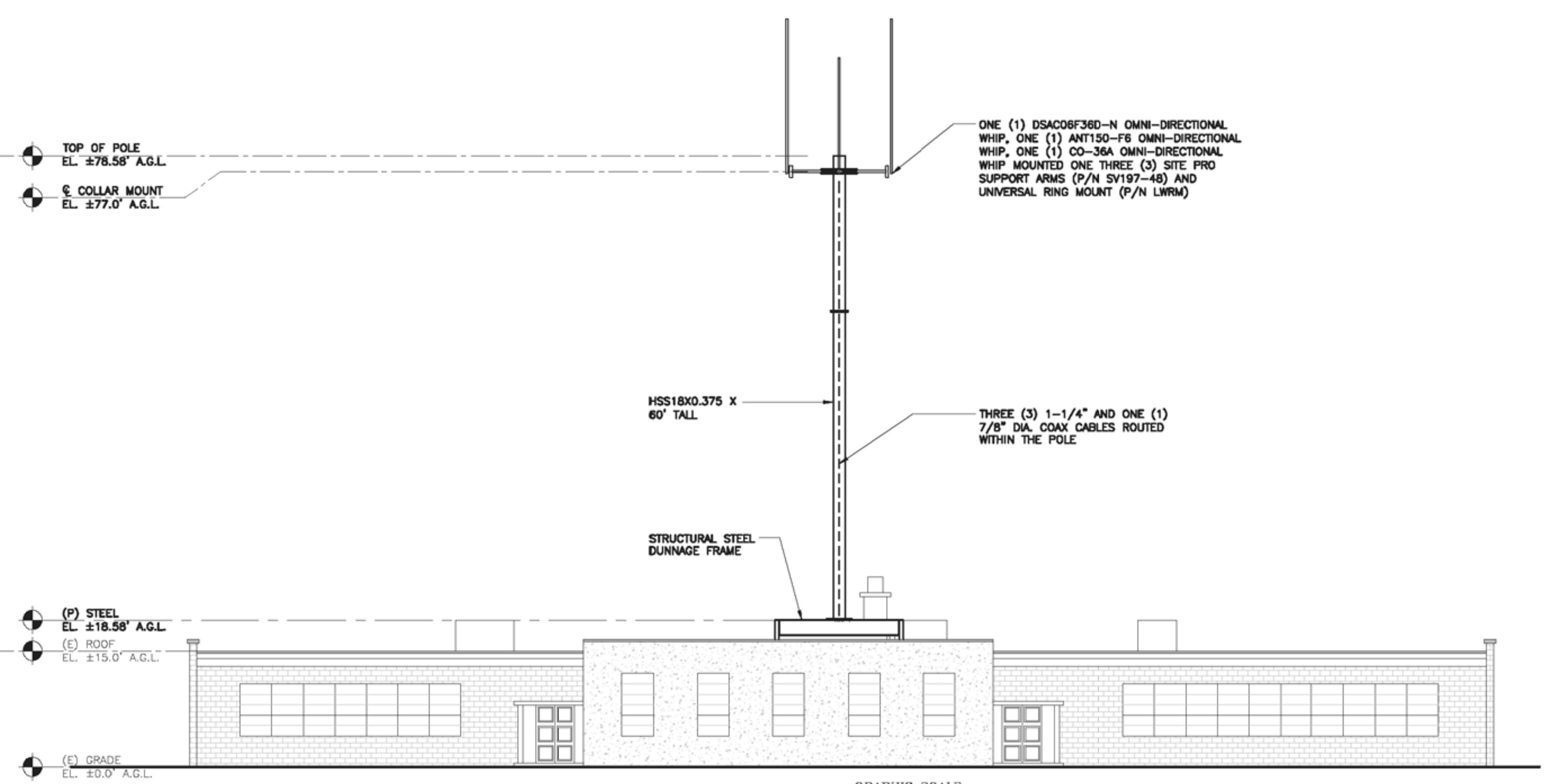
Sheet No. 2 of 8



1 / C-1 **ROOF PLAN**
SCALE: 1" = 10'-0"

APPROXIMATE NORTH

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 20 ft.



2 / C-1 **EAST ELEVATION**
SCALE: 1" = 10'-0"

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 20 ft.

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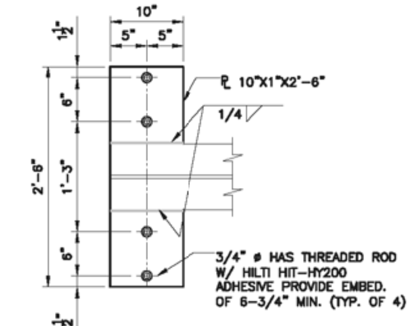
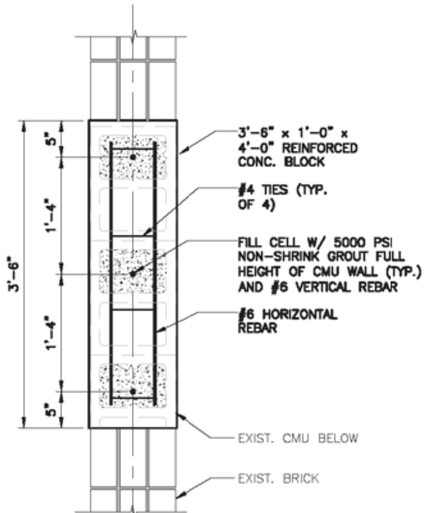
ROOF PLAN & ELEVATION

C-1

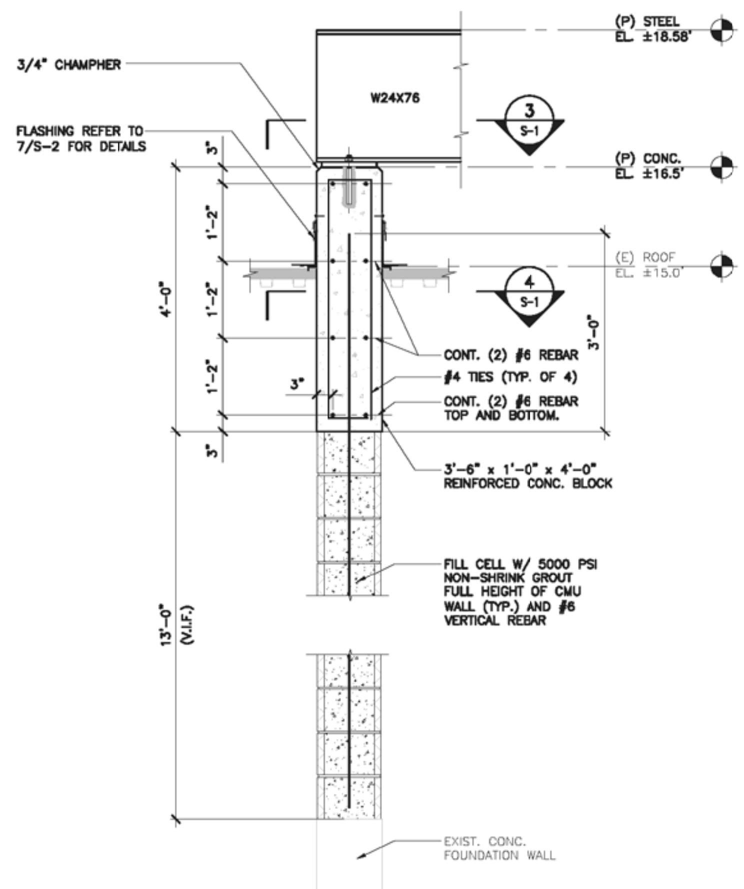
Sheet No. 3 of 8



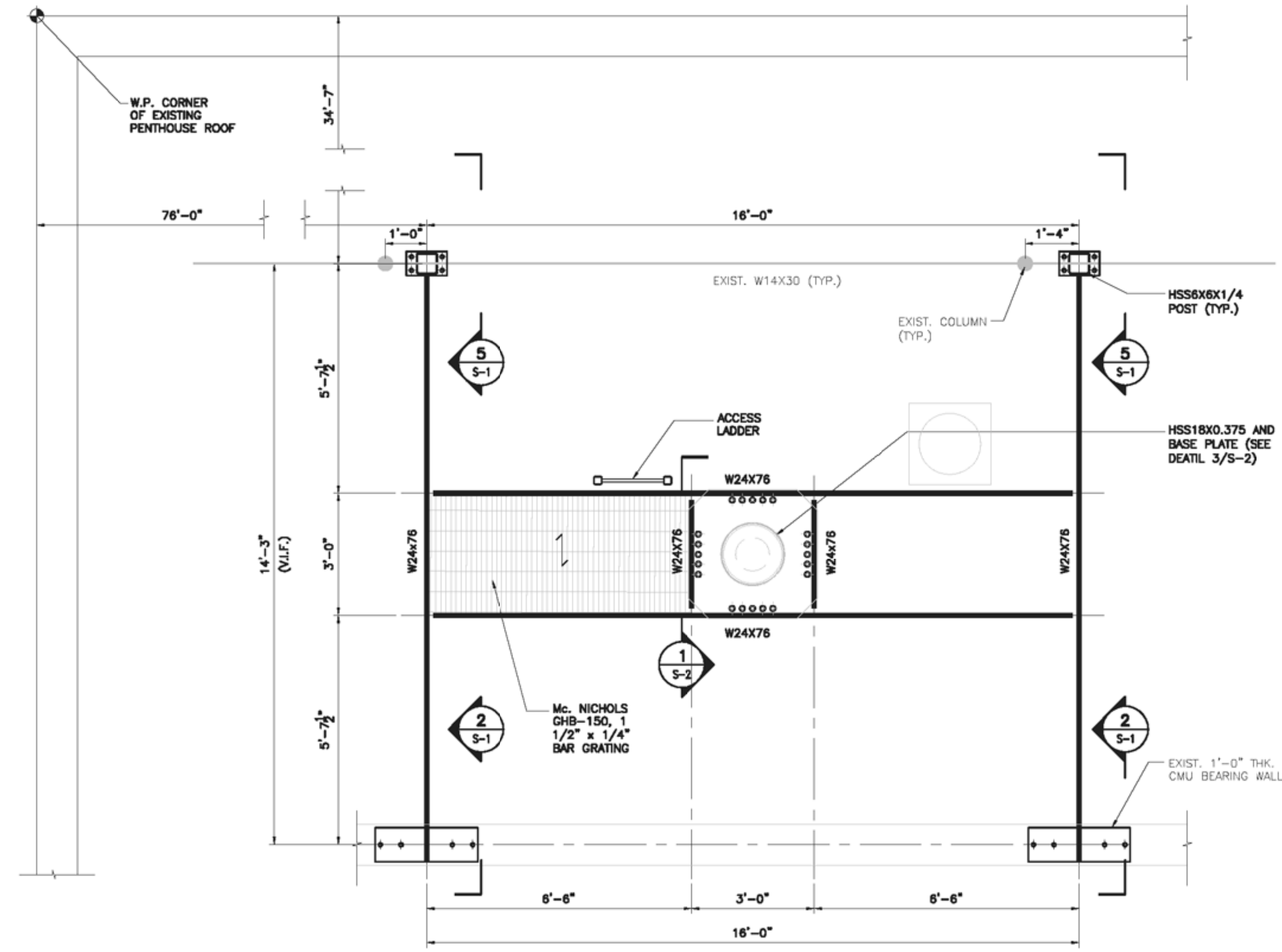
3 S-1 POST BASE PLATE DETAIL
SCALE: 1" = 1'-0"



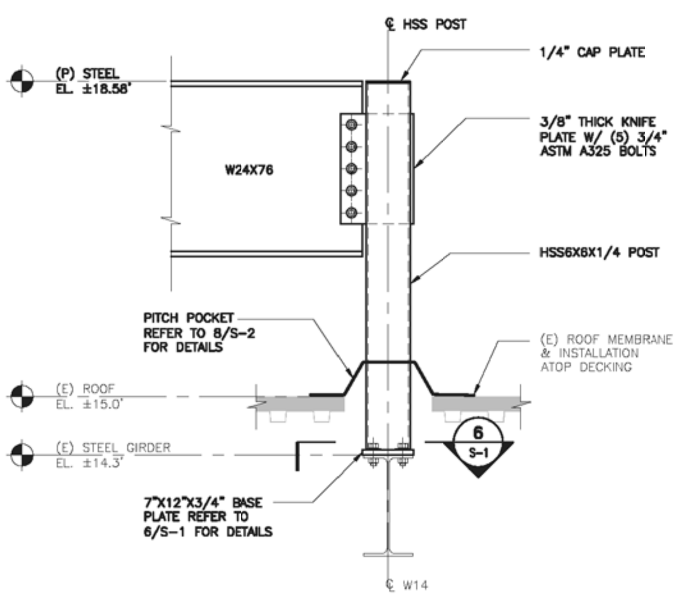
4 S-1 BEARING BLOCK DETAIL
SCALE: 1" = 1'-0"



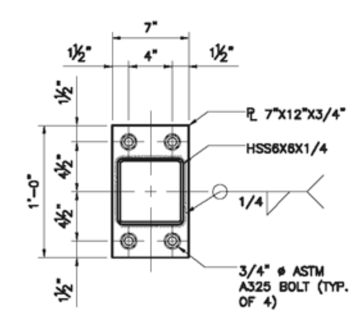
2 S-1 POST CONNECTION TO BEARING WALL
SCALE: 3/4" = 1'-0"



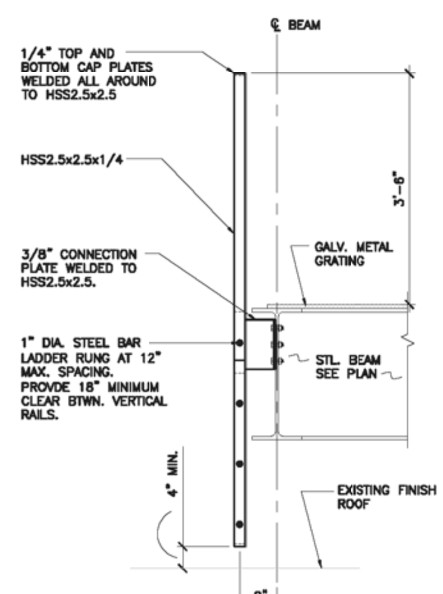
1 S-1 FRAMING PLAN
SCALE: 1/2" = 1'-0"
APPROXIMATE NORTH



5 S-1 POST CONNECTION TO STEEL GIRDER
SCALE: 1" = 1'-0"



6 S-1 POST BASE PLATE DETAIL
SCALE: 1-1/2" = 1'-0"



7 S-1 TYP. LADDER DETAIL
SCALE: 3/4" = 1'-0"

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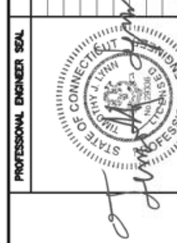

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DUNNAGE FRAME DETAILS

S-1

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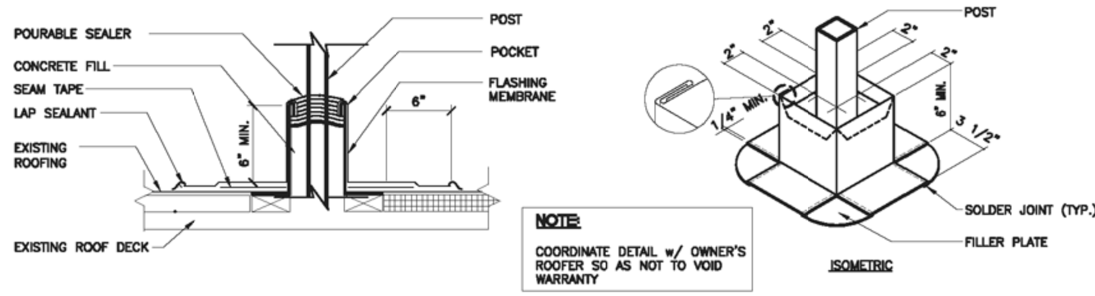
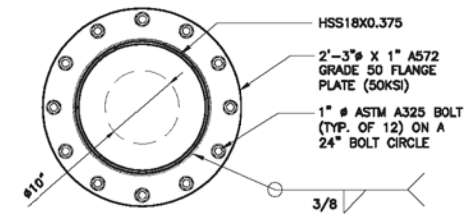
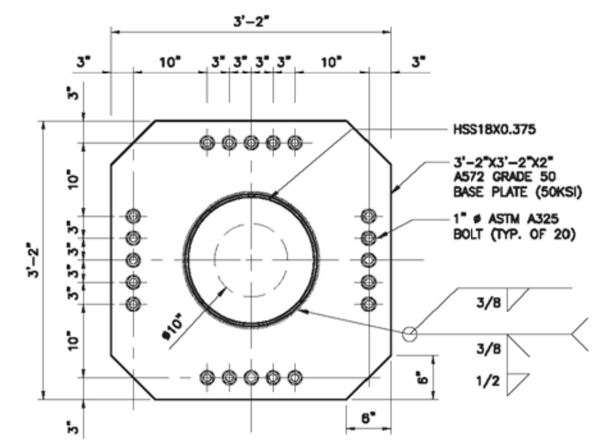


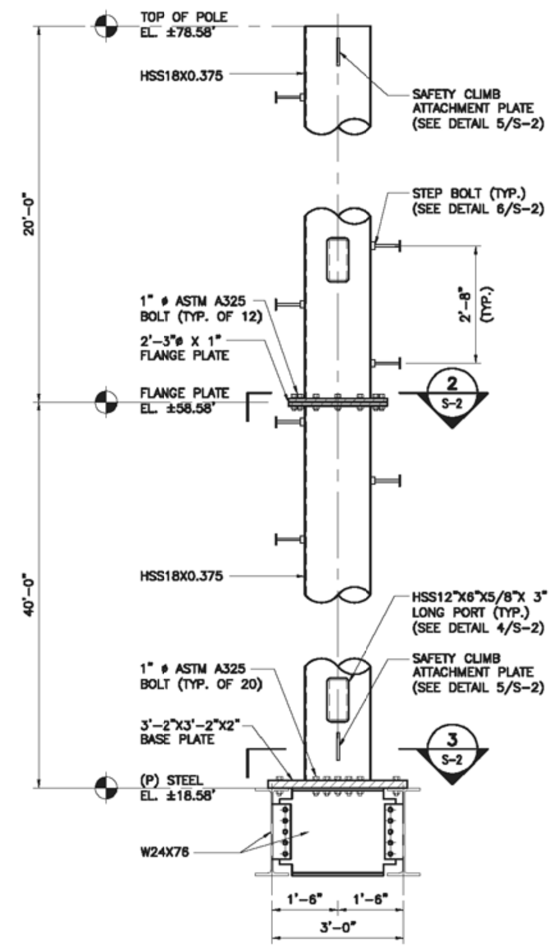
8 S-2 **TYP. PITCH POCKET DETAIL**
SCALE: NOT TO SCALE



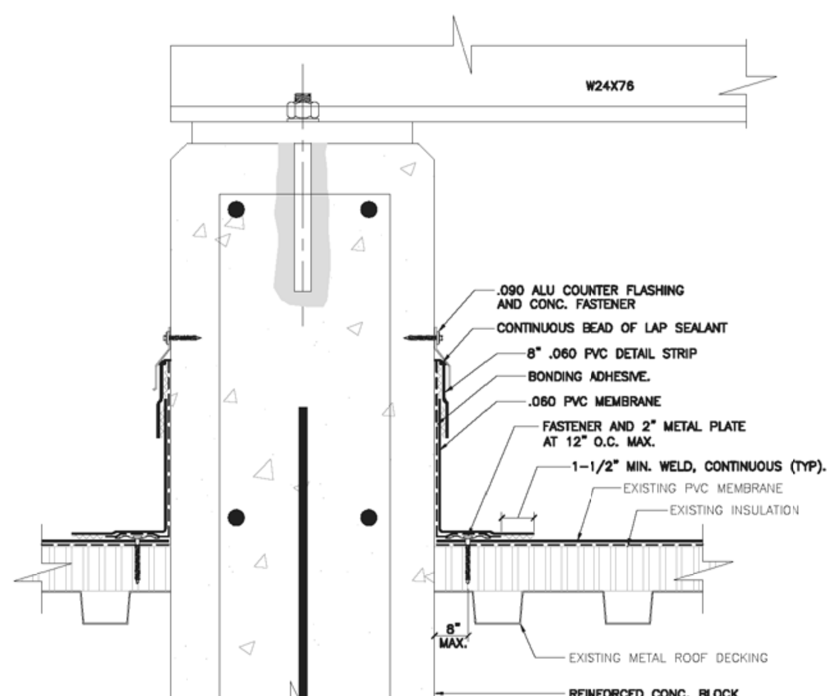
2 S-2 **POLE FLANGE PLATE DETAIL**
SCALE: 1" = 1'-0"



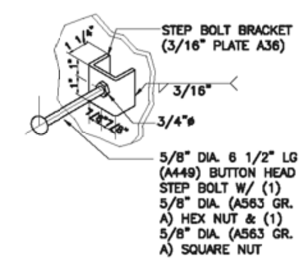
3 S-2 **POLE BASE PLATE DETAIL**
SCALE: 1" = 1'-0"



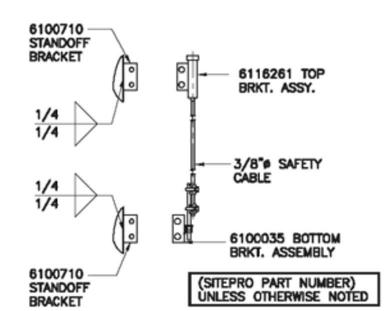
1 S-2 **POLE DETAIL**
SCALE: 1/2" = 1'-0"



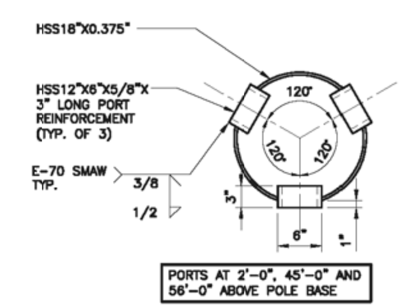
7 S-2 **FLASHING DETAIL**
SCALE: 3" = 1'-0"



6 S-2 **STEP BOLT DETAIL**
SCALE: 3/4" = 1'-0"



5 S-2 **SAFETY CLIMB DETAIL**
SCALE: 1/2" = 1'-0"



4 S-2 **PORT DETAIL**
SCALE: 1" = 1'-0"

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
3	4/07/17	TJL	CFC	REVISED TOWER/SUPPORT FRAME LOCATION
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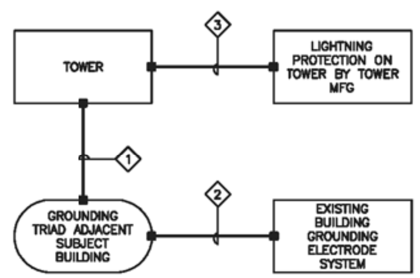
MONOPOLE & ROOFING DETAILS

S-2
Sheet No. 5 of 8



1 / E-1 **SCHEMATIC GROUNDING DIAGRAM**
NOT TO SCALE

GROUNDING SCHEMATIC NOTES

◇1 #4/0 GREEN INSULATED

◇2 BONDING JUMPER SIZED PER NEC.

◇3 COORDINATE WITH TOWER MANUFACTURER AND PROVIDE ALL BONDING JUMPERS AND DOWNLEADS AS REQUIRED. ALL BONDING FOR LIGHTNING PROTECTION ON TOWER SHALL BE PER TOWER MANUFACTURER'S SPECIFICATIONS.

<u>GENERAL NOTES:</u>

1. GROUND CONDUCTORS SHOWN SHALL BE #2 AWG SOLID TINNED BCW UNLESS OTHERWISE NOTED OR REQUIRED BY CODE.
2. ALL BONDS TO TOWER SHALL BE MADE IN STRICT ACCORDANCE WITH SPECIFICATIONS OF TOWER MANUFACTURER OR STRUCTURAL ENGINEER.
3. REFER TO GROUNDING PLAN FOR LOCATION OF GROUNDING DEVICES.
4. REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
5. COORDINATE ALL TOWER & ROOF MOUNTED EQUIPMENT WITH OWNER.
6. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.
7. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL CONTACT THE LIGHTNING PROTECTION COMPANY CERTIFYING AND WARRANTING ANY EXISTING LIGHTNING PROTECTION SYSTEM AT THIS LOCATION TO IDENTIFY ANY ADDITIONAL REQUIREMENTS THAT ARE NOT SHOWN ON THESE PLANS BUT NECESSARY TO MAINTAIN ALL WARRANTEES, CERTIFICATIONS, UL LISTING, AND PERFORMANCE CHARACTERISTICS. (THIS WILL INCLUDE THE ADDITION OF LIGHTNING PROTECTION FOR THE NEW WORK.) UPON COMPLETION OF THESE REQUIRED ADDITIONS/MODIFICATIONS CONTRACTOR WILL HAVE THE ENTIRE LIGHTNING PROTECTION SYSTEM RE-INSPECTED BY THE LIGHTNING PROTECTION COMPANY. ALL REQUIRED MODIFICATIONS TO MAINTAIN THE UL LISTING, WARRANTEE, AND ANY OTHER PRE-CONSTRUCTION CERTIFICATIONS SHALL BE PERFORMED AS PART OF THIS CONTRACT. CONTRACTOR SHALL CONTACT BUILDING OWNER FOR LIGHTNING PROTECTION COMPANY INFORMATION, AND IF UNAVAILABLE, SHALL UTILIZE NORTHEAST LIGHTNING PROTECTION, LOCATED IN BLOOMFIELD, CT.
8. A UL LISTED LIGHTNING PROTECTION IS REQUIRED FOR THE NEW WORK. THE NEW LIGHTNING PROTECTION SYSTEM SHALL BE DESIGNED AND INSTALLED BY NORTHEAST LIGHTNING PROTECTION, LOCATED IN BLOOMFIELD, CONNECTICUT OR OTHER APPROVED AND CERTIFIED VENDOR AS DESCRIBED IN NOTE ABOVE. CONTRACTOR SHALL CARRY AN ALLOWANCE OF $7500 FOR THE NEW LIGHTNING PROTECTION SYSTEM. THE ENTIRE SCOPE OF LIGHTNING PROTECTION SHALL BE INCLUSIVE OF ALL RECOMMENDED ADDITIONS FOR THE NEW WORK, AS WELL AS ALL RECOMMENDED MODIFICATIONS/ADDITIONS TO ANY EXISTING LIGHTNING PROTECTION SYSTEM AT THIS LOCATION.

CELLULAR GROUNDING NOTES

<u>OBJECTIVE</u>
PROVIDE A CELLULAR GROUNDING SYSTEM WITH MAXIMUM ALTERNATING CURRENT RESISTANCE OF 5 OHMS BETWEEN ANY POINT ON THE GROUNDING SYSTEM AND REFERENCE GROUND. PROVIDE EXTERIOR GROUNDING SCHEME WITH OWNER'S ENGINEER APPROVAL AS REQUIRED TO ACHIEVE DESIRED MAXIMUM AC RESISTANCE TO GROUND.

<u>TESTING</u>
CONTRACTOR TO PROVIDE AN INDEPENDENT TESTING CONTRACTOR TO DETERMINE THE GROUNDING SYSTEM RESISTANCE BY USE OF THE THREE POINT TEST AND AN AEMC MODEL 4500, OR APPROVED EQUAL. TEST TO BE PERFORMED PRIOR TO CONNECTION OF POWER SUPPLY TO THE CELL SITE AND CONNECTION OF THE GROUNDING SYSTEM TO THE WATER MAIN OR AC SUPPLY AS APPLICABLE.

<u>CONDUCTOR USED FOR CELLULAR GROUNDING SYSTEM</u>
EGR – #2 AWG ANNEALED SOLID TINNED BARE COPPER
IGR – #2 AWG ANNEALED STRANDED (7 STRAND) 'THW' GREEN COLORED INSULATION
INTER-BUS EXTENSION (FROM IGR TO EGR) – SEE DETAILS
EXTERNAL BOND CONNECTIONS TO EGR – #2 ANNEALED SOLID TINNED BARE COPPER
INTERIOR BOND CONNECTIONS TO IGR – #6 ANNEALED STRANDED (7 STRAND) 'THW' GREEN COLORED INSULATION

<u>MINIMUM BENDING RADIUS</u>
IGR #2 : 1'-0" NOMINAL AND 8" MINIMUM
EGR #2 : 2'-0" NOMINAL AND 8" MINIMUM
CELLULAR GROUNDING CONDUCTOR SHALL BE AS STRAIGHT AS POSSIBLE WITH MINIMUM 6" BENDING RADIUS.

<u>FASTENER FOR CELLULAR GROUNDING CONDUCTOR</u>
USE NON-METALLIC FASTENER AND STANDOFF 'CLIC' (AVAIL. FROM NEFCO 203-289-0285) TO SURFACE SUPPORT CONDUCTOR 3" AWAY FROM SURFACES.

SPACING OF FASTENERS: 2'-0" O.C. OUTSIDE BUILDING
3'-0" O.C. INSIDE BUILDING

<u>GROUNDING ELECTRODE</u>
GROUNDING ELECTRODE SHALL BE 5/8" DIA. x 10'-0" L. COPPER CLAD STEEL ROD. ADJUST LOCATION OF GROUNDING ELECTRODE IF SOIL CONDITION IS NOT CONDUCTIVE (GRAVEL, SANDY SOIL, ROCKS). SPACE GROUNDING ELECTRODES 20'-0" APART (SPACING MAY BE REDUCED WHERE REQUIRED TO ACCOMMODATE FIELD CONDITIONS BUT SHALL NOT BE LESS THAN 10'-0"). ELECTRODES SHALL BE DRIVEN ONLY WITH PROPER DRIVER SLEEVE TO PREVENT MUSHROOMING TOP OF ROD. WHEN ROCK BOTTOM IS ENCOUNTERED, THE ELECTRODE SHALL BE DRIVEN AT AN OBLIQUE ANGLE NOT TO EXCEED 45° FROM THE VERTICAL AWAY FROM STRUCTURES. TOP OF GROUNDING ELECTRODE SHALL BE MIN. 3'-6" BELOW FINISH GRADE.

<u>CONNECTIONS ABOVE GRADE (MECHANICAL)</u>
COMPRESSION LUG CONNECTOR – 15 TON COMPRESSION, 2 HOLE, LONG BARREL, ELECTRO TINNED PLATED, HIGH CONDUCTIVITY, COPPER 600V RATED. USE 1/4" ø BOLT, 3/4" SPACING LUGS TO BOND OBJECTS FROM THE IGR. (CONNECTOR SHALL BE BURNDY HYLUG SERIES OR EQUAL.)

EXOTHERMIC WELD LUG CONNECTOR – 2 HOLE, OFFSET, ELECTRO TINNED PLATED, HIGH CONDUCTIVITY, COPPER 600V. USE 1/2"ø BOLT, 1-3/4" SPACING LUGS. CONNECTOR SHALL BE CADWELD CONNECTION STYLE (CABLE TO SURFACE) TYPE LA, LUG SIZE 1/8 x 1. EXOTHERMIC WELD TO LUG AS REQUIRED.

C-TAP COMPRESSION CONNECTOR – HIGH CONDUCTIVITY COPPER FOR MAIN TO BRANCH LINE TAPPING. (CONNECTOR SHALL BE BURNDY HYTAP SERIES OR EQUAL.)

<u>MECHANICAL CONNECTIONS</u>
USE MATCHING MANUFACTURER TOOL AND DIE FOR COMPRESSION CONNECTION.

APPLY ANTI-OXIDANT CONDUCTIVITY ENHANCER COMPOUND ON SURFACES THAT ARE COMPRESSED.

SURFACES INTENDED TO BE CONNECTED WITH MECHANICAL CONNECTORS SHALL BE BARE METAL TO BARE METAL. PRIME AND PAINT OVER BONDED AREA TO PREVENT CORROSION.

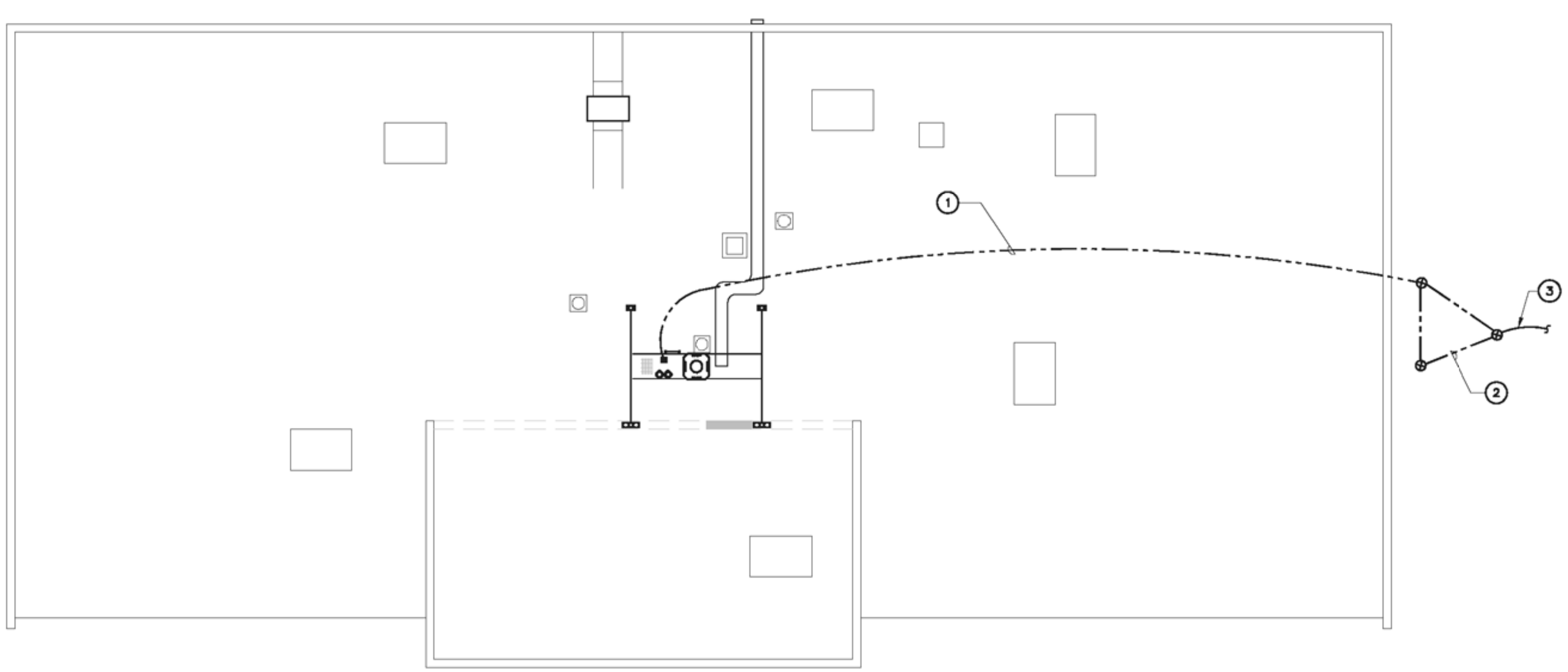
<u>WHEN BONDING #2 TO #2</u>
EXTERIOR OF BUILDING – USE EXOTHERMIC WELD CONNECTION
INTERIOR OF BUILDING – USE COMPRESSION CONNECTION ON STRANDED CONDUCTORS ONLY.
– USE EXOTHERMIC WELD CONNECTION ON SOLID CONDUCTOR.

<u>WHEN BONDING #2 TO FENCE POST</u>
USE EXOTHERMIC WELD 'CADWELD TYPE VS' CONNECTION TO FENCE POST STEEL SURFACE. TEST WELD FOR POSSIBLE BURN THRU. PATCH WELDED AREA WITH GALVANIZED COATING AS REQUIRED FOR PROPER WELDED PERMANENT BOND. REFER TO MANUFACTURER'S REQUIREMENTS FOR DETAILS

<u>GROUNDING SYSTEM INTERCONNECTION</u>
BOND THE EGR DOWN CONDUCTORS, AND/OR BURIED GROUND RING TO ANY METALLIC OBJECT OR EXISTING GROUNDING SYSTEM WITHIN 6'.

<u>WHEN BONDING #2 TO TOWER GROUND PLATE</u>
TOWER GROUND PLATE SHALL BE 6" x 8" x 1/4" COPPER AND BE MADE AVAILABLE TO TOWER CONTRACTOR TO BE INSTALLED DURING TOWER CONSTRUCTION. USE EXOTHERMIC WELD 'CADWELD TYPE HS' TO TOWER GROUND PLATE TEST WELD FOR POSSIBLE BURN THRU. COORDINATE THE SIZE OF THE MOUNTING HOLE WITH TOWER CONTRACTOR.

<u>METALLIC CONDUITS</u>
BOND ALL STEEL CONDUITS TO PANELS AT POINT OF CONTACT WITH APPROVED GROUNDING BUSHING.



GROUNDING PLAN NOTES

1. BOND TOWER TO GROUNDING TRIAD WITH #4/0 AWG GREEN INSULATED.
2. GROUNDING TRIAD. PER DETAILS.
3. BOND GROUNDING TRIAD TO EXISTING BUILDING GROUNDING ELECTRODE SYSTEM PER NEC REQUIREMENTS.

2 / E-1 **ROOF PLAN**
SCALE: 1" = 10'-0"

APPROXIMATE NORTH

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 20 ft.

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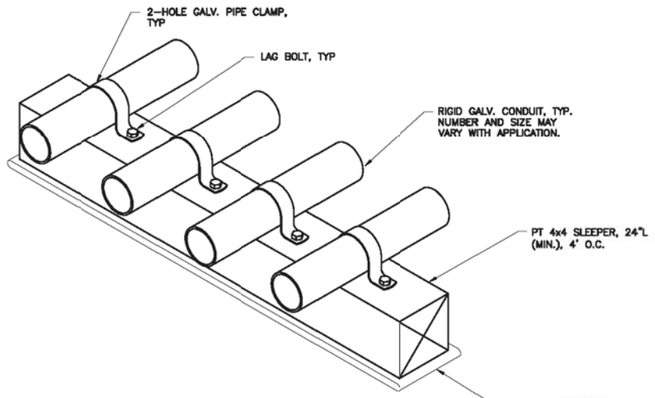
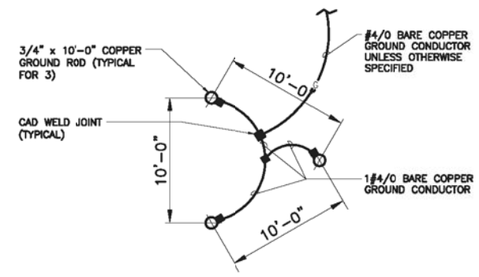
SCHEMATIC GROUNDING, PLAN AND NOTES

E-1

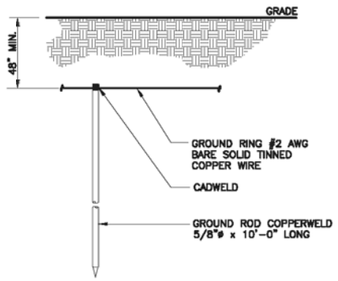
Sheet No. 6 of 8



1 / E-2 **ROOF - MOUNTED CONDUIT DETAIL**
NOT TO SCALE



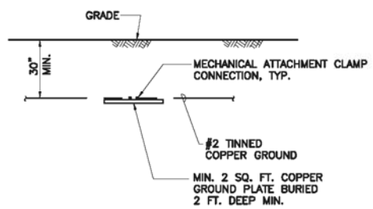
2 / E-2 **GROUND TRIAD DETAIL**
NOT TO SCALE



NOTES:

1. USE GROUND PLATE DETAIL IF 10 FT. GROUND ROD DEPTH CANNOT BE ACHIEVED DUE TO LEDGE CONDITION OR IF EXISTING TOWER FOUNDATION IS ENCOUNTERED.

3 / E-2 **GROUND ROD DETAIL**
NOT TO SCALE



NOTES:

1. GROUND PLATE DETAIL TO BE USED ONLY IF 10 FT. GROUND ROD DEPTH CANNOT BE ACHIEVED DUE TO LEDGE CONDITION OR IF EXISTING TOWER FOUNDATION IS ENCOUNTERED.

3A / E-2 **GROUND PLATE DETAIL**
NOT TO SCALE

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ELECTRICAL DETAILS

E-2

Sheet No. 7 of 8

ELECTRICAL SPECIFICATIONS

SECTION 16010

1.01. SCOPE OF WORK

A. WORK SHALL INCLUDE ALL LABOR, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE (MAKE READY FOR OPERATION) ALL THE ELECTRICAL WORK INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

1. PROVIDE TOWER GROUNDING IN ACCORDANCE WITH EIA, TIA AND NEC REQUIREMENTS.

1.02. GENERAL REQUIREMENTS

A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.

B. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNERS REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS THAT MAY BE REQUIRED BY THE LOCAL AUTHORITY.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.

E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH LOCAL TELEPHONE COMPANY THAT MAY BE REQUIRED FOR THE INSTALLATION OF TELEPHONE SERVICE TO THE PROPOSED CELLULAR SITE.

F. NO MATERIAL OTHER THAN THAT CONTAINED IN THE "LATEST LIST OF ELECTRICAL FITTINGS" APPROVED BY THE UNDERWRITERS' LABORATORIES, SHALL BE USED IN ANY PART OF THE WORK. ALL MATERIAL FOR WHICH LABEL SERVICE HAS BEEN ESTABLISHED SHALL BEAR THE U.L. LABEL.

G. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.

H. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.

I. THE ELECTRICAL CONTRACTOR SHALL SUPPLY THREE (3) COMPLETE SETS OF APPROVED DRAWINGS, ENGINEERING DATA SHEETS, MAINTENANCE AND OPERATING INSTRUCTION MANUALS FOR ALL SYSTEMS AND THEIR RESPECTIVE EQUIPMENT. THESE MANUALS SHALL BE INSERTED IN VINYL COVERED 3–RING BINDERS AND TURNED OVER TO OWNER'S REPRESENTATIVE ONE (1) WEEK PRIOR TO FINAL PUNCH LIST.

J. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER AND WILL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

K. ALL EQUIPMENT AND MATERIALS TO BE INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED.

L. BEFORE FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS (AS–BUILTS), LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES FROM THE ORIGINAL PLANS.

M. PROVIDE TEMPORARY POWER AND LIGHTING IN WORK AREAS AS REQUIRED.

N. SHOP DRAWINGS:

1. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIALS PROPOSED FOR USE ON THIS PROJECT, GIVING ALL DETAILS, WHICH INCLUDE DIMENSIONS, CAPACITIES, ETC.

2. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF ALL TEST REPORTS CALLED FOR IN THE SPECIFICATIONS AND DRAWINGS.

O. ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE INDIVIDUALS TO OBTAIN ALL SUCH SPECIFICATIONS AND REQUIREMENTS. NOTHING CONTAINED IN, OR OMITTED FROM, THESE DOCUMENTS SHALL RELIEVE CONTRACTOR FROM THIS OBLIGATION.

SECTION 16450

1.01. GROUNDING

A. ALL NON–CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.

B. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.

C. GROUNDING OF PANELBOARDS:

1. PANELBOARD SHALL BE GROUNDED BY TERMINATING THE PANELBOARD FEEDER'S EQUIPMENT GROUND CONDUCTOR TO THE EQUIPMENT GROUND BAR KIT(S) LUGGED TO THE CABINET. ENSURE THAT THE SURFACE BETWEEN THE KIT AND CABINET ARE BARE METAL TO BARE METAL. PRIME AND PAINT OVER TO PREVENT CORROSION.

2. CONDUIT(S) TERMINATING INTO THE PANELBOARD SHALL HAVE GROUNDING TYPE BUSHINGS. THE BUSHINGS SHALL BE BONDED TOGETHER WITH BARE #10 AWG COPPER CONDUCTOR WHICH IN TURN IS TERMINATED INTO THE PANELBOARD'S EQUIPMENT GROUND BAR KIT(S).

D. EQUIPMENT GROUNDING CONDUCTOR:

1. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250–122.

2. THE MINIMUM SIZE OF EQUIPMENT GROUND CONDUCTOR SHALL BE #12 AWG COPPER.

3. REFER TO PANEL SCHEDULE "BRANCH CIRCUIT" DATA FOR EQUIPMENT GROUND CONDUCTOR SIZE FOR EACH BRANCH CIRCUIT.

4. EACH FEEDER OR BRANCH CIRCUIT SHALL HAVE EQUIPMENT GROUND CONDUCTOR(S) INSTALLED IN THE SAME RACEWAY(S).

E. CELLULAR GROUNDING SYSTEM:

CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3–POINT GROUNDING TEST. (REFER TO SECTION 16960).

PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO:

1. GROUND BARS
2. INTERIOR GROUND RING
3. EXTERIOR GROUNDING (WHERE REQUIRED DUE TO MEASURED AC RESISTANCE GREATER THAN SPECIFIED).
4. ANTENNA GROUND CONNECTIONS AND PLATES.

F. CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY OWNER'S WIRELESS PROJECT ENGINEER WHO WILL HAVE A DESIGN ENGINEER VISIT SITE AND MAKE A VISUAL INSPECTION OF THE GROUNDING GRID AND CONNECTIONS OF THE SYSTEM.

G. ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFG. SPECIFICATIONS, AND OWNER'S SPECIFICATIONS.

SECTION 16960

1.01. TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

TEST 1: THERMAL OVERLOAD AND MAGNETIC TRIP TEST, AND CABLE INSULATION TEST FOR ALL CIRCUIT BREAKERS RATED 100 AMPS OR GREATER.

TEST 2: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.

2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.

3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. THESE TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNER'S CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION REPRESENTATIVE AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM'S REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

SECTION 16961

1.01. TESTS BY CONTRACTOR

A. ALL TESTS AS REQUIRED UPON COMPLETION OF WORK, SHALL BE MADE BY THIS CONTRACTOR. THESE SHALL BE CONTINUITY AND INSULATION TESTS; TEST TO DETERMINE THE QUALITY OF MATERIALS, ETC. AND SHALL BE MADE IN ACCORDANCE WITH N.E.C. RECOMMENDATIONS. ALL FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT CLASS 2 SIGNAL CIRCUITS) MUST BE TESTED FREE FROM SHORT CIRCUIT AND GROUND FAULT CONDITIONS AT 500V IN A REASONABLY DRY AMBIENT OF APPROXIMATELY 70 DEGREES F.

B. CONTRACTOR SHALL PERFORM LOAD PHASE BALANCING TESTS. CIRCUITS SHALL BE SO CONNECTED TO THE PANELBOARDS SUCH THAT THE NEW LOAD IS DISTRIBUTED AS EQUALLY AS POSSIBLE BETWEEN EACH LOAD AND NEUTRAL. 10% SHALL BE CONSIDERED AS A REASONABLE AND ACCEPTABLE ALLOWANCE. BRANCH CIRCUITS SHALL BE BALANCED ON THEIR OWN PANELBOARDS; FEEDER LOADS SHALL, IN TURN, BE BALANCED ON THE SERVICE EQUIPMENT. REASONABLE LOAD TEST SHALL BE ARRANGED TO VERIFY LOAD BALANCE IF REQUESTED BY THE ENGINEER.

C. ALL TESTS, UPON REQUEST, SHALL BE REPEATED IN THE PRESENCE OF OWNER'S REPRESENTATIVE. ALL TESTS SHALL BE DOCUMENTED AND TURNED OVER TO OWNER. OWNER SHALL HAVE THE AUTHORITY TO STOP ANY OF THE WORK NOT BEING PROPERLY INSTALLED. ALL SUCH DETECTED WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE TESTS SHALL BE REPEATED.

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2	12/02/16	TJL	CFC	UPDATED BUILDING CODE REFERENCE
1	05/04/16	TJL	CFC	ISSUED FOR CONSTRUCTION
0	03/24/16	TJL	CFC	ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

EVERSOURCE
WIRELESS COMMUNICATIONS FACILITY
DANIELSON WORK CENTER
173 MECHANIC STREET
KILLINGLY, CT 06239

DATE: 03/10/16
SCALE: AS NOTED
JOB NO. 15277.000

ELECTRICAL SPECIFICATIONS

E-3

Attachment 2 – Antenna Specifications

UHF Dual Antennas (450-512 MHz)

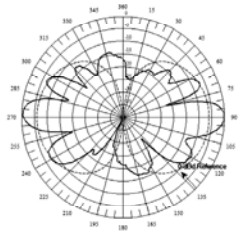
Fiberglass Omni. Two antennas in a single radome.

dbSpectra

MODEL	DS4C06F36D-N	DS4D03C36D-N	DS4D03F36D-N	DS4D06F36D-N
Model with 7/16 DIN	DS4C06F36D-D	DS4D03C36D-D	DS4D03F36D-D	DS4D06F36D-D
Type	Dual Omni	Dual Omni	Dual Omni	Dual Omni
ELECTRICAL SPECIFICATIONS				
Frequency Range (MHz)	450-482	480-512	480-512	480-512
Bandwidth (MHz)	32	32	32	32
Power (Watts)	500	500	500	500
Gain (dBd)	6	3	3	6
Horizontal Beamwidth (degrees)	360	360	360	360
Vertical Beamwidth (degrees)	16	30	30	16
Beam Tilt (degrees)	0	0	0	0
VSWR	1.5:1	1.5:1	1.5:1	1.5:1
Isolation (minimum) (dB)	35	35	35	35
PIM Rated Design	Yes	Yes	Yes	Yes
MECHANICAL SPECIFICATIONS				
Material/Construction	Brass/Copper	Brass/Copper	Brass/Copper	Brass/Copper
Input Connector	N(F)	N(F)	N(F)	N(F)
# of Connectors	2	2	2	2
Temperature Range (degrees)	-30 to +60 C	-30 to +60 C	-30 to +60 C	-30 to +60 C
Flat Plate Area (ft^2/m^2)	3.25 / 0.301	0.49 / 0.05	1.74 / 0.16	3.06 / 0.28
Mounting Hardware - included	DSH3V3N	DSH2V3R	DSH2V3R	DSH3V3N
DIMENSIONS				
Length (ft/m)	19.4 / 5.9	8 / 2.4	8 / 2.4	19.4 / 5.9
Radome O.D. (in/cm)	3 / 7.62	2 / 5.08	3 / 7.62	3 / 7.62
Mast O.D. (in/cm)	3.2 / 8.13	2.5 / 6.35	3.2 / 8.13	3.2 / 8.13
Net Weight - without bracket (lb/kg)	50 / 22.7	10 / 4.5	10 / 4.5	50 / 22.7
Shipping Weight (lb/kg)	60 / 27.2	20 / 9	20 / 9	60 / 27.2

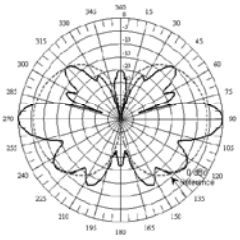
VERTICAL PATTERN - TOP

DS4D06F36D-N

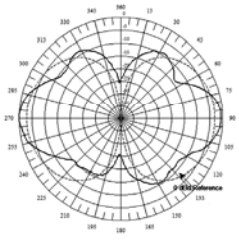


VERTICAL PATTERN - BOTTOM

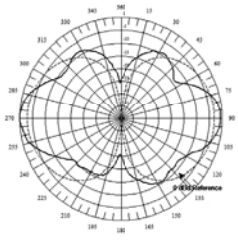
DS4C06F36D-N



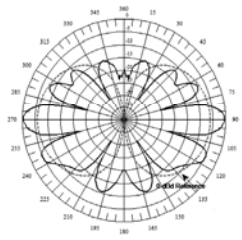
DS4D03C36D-N



DS4D03F36D-N



DS4D06F36D-N



TELEWAVE, INC.

138 - 175 MHz

ANT150F6

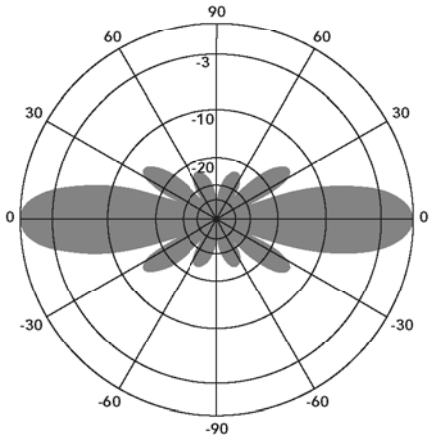
FIBERGLASS COLLINEAR ANTENNA 6 dBd

The Telewave ANT150F6 is an extremely rugged, medium-gain, fiberglass collinear antenna, designed for operation in all environmental conditions. The antenna is constructed with brass and copper elements, connected at DC ground potential for lightning impulse protection. All junctions are fully soldered to prevent RF intermodulation, and each antenna is completely protected within a high-tech, flexible radome to ensure survivability in the worst environments.

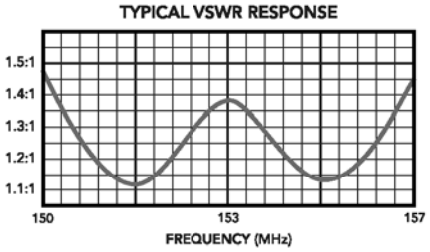
The "Cool Blue" radome provides maximum protection from corrosive gases, UV radiation, icing, salt spray, acid rain, and wind blown abrasives. Eight models cover the entire VHF band. Please specify exact frequency and band code (-1, -2, etc.) when ordering.

The ANT150F6 includes an ANTC482 dual clamp set for mounting to a 1.5" to 3.5" O.D. support pipe, and a 24" removable RG-213 N-Male jumper. Stand-off and top mounts are also available.

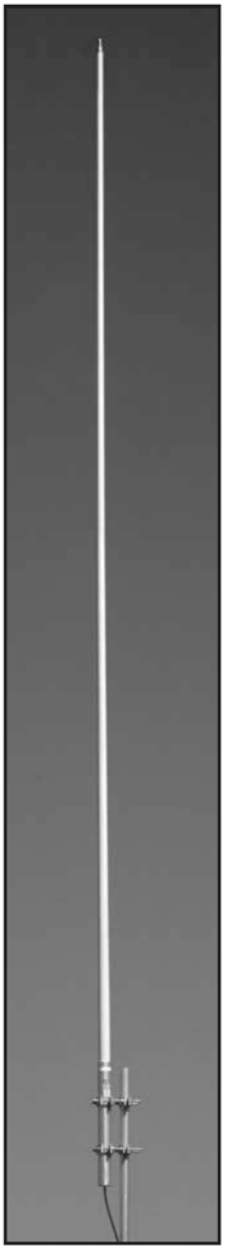
NOTE: THESE ANTENNAS ARE SHIPPED VIA TRUCK FREIGHT ONLY



ANT150F6 - 156 MHz
Vertical Plane
Gain = 6.41 dBd



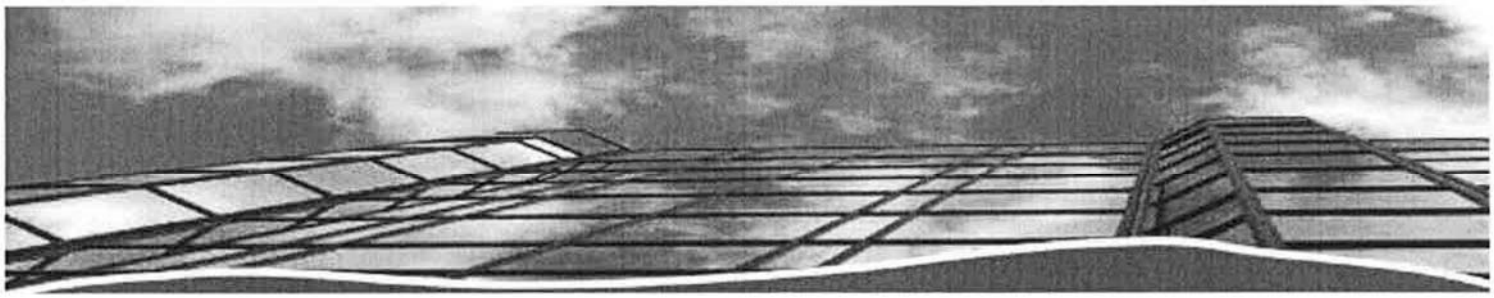
FREQUENCY RANGES	
ANT150F6-1	138 - 144 MHz
ANT150F6-2	144 - 151 MHz
ANT150F6-3	150 - 157 MHz
ANT150F6-4	156 - 164 MHz
ANT150F6-5	158 - 166 MHz
ANT150F6-6	161 - 168 MHz
ANT150F6-7	167 - 172.5 MHz
ANT150F6-8	171 - 175 MHz



SPECIFICATIONS			138-151 MHz	150-175 MHz
Frequency range	138-175 MHz (8 bands)	**Dimensions (L x base diam.)**	256" x 2.75"	244" x 2.75"
Gain	6 dBd	**Tower weight** (Antenna + clamps)	43 lb.	41 lb.
Power rating (typ.)	500 watts	**Shipping weight**	65 lb.	62 lb.
Impedance	50 ohms	**Wind rating / 0.5" ice**	150 / 125 MPH	
VSWR	1.5:1 or less	**Maximum exposed area**	4.05 ft.²	3.97 ft.²
Pattern	Omnidirectional	**Lateral Thrust at 100 MPH**	162 lb.	159 lb.
Vertical beamwidth	20°	**Bending Moment - top clamp**	1090 ft. lb.	1010 ft. lb.
Termination	Recessed N Female 7-16 DIN-F opt.	**(100 MPH, 40 PSF flat plate equiv.)**		

TWDS-7020 Rev. 5/12

Kreco Antennas



CO-36A, & CO-41A

Shunt Fed Co-Axial Antennas

By feed this antenna internally the entire external surfaces are at ground potential. A lightning strike will be conducted down the vertical through the support pipe and down to ground through the tower or support structure. Pipe is part of the antenna.

Constructed of Aluminum. Vertical Tubing - Solid Tip

	CO-36A	CO-41A
Diameter	5/8"	3/4"
Skirt Diameter	2 1/4"	2 5/8"
Support Pipe	1"	1 1/4"
Support Pipe Extends 36"	"	"
Feedline Termination		
Must specify UHF or Type N Female connector and exact frequency	"	"
Power Rating	500 Watts	1 KW
Unity Gain Omni Directional	"	"
30 - 50 MHz	12 lbs.	14 lbs.
50 - 100 MHz	10 lbs.	11 lbs.

CO-41

Attachment 3 - Independent Structural Engineer's Review

CENTEK engineering

Centered on Solutions℠

April 7, 2017

Mr. Steve Florio
Eversource
107 Selden Street
Berlin, CT 06037

Re: Structural Evaluation Letter ~ Wireless Communications Facility
Eversource Site Ref ~ Danielson Work Center
173 Mechanic Street
Killingly, CT 06239

CENTEK Project No. 15277.00

Dear Mr. Florio,

This letter is to document the basis of the structural design of the proposed wireless communications facility at the above referenced property.

Centek Engineering, Inc. is responsible for the preparation of signed and sealed Construction Documents dated 04/07/2017 (Rev. 3) for the proposed unmanned wireless communications facility to be located at the existing one story (±15.0 ft. A.G.L.) host building. The wireless communications facility consists of a 60-ft tall antenna mast supported on a structural steel dunnage frame on the roof of the host building.

The structural analysis of the host building components and design of the proposed equipment installation will be prepared in accordance with the 2012 International Building Code as amended by the 2016 CT State Building Code (CSBC). Additionally, design loads and reactions for the proposed antenna mast were calculated per TIA-222-G standard "Structural Standard for Antenna Supporting Structures and Antennas" considering the nominal design wind speed of 101 mph as required in Appendix N of the CSBC.

Existing building drawings prepared by Chandler and Palmer Arch dated October 1955 were available for use in evaluation of the existing building components. Our analysis found the existing wide flange roof girders, lally columns and CMU bearing wall located directly below the proposed antenna mast support frame were structurally adequate to accommodate the additional loading from the antenna frame in addition to existing building dead and live loads . Our findings are based on the assumption that all structural members and appurtenances were properly designed, detailed, fabricated, installed and have been properly maintained since erection.

The findings of our structural analysis concluded that the proposed communications facility will not adversely affect the host building. Feel free to contact us should further documentation be necessary.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STATE OF CONNECTICUT
TIMOTHY J. LYNN
No. 29336
LICENSED
PROFESSIONAL ENGINEER

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 www.CentekEng.com

Attachment 4 – Wetlands Inspection Report

ALL-POINTS TECHNOLOGY CORPORATION

WETLAND INSPECTION

April 13, 2016 **APT Project No.: CT259200**

Prepared For: Eversource Energy
170 Selden Street
Berlin, CT 06037
Attn: Steven Florio

Eversource Wireless Site Name: Danielson Work Center

Site Address: 173 Mechanic Street
Killingly, Connecticut

Date(s) of Investigation: 4/13/2016

Field Conditions: **Weather:** sunny, low 50's
Soil Moisture: dry to moist

Wetland/Watercourse Delineation Methodology*:

☒Connecticut Inland Wetlands and Watercourses
☐Connecticut Tidal Wetlands
☐Massachusetts Wetlands
☐U.S. Army Corps of Engineers

Municipal Upland Review Area/Buffer Zone:
Wetlands: 200 feet
Watercourses: 200 feet

The wetlands inspection was performed by†:

Dean Gustafson

Dean Gustafson, Professional Soil Scientist

Enclosures: Wetland Inspection Field Form & Wetland Inspection Map

This report is provided as a brief summary of findings from APT's wetland investigation of the referenced Study Area that consists of proposed development activities and areas generally within 200 feet.‡ If applicable, APT is available to provide a more comprehensive wetland impact analysis upon receipt of site plans depicting the proposed development activities and surveyed location of identified wetland and watercourse resources.

---

* *Wetlands and watercourses were delineated in accordance with applicable local, state and federal statutes, regulations and guidance.*

† *All established wetlands boundary lines are subject to change until officially adopted by local, state, or federal regulatory agencies.*

‡ *APT has relied upon the accuracy of information provided by Verizon Wireless and its contractors regarding proposed lease area and access road/utility easement locations for identifying wetlands and watercourses within the study area.*

Attachments

- Wetland Inspection Field Form
- Wetland Inspection Map

Wetland Inspection Field Form

Wetlands Identified within Study Area:	Yes ☐ No ☒	
Nearest Wetland Resource:	±850 feet to the southwest	
Identification Method:	Remote sensing ☒ Type: CTDEEP Wetland Mapping	Field identified ☒

SITE CONDITIONS:

DEVELOPED ☒

Paved ☒	Gravel ☐	Maintained Lawn ☒
Agriculture ☐	Cultivated ☐	Hayfield/Pasture ☐
Comments: None		

UNDEVELOPED UPLAND HABITAT ☐

Forest ☐	Scrub/Shrub ☐	Field ☐
Other: None		
Comments: None		

SOILS:

Are field identified soils consistent with NRCS mapped soils?	Yes ☒	No ☐
If no, describe field identified soils		

NEAREST WETLAND TYPE:

SYSTEM:

Estuarine ☐	Riverine ☒	Palustrine ☐
Lacustrine ☐	Marine ☐	
Comments: None		

CLASS:

Emergent ☐	Scrub-shrub ☐	Forested ☐
Open Water ☒	Disturbed ☐	Wet Meadow ☐
Comments: None		

WATERCOURSE TYPE:

Perennial ☒	Intermittent ☐	Tidal ☐
Watercourse Name: Fivemile Pond		
Comments: None		

Wetland Inspection Field Form (Cont.)

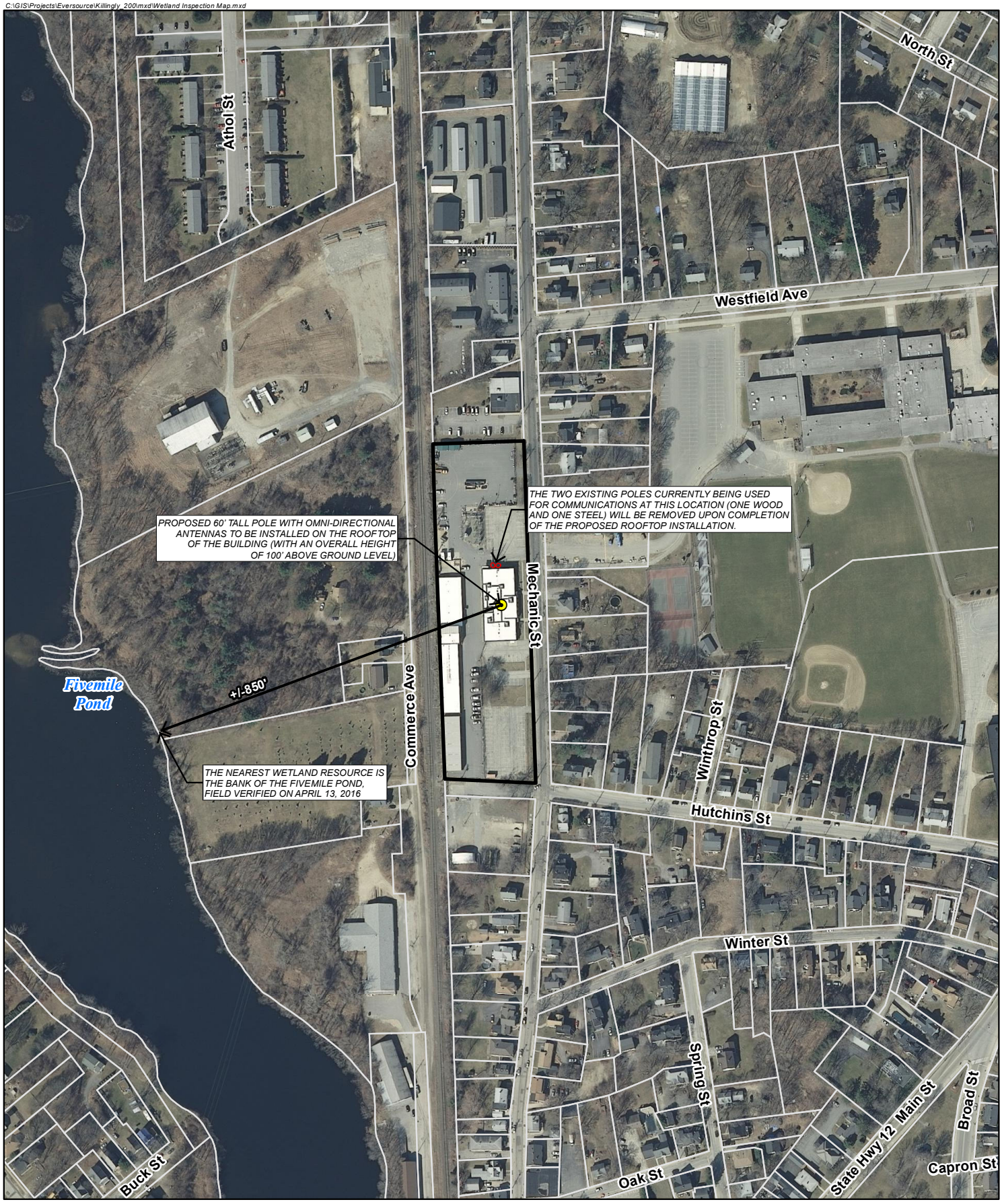
SPECIAL AQUATIC HABITAT:

Vernal Pool Yes ☐ No ☒ Potential ☐	Other ☐
Vernal Pool Habitat Type: None	
Comments: None	

GENERAL COMMENTS:

No wetlands or watercourses are located on the subject property. The Subject Property consists of a commercially developed parcel located at 173 Mechanic Street, Killingly, Windham County, Connecticut. The proposed Eversource Energy project consists of construction of a 60-foot-tall pole, roof top mounted atop of the Danielson Work Center building. The 60-foot pole will be mounted on a steel dunnage frame atop of the roof of the existing building. This site is developed with the Danielson Work Center facility that includes a large commercial building with paved parking lots and access drives along with maintained lawn and landscaped areas. The closest wetland resource to the Subject Property is the east bank of Fivemile Pond located approximately 850 feet to the southwest.

C:\GIS\Projects\Eversource\Killingly_200\mxd\Wetland Inspection Map.mxd



Legend

- Proposed 60' Tall Pole with Antennas
- Subject Property
- Approximate Parcel Boundary (CTDEEP)

Wetland Inspection Map

Danielson Work Center
173 Mechanic Street
Killingly, Connecticut

N
W E
S

300 150 0 300
Feet

EVERSOURCE ENERGY

ALL-POINTS TECHNOLOGY CORPORATION

Base Map: 2012 Aerial Photograph (CTECO)
**No NDDB areas are located within mapped extent*
Map Scale: 1 inch = 300 feet
Map Date: July 2016

Attachment 5 – Avian Resource Evaluation

ALL-POINTS TECHNOLOGY CORPORATION

AVIAN RESOURCES EVALUATION

February 2, 2017

Eversource Energy
56 Prospect Street
Hartford, Connecticut 06103

APT Project No.: CT259200

Re: Danielson Work Center
173 Mechanic Street
Killingly, Connecticut

Eversource Energy ("Eversource") proposes to construct a new wireless telecommunications Facility at the Danielson Work Center located at 173 Mechanic Street in Killingly, Connecticut (the "Host Property"). The Host Property consists of an approximately 3.84-acre Eversource Service Center parcel. The area proposed for the Facility is located in the central portion of the Host Property in an area that is currently comprised of a developed and disturbed area associated with the existing Eversource Service Center. Eversource proposes to install a ±63.6-foot tall monopole tower on the roof of the existing service center building (overall height of ±97 feet above ground level ["AGL"] with appurtenances[1]) and supporting equipment within the building. All utilities are currently in place to support the required equipment for the Facility.

The purpose of this evaluation is to document the proposed Facility's proximity to avian resource areas and its compliance with recommended guidelines of the United States Fish and Wildlife Service ("USFWS") for minimizing the potential for telecommunications towers to impact bird species.

All-Points Technology Corporation, P.C. ("APT") reviewed several publicly-available sources of avian data for the state of Connecticut to provide the following information with respect to potential impacts on migratory birds associated with the proposed development. This desktop analysis and attached graphics identify avian resources and their proximities to the Host Property. Information within an approximate 3-mile radius of the Host Property is graphically depicted on the attached Avian Resources Map. Some of the avian data referenced herein are not located in proximity to the Host Property and are therefore not visible on the referenced map due to its scale. However, in those cases the distances separating the Host Property from the resources are identified in the discussions below.

Proximity to Important Bird Areas

The National Audubon Society has identified 27 Important Bird Areas ("IBAs") in the state of Connecticut. IBAs are sites that provide essential habitat for breeding, wintering, and/or migrating birds. To achieve

[1] The Facility will include three whip antennas affixed near the top of the monopole.

this designation, an IBA must support species of conservation concern, restricted-range species, species vulnerable due to concentration in one general habitat type or biome, or species vulnerable due to their occurrence at high densities as a result of their congregatory behavior[2]. The closest IBA to the Host Property is the Bafflin Sanctuary Complex in Pomfret located approximately 3.5 miles to the northwest. Bafflin Sanctuary provides a variety of habitats that support numerous species of birds, including breeding grounds for several species of high conservation priority. Endangered Pied-billed Grebes and American Black Ducks (high conservation priority) have been known to nest in the wetlands here. These areas are also a migratory stopover for American Bittern in the fall. Due to its distance from the site, this IBA would not experience an adverse impact resulting from the proposed development of the Facility.

Supporting Migratory Bird Data

Beyond Audubon's IBAs, the following analysis and attached graphics also identify several additional avian resources and their proximities to the Host Property. Although these data sources may not represent habitat indicative of important bird areas, they may indicate possible bird concentrations[3] or migratory pathways.

Critical Habitat

Connecticut Critical Habitats depict the classification and distribution of 25 rare and specialized wildlife habitats in the state. It represents a compilation of ecological information collected over many years by state agencies, conservation organizations and individuals. Critical habitats range in size from areas less than one acre to areas that are tens of acres in extent. The Connecticut Critical Habitats information can serve to highlight ecologically significant areas and to target areas of species diversity for land conservation and protection but may not necessarily be indicative of habitat for bird species. The nearest Critical Habitat to the proposed Facility is a palustrine floodplain forest Area associated with Fivemile River located approximately 0.38 mile to the northwest. Based on the distance separating this resource from the proposed Facility, no adverse impacts are anticipated.

Avian Survey Routes and Points

Breeding Bird Survey Route

The North American Breeding Bird Survey is a cooperative effort between various agencies and volunteer groups to monitor the status and trends of North American bird populations. Routes are randomly located to sample habitats that are representative of an entire region and do not necessarily represent concentrations of avifauna or identification of critical avian habitats. Each year during the height of the avian breeding season (June for most of the United States) participants skilled in avian identification collect bird population data along roadside survey routes. Each survey route is approximately 24.5 miles long and contains 50 stops located at 0.5-mile intervals. At each stop, a three-minute count is conducted. During each count, every bird seen or heard within a 0.25-mile

[2] http://web4.audubon.org/bird/iba/iba_intro.html

[3] "bird concentrations" is related to the USFWS *Revised Voluntary Guidelines for communication Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning* (September 27, 2013) analysis provided at the end of this document

radius is recorded. The resulting data is used by conservation managers, scientists, and the general public to estimate population trends and relative abundances and to assess bird conservation priorities. The nearest survey route to the host Property is the Pulaski Breeding Bird Survey Route (Route #77102) located approximately 8.1 miles to the east. This ±26-mile long bird survey route begins near Wakefield Pond in the southwestern corner of Burrillville, Rhode Island along Munyon Trail. The route generally winds its way south through the western portion of Glocester, the eastern portion of Foster, and terminates in the southeastern corner of Foster, RI at its boundary with Coventry, RI. Since bird survey routes represent randomly selected data collection areas, they do not necessarily represent a potential restriction to development projects, including the proposed Facility.

Hawk Watch Site

The Hawk Migration Association of North America ("HMANA") is a membership-based organization committed to the conservation of raptors through the scientific study, enjoyment and appreciation of raptor migration. HMANA collects hawk count data from almost 200 affiliated raptor monitoring sites throughout the United States, Canada and Mexico, identified as "Hawk Watch Sites." In Connecticut, Hawk Watch Sites are typically situated on prominent hills and mountains that tend to concentrate migrating raptors. The nearest Hawk Watch Site, Beelzebub Street, is located in South Windsor, approximately 32.7 miles to the west of the proposed Facility. Based on the distance separating this possible raptor migratory route from the proposed Facility, no adverse impacts are anticipated.

Most hawks migrate during the day (diurnal) to take advantage of two theorized benefits: (1) diurnal migration allows for the use of updrafts or rising columns of air called thermals to gain lift without flapping thereby reducing energy loss; and, (2) day migrants can search for prey and forage as they migrate. Therefore, no adverse impacts to migrating hawks are anticipated with development of the Facility, based on the ±32.7-mile separation distance to the nearest Hawk Watch Site and hawk migration behavior occurring during the daytime under favorable weather conditions when thermals form.

Bald Eagle Survey Route

Bald Eagle Survey Routes consist of locations of midwinter Bald Eagle counts from 1986 to 2005 with an update provided in 2008. This survey was initiated in 1979 by the National Wildlife Federation. This database includes information on statewide, regional and national trends. Survey routes are included in the database only if they were surveyed consistently in at least four years and where at least four eagles were counted in a single year. The nearest Bald Eagle Survey Route is the Thames River Survey Route #17 located in the Town of Norwich along the Thames River approximately 22.3 miles southwest of the Host Property.

Bald Eagle migration patterns are complex, dependent on age of the individual, climate (particularly during the winter) and availability of food.[4] Adult birds typically migrate alone and generally as needed when food becomes unavailable, although concentrations of migrants can occur at communal feeding

[4] Buehler, David A. 2000. Bald Eagle (*Haliaeetus leucocephalus*), 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/506 [Accessed 09/09/13].

and roost sites. Migration typically occurs during the middle of day (10:30–17:00) as thermals provide for opportunities to soar up with limited energetic expense; Bald Eagle migration altitudes are estimated to average 1,500–3,050 m by ground observers. [5] Four adults tracked by fixed-wing aircraft in Montana averaged 98 km/d during spring migration and migrated at 200–600 m above ground (McClelland et al. 1996).[6]

In addition, the USFWS's *National Bald Eagle Management Guidelines* (May 2007) recommends a 660 foot buffer to bald eagle nests if the activity will be visible from the nest with an additional management practice recommendation of retaining mature trees and old growth stands, particularly within 0.5 mile from water.

Therefore, no adverse impacts to migrating Bald Eagle are anticipated with development of the Facility. This conclusion is based on the short (less than 100-foot tall) overall height of the Facility, eagle migration patterns during the daytime under favorable weather conditions when thermals form and compliance with USFWS bald eagle management guidelines.

Flyways

The Host Property is located in Windham County, approximately 33 miles north of Long Island Sound. The Connecticut coast lies within the Atlantic Flyway, one of four generally recognized regional primary migratory bird flyways (Mississippi, Central and Pacific being the others). This regional flyway is used by migratory birds travelling to and from summering and wintering grounds. The Atlantic Flyway is particularly important for many species of migratory waterfowl and shorebirds, and Connecticut's coast serves as vital stopover habitat. Migratory land birds also stop along coastal habitats before making their way inland. Smaller inland migratory flyways ("secondary flyways") are often concentrated along major riparian areas as birds use these valuable stopover habitats to rest and refuel as they make their way further inland to their preferred breeding habitats. The Connecticut Migratory Bird Stopover Habitat Project (Stokowski, 2002)[7] identified potential flyways along the Housatonic, Naugatuck, Thames, and Connecticut Rivers. This study paralleled a similar earlier study conducted by the Silvio O. Conte National Fish & Wildlife Refuge (Neotropical Migrant Bird Stopover Habitat Survey[8]), which consisted of collection of migratory bird data along the Connecticut River and the following major Connecticut River tributaries: Farmington, Hockanum, Scantic, Park, Mattabesset, Salmon, and Eight Mile Rivers. Of these potential flyways, the nearest to the Host Property is the Thames River, located approximately 22.3 miles to the southwest. The Fivemile River riparian corridor, located 0.16 miles west of the Host Property, is not identified as a potential flyway but potentially forms a secondary flyway as birds move northward from the Thames River corridor during the

[5] Harmata, A. R. 1984. Bald Eagles of the San Luis valley, Colorado: their winter ecology and spring migration. Ph.D. Thesis. Montana State Univ. Bozeman.

[6] Mcclelland, B. R., P. T. McClelland, R. E. Yates, E. L. Caton, and M. E. McFadden. 1996. Fledging and migration of juvenile Bald Eagles from Glacier National Park, Montana. J. Raptor Res. 30:79-89.

[7] Stokowski, J.T. 2002. Migratory Bird Stopover Habitat Project Finishes First Year. Connecticut Wildlife, November/December 2002. P.4.

[8] The Silvio O. Conte National Fish & Wildlife Refuge Neotropical Migrant Bird Stopover Habitat Survey http://www.science.smith.edu/stopoverbirds/index.html

spring migration. These major riparian corridors may provide secondary flyways as they likely offer more food and protection than more exposed upland sites, particularly during the spring migration[9].

Siting of tower structures within flyways can be a concern, particularly for tall towers and even more particularly for tall towers with guy wires and lighting. The majority of studies on bird mortality due to towers focuses on very tall towers (greater than 1000 feet), illuminated with non-flashing lights, and guyed. These types of towers, particularly if sited in major migratory pathways, do result in significant bird mortality (Manville, 2005)[10]. The proposed Facility is not this type of tower, being an unlit, unguyed monopole structure less than 100 only ±60-feet in height. More recent studies of short communication towers (<300 feet) reveal that they rarely kill migratory birds[11]. Studies of mean flight altitude of migrating birds reveal flight altitudes of 410 meters (1350 feet), with flight altitudes on nights with bad weather between 200 and 300 meters above ground level (656 to 984 feet)[12].

No adverse impacts to migrating bird species are anticipated with development of the Facility, based on its design (unlit and unguyed) and relatively short height, and the distances separating the Host Property from the potential Thames and Fivemile River flyways. The design and height of the proposed Facility would also mitigate the potential for migratory bird impacts should the Fivemile River be used as a secondary flyway.

Waterfowl Focus Areas

The Atlantic Coast Joint Venture ("ACJV") is an affiliation of federal, state, regional and local partners working together to address bird conservation planning along the Atlantic Flyway. The ACJV has identified waterfowl focus areas recognizing the most important habitats for waterfowl along the Atlantic Flyway. Connecticut contains several of these waterfowl focus areas. The nearest waterfowl focus area to the Host Property is the Lower Thames River System area, located approximately 19.5 miles to the southwest. Please refer to the attached Connecticut Waterfowl Focus Areas Map. Based on the distance of this waterfowl focus area to the Host Property, no impact to migratory waterfowl would result from development of the proposed Facility.

CTDEEP Migratory Waterfowl Data

The Connecticut Department of Energy and Environmental Protection ("CTDEEP") created a Geographic Information System ("GIS") data layer in 1999 identifying concentration areas of migratory waterfowl at specific locations in Connecticut. The intent of this data layer is to assist in the identification of migratory waterfowl resource areas in the event of an oil spill or other condition that might be a threat to waterfowl

[9] The Silvio O. Conte National Fish & Wildlife Refuge Neotropical Migrant Bird Stopover Habitat Survey. http://www.science.smith.edu/stopoverbirds/Chapter5_Conclusions&Recommendations.html

[10] Manville, A.M. II. 2005. Bird strikes and electrocutions at power lines, communications towers, and wind turbines: state of the art and state of the science - next steps toward mitigation. Bird Conservation Implementation in the Americas: Proceedings 3rd International Partners in Flight Conference 2002. C.J. Ralph and T.D. Rich, editors. USDA Forest Service General Technical Report PSW-GTR-191. Pacific Southwest Research Station, Albany CA. pp. 1-51-1064.

[11] Kerlinger, P. 2000. Avian Mortality at Communication Towers: A Review of Recent Literature, Research, and Methodology. Prepared for U.S. Fish and Wildlife Service Office of Migratory Bird Management.

[12] Mabee, T.J., B.A. Cooper, J.H. Plissner, D.P. Young. 2006. Nocturnal bird migration over an Appalachian ridge at a proposed wind power project. Wildlife Society Bulletin 34:682-690.

species. This data layer identifies conditions at a particular point in time and has not been updated since 1999.

The nearest migratory waterfowl area, the Poquetanuck Cove in Preston and Ledyard, is located approximately 23.8 miles to the southwest of the Host Property. The associated species are identified as the American black duck, Bufflehead, Goldeneye, Mallard, Red-breasted merganser, and Canada goose. Based on the distance of this migratory waterfowl area to the Host Property, no impact to migratory waterfowl would result from development of the proposed Facility.

CTDEEP Natural Diversity Data Base

CTDEEP's Natural Diversity Data Base ("NDDB") program performs hundreds of environmental reviews each year to determine the impact of proposed development projects on state listed species and to help landowners conserve the state's biodiversity. State agencies are required to ensure that any activity authorized, funded or performed by a state agency does not threaten the continued existence of endangered or threatened species. Maps have been developed to serve as a pre-screening tool to help applicants determine if there is a potential impact to state listed species.

The NDDB maps represent approximate locations of endangered, threatened and special concern species and significant natural communities in Connecticut. The locations of species and natural communities depicted on the maps are based on data collected over the years by CTDEEP staff, scientists, conservation groups, and landowners. In some cases an occurrence represents a location derived from literature, museum records and/or specimens. These data are compiled and maintained in the NDDB. The general locations of species and communities are symbolized as shaded areas on the maps. Exact locations have been masked to protect sensitive species from collection and disturbance and to protect landowner's rights whenever species occur on private property.

According to the available NDDB maps, the proposed Project is not located within or proximate to any shaded NDDB buffer areas and therefore the proposed project is not anticipated to conflict with any listed rare species. Although not required under CTDEEP's NDDB review procedures, APT submitted a review request on April 25, 2016 with respect to this project to confirm that no known populations of Federal or State Endangered, Threatened or Special Concern Species occur on this property. According to a May 9, 2016 letter from the CTDEEP NDDB, negative impacts to State-listed species (RCSA Sec. 26-306) resulting from the proposed Facility are not anticipated.

USFWS Communications Towers Compliance

In 2013, the USFWS prepared its *Revised Voluntary Guidelines for communication Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning*[13] which recommends the 13 voluntary guidelines below. These voluntary guidelines are designed to assist tower companies in developing their communication systems in a way which minimizes the risk to migratory birds and threatened and endangered species. APT offers the following responses to each of the USFWS recommendations which are abridged from the original document.

1. *Collocation of the communications equipment on an existing communication tower or other structure (e.g., billboard, water and transmission tower, distribution pole, or building mount) is strongly recommended. Depending on tower load factors and communication needs, from 6 to 10 providers should collocate on an existing tower or structure.*

   Collocation opportunities on existing towers, buildings or non-tower structures are not available in the area while achieving the required radio frequency ("RF") coverage and security objectives of Eversource.

2. *If collocation is not feasible and a new tower or towers are to be constructed, it is strongly recommended that the new tower(s) should be not more than 199 feet above ground level ("AGL"), and that construction techniques should not require wires. Such towers should be unlighted if Federal Administration ("FAA") regulations and lighting standards permit. If lighting is required, no red-steady lights should be used. USFWS considers towers that are unlit, unguyed, monopole or lattice, and less than 200 feet AGL to be the environmentally preferred "gold standard".*

   The proposed Facility would consist of a ±97-foot tall structure which requires neither guy wires nor lighting and is therefore consistent with USFWS' environmentally preferred "gold standard".

3. *If constructing multiple towers, the cumulative impacts of all the towers to migratory birds – especially to Birds of Conservation Concern*[14] *and threatened and endangered species, as well as the impacts of each individual tower, should be considered during development of a project.*

   Multiple towers are not proposed as part of this project.

4. *The topography of the proposed tower site and surrounding habitat should be clearly noted, especially in regard to surrounding hills, mountains, mountain passes, ridge lines, rivers, lakes, wetlands, and other habitat types used by raptors, Birds of Conservation Concern, and state and federally listed species, and other birds of concern. Active raptor nests, especially those of Bald Eagles, should be noted, including known or suspected distances from proposed tower sites to nest locations.*

[13] Manville, A.M., Ph.D., C.W.B. Suggestions Based on Previous USFWS Recommendations to FCC Regarding WT Docket No. 03-187, FCC 06-164, Notice of Proposed Rulemaking, "Effects of Communication Towers on Migratory Birds" (2007), Docket No. 08-61, FCC's Antenna Structure Registration Program (2011), Service 2012 Wind Energy Guidelines, and Service 2013 Eagle Conservation Plan Guidance. September 27, 2013.
[14] U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, VA. 85 pp. http://www.fws.gov/migratorybirds/>

The topography of the proposed tower site and surrounding habitat is provided in the attached Avian Resources Map. No Bald Eagle nests, foraging areas or roost sites are known to be located within 660 feet of the proposed tower site.[15] A Bald Eagle survey route associated with Thames River Survey Route # 17, portions of which likely provide foraging and roosting habitat and potential nesting habitat, is located approximately 22.3 miles southwest of the Host Property.

5. *If at all possible, new towers should be sited within existing "antenna farms" (i.e., clusters of towers), in degraded areas (e.g., strip mines or other heavily industrialized areas), in commercial agricultural lands, in Superfund sites, or other areas where bird habitat is poor or marginal. Towers should not be sited in or near wetlands, or other known bird concentration areas (e.g., state or Federal refuges, staging areas, rookeries, and Important Bird Areas), in known migratory or daily movement flyways, areas of breeding concentration, in habitat of threatened or endangered species, or key habitats for Birds of Conservation Concern. Additionally, towers should not be sited in areas with a high incidence of fog, mist, and low ceilings.*

   There are no existing "antenna farms", degraded or commercial areas in the vicinity of the proposed tower site that would satisfy the RF coverage objectives. The proposed Facility is not within wetlands, known bird concentration area, migratory or daily movement flyway, habitat of threatened/endangered species or result in fragmentation of a core forest habitat that could potentially provide habitat for Birds of Conservation Concern.

   According to the available NDDB maps, the proposed Project is not located within any shaded NDDB areas. APT submitted a review request to the CT DEEP NDDB to determine what, if any, species occur on the Host Property. According to a May 9, 2016 letter from the CTDEEP NDDB, negative impacts to State-listed species (RCSA Sec. 26-306) resulting from the proposed Facility are not anticipated.

   In Connecticut, seasonal atmospheric conditions can occasionally produce fog, mist and/or low ceilings. However, high incidences of these meteorological conditions, relative to the region, are not known to exist in the vicinity of the Host Property.

6. *If taller (>199 feet AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. The use of solid (non-flashing) warning lights at night should be avoided to minimize bird fatalities.*

   The proposed Facility height is less than 199 feet and would not require any aviation safety lighting.

7. *Tower designs using guy wires for support, which are proposed to be located in known raptor or waterbird concentration areas, daily movement routes, major diurnal migratory bird movement routes, staging areas, or stopover sites, should have daytime visual markers or bird deterrent devices installed on the wires to prevent collisions by these diurnally moving species.*

   The proposed Facility would be free-standing and would not require guy wires or visual marking.

8. *Towers and appendant facilities should be sited, designed and constructed so as to avoid or minimize habitat loss within and adjacent to the tower "footprint." However, a larger tower footprint is preferable to the use of guy wires in construction. Road access and fencing should be minimized to reduce or*

[15] U.S. Fish and Wildlife Service. 2007. National Bald Eagle Management Guidelines. United States Department of Interior, Fish and Wildlife Service, 23 pp. http://www.fws.gov/southdakotafieldoffice/NationalBaldEagleManagementGuidelines.pdf

prevent habitat fragmentation, disturbance, and the creation of barriers, and to reduce above ground obstacles to birds in flight.

The proposed Facility is designed solely for use in Eversource's communications system. Future collocations are not envisioned. The Facility utilizes the smallest footprint possible by its placement on the roof of the existing building thus eliminating need for ground space. Therefore, the proposed development will not result in habitat fragmentation or the creation of barriers or excessive disturbance.

9. *If, prior to tower design, siting and construction, it has been determined that a significant number of breeding, feeding, or roosting birds, especially of Birds of Conservation Concern, state or federally-listed bird species, and eagles are known to habitually use the proposed tower construction area, relocation to an alternate site is highly recommended. If this is not an option, seasonal; restrictions on construction may be advisable in order to avoid disturbance, site and nest abandonment, especially during breeding, rearing and other periods of high bird activity.*

   Significant numbers of breeding, feeding, or roosting Birds of Conservation Concern, state or federally-listed birds species, or eagles are not known to habitually use the proposed tower construction areas at the Host Property.

10. *Security lighting for on-ground facilities, equipment and infrastructure should be motion- or heat-sensitive, down-shielded, and of a minimum intensity to reduce nighttime bird attraction and eliminate constant nighttime illumination, but still allow for safe nighttime access to the site.*[16][17]

    There are no on-ground facilities planned. All supporting equipment would be installed within the existing building. As a result, no security lighting is necessary.

11. *Representatives from the USFWS or researchers from the Research Subcommittee of the Communication Tower Working Group ("CTWG") should be allowed access to the site to evaluate bird use; conduct dead-bird searches; place above ground net catchments below the towers; and to perform studies using radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment, as necessary to assess and verify bird movements and to gain information on the impacts of various tower sizes, configurations, and lighting systems.*

    With prior written notification to and approval by Eversource, USFWS or CTWG research personnel would be allowed access to the proposed Facility to conduct evaluations.

12. *Towers no longer in use, not re-licensed by the FCC for use, or determined to be obsolete should be removed within 12 months of cessation of use.*

    If the proposed Facility was no longer in use, not re-licensed by the FCC for use, or determined to be obsolete, it would be removed within 12 months of cessation of use.

13. *In order to obtain information on the usefulness of these guidelines in preventing bird strikes and better understanding impacts from habitat fragmentation, please advise USFWS personnel of the final location*

[16] Manville, A.M., II. 2011. Comments of the U.S. Fish and Wildlife Service's Division of Migratory Bird Management Filed Electronically on WT Docket No. 08-61 and WT Docket No. 03-187, Regarding the Environmental Effects of the Federal Communication's Antenna Structure Registration Program. January 14, 2011. 12 pp.

[17] U.S. Fish and Wildlife Service. 2012. U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines. March, 82 pp.

and specifications of the proposed tower, and which measures recommended in these guidelines were implemented.

The location and specification of the proposed Facility have been provided in this report and accompanying maps. A detailed review of implemented measures recommended in the *Revised Voluntary Guidance for Communication Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning* (September 27, 2013) are provided herein. The proposed Facility is not proximate to an Important Bird Area and would comply with the USFWS guidelines for minimizing the potential impacts to birds being an unlit, unguyed monopole structure less than 100 feet in height. APT recommends that a copy of this report be submitted to USFWS if the proposed Facility is constructed. Should the final location and specification of the proposed Facility be modified as part of the siting process, this report will be updated accordingly.

Summary and Conclusions

Based on the results of this desk-top evaluation, no migratory bird species are anticipated to be impacted by Eversource's proposed development. The proposed Facility is not proximate to an Important Bird Area and would comply with the USFWS guidelines for minimizing the potential impacts to bird species.

Figures

- Avian Resources Map
- Connecticut Waterfowl Focus Areas Map

Avian Resources Map

Proposed Wireless
Communications Facility
Danielson Work Center
173 Mechanic Street
Killingly, Connecticut

Legend

- Proposed Facility
- Hawk Watch Site*
- Important Bird Area
- Bald Eagle Survey Route*
- Breeding Bird Survey Route*
- Natural Diversity Database (CTDEEP, 9/2015)
- Critical Habitat (CTDEEP, 07/2009)
- Migratory Waterfowl (CTDEEP, 1999)*
- Preserved Open Space (CTDEEP, 1997)
- Federal Open Space (CTDEEP, 2004)*

CT DEP Property (CT DEEP, 12/2010)

- State Forest
- State Park
- DEP Owned Waterbody
- State Park Scenic Reserve
- Historic Preserve*
- Natural Area Preserve*
- Fish Hatchery*
- Flood Control*
- State Park Trail
- Water Access
- Wildlife Area
- Wildlife Sanctuary*
- Other
- Open Water
- Town Boundary

*None within mapped extents

Avian Source Information:
Bald Eagle Sites: U.S. Geological Survey, National Biological Information Infrastr, 2008, Midwinter Bald Eagle Counts, 1986-2005 (update 2008).
Hawk Watch Sites: Hawk Migration Association of North America (HMANA), Hawk Count website: http://hawkcount.org/sitesel.php?country=USA&stateprov=Connecticut
Migratory Waterfowl: CTDEEP GIS, 1999
Important Bird Sites/Areas: National Audubon Society, Audbon Connecticut
http://ct.audubon.org/BirdSci_IBAs.html
Breeding Bird Survey Routes: Patuxent Wildlife Research Center of the U.S. Geological Survey and the Canadian Wildlife Service's National Wildlife Research Centre
http://www.nationalatlas.gov/mld/bbsrtsl.html

Base Map Source: 2012 aerial photograph (CTECO map service)

Map Date: July 2016

N W E S

0.5 0.25 0 0.5 Miles

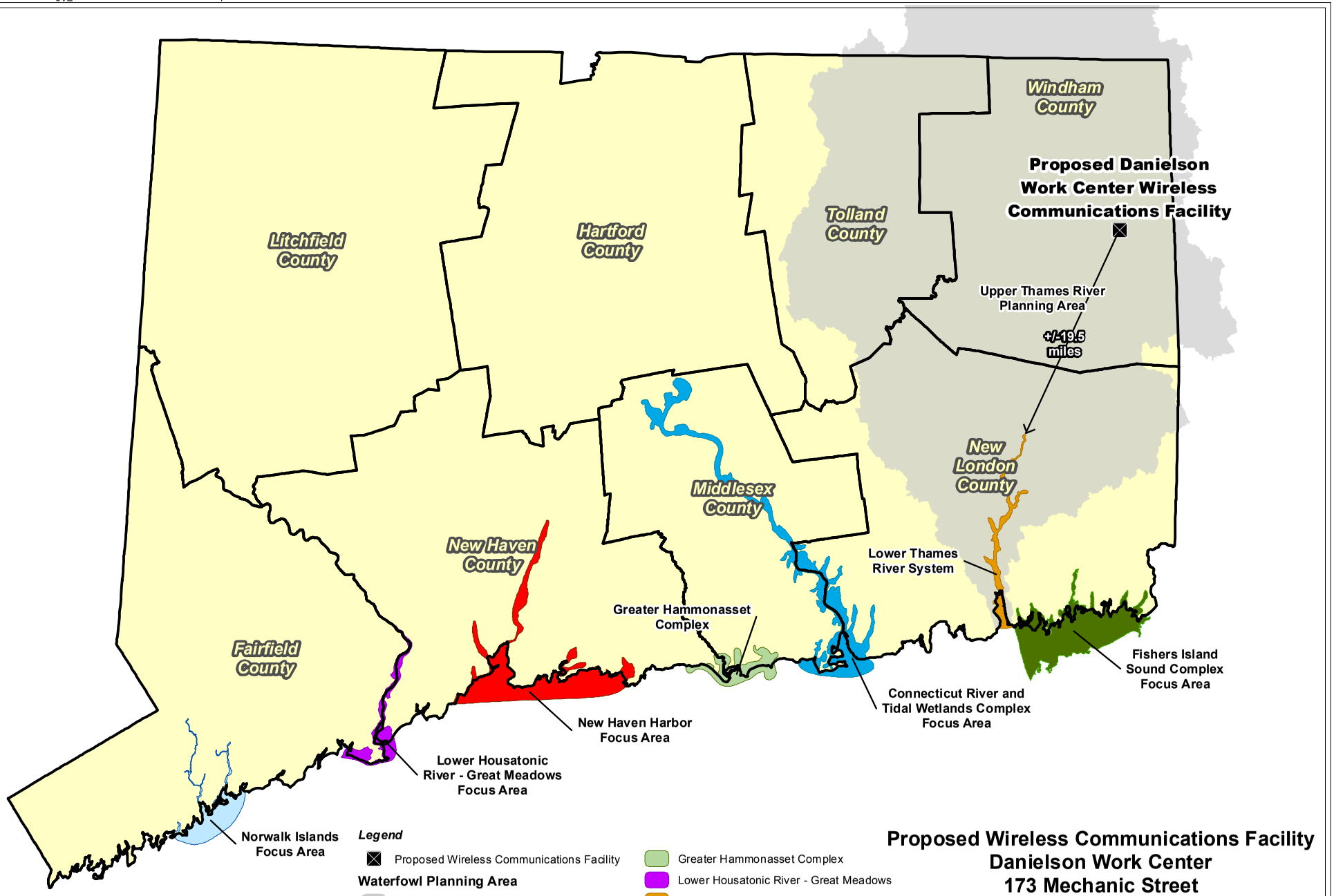
ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

C:\GIS\Projects\Eversource\Killingly_200\mxd\Avian_Resources Shaded Relief.mxd

Airline State Park Trail (Northern Section)
Day Brook
Durkee Brook
Baffin Sanctuary Complex
Wappoquia Brook
Alexander Lake
Attawaugan Brook
Town Open Space (route 12 North)
Breakneck Hill 639.6' AMSL
Eddy Pray Reservoir Dam
Killingly Pond State Park Scenic Reserve
Killingly Pond Dam
Sap Tree Run
Wolf Den Brook
Dayville Pond
Owen Bell Park
Town Open Space (Old Breakneck Hill Road)
Town Open Space (Pratt Road)
Alvia Chase Reservoir
Mashamoquet Brook
Prym Manufacturing Company Dam
Middle Reservoir
Mashamoquet Brook State Park
White Brook
POMFRET
Chase Reservoir Dam
Acme Pond Dam
Rogers Corporation Pond
Whetstone Brook Reservoir
Bear Hill 705.2' AMSL
Warren Brook
Mashentuck Brook
Crystal Pond Dam
Barrett Ledge Brook
Whetstone Brook Reservoir
Slater Brook
Natchaug State Forest
Mashentuck Mountain 587.12' AMSL
Cook Hill 564.16' AMSL
Slater Hill 652.72' AMSL
Davis Brook
KILLINGLY
Lake Albert
Danielson Airport
Bush Hill 547.76' AMSL
Long Brook
Proposed Danielson Work Center
Wireless Communications Facility
Proposed Pole Height: 100' AGL
Ground Elevation: 255' AMSL
Fivemile Pond Dam
Rajak Dam
Snake Meadow Brook Wildlife Area
Gray Mare Hill 455.92' AMSL
Rotary Park
Tetreault Pond
BROOKLYN
Bush Hill Brook
Prince Hill 436.24' AMSL
Phillips Brook
Fall Brook
Half Hill Brook
Tanner Brook
Natchaug Hospital
Stony Brook
Basset Pond
Dyer Dam
Town Open Space
Furnace Pond
Lower Ross Pond
Norton Brook
Ross Marsh Wildlife Area
Quinebaug Lake Water Access
Allen Hill 341.12' AMSL
Quinebaug Pond
Ross Pond State Park
Tatnic Hill 501.84' AMSL
Quinebaug Lake State Park Scenic Reserve
Ross Pond
Old Furnace State Park
Quandock Brook
James Brook
Snake Meadow Pond Dam
Tetreault Pond Dam
Creamery Brook
STERLING
Tennant Brook
PLAINFIELD
Pachaug State Forest
Pine Brook
Quinebaug Wildlife Area

C:\GIS\Projects\Eversource\Killingly_200\mxd\Waterfowl Focus Areas Map.mxd



Proposed Wireless Communications Facility
Danielson Work Center
173 Mechanic Street
Killingly, Connecticut

Waterfowl Data Source: Atlantic Coast Joint Venture Partnership
Map Date: April 2016

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Attachment 6 - CTDEEP Correspondence

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

May 12, 2017

Dean Gustafson
All-Points Technology Corporation, P.C.
30 Bogg Ln
Lebanon, CT 06249
dgustafson@allpointstech.com

Project: Eversource Energy Company Installation and Maintenance of Cellular Communications Tower at Danielson Work Center CT Facility Located at 173 Mechanic Street in Killingly
NDDB Determination No.: 201703642

Dear Dean Gustafson,

I have reviewed Natural Diversity Data Base (NDDB) maps and files regarding the area delineated on the map provided for the proposed Eversource Energy Company Installation and Maintenance of Cellular Communications Tower at Danielson Work Center CT Facility Located at 173 Mechanic Street in Killingly, Connecticut. I do not anticipate negative impacts to State-listed species (RCSA Sec. 26-306) resulting from your proposed activity at the site based upon the information contained within the NDDB. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits. This determination is good for two years. Please re-submit a new NDDB Request for Review if the scope of work changes or if work has not begun on this project by May 12, 2019.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please contact me if you have further questions at (860) 424-3592, or dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base.

Sincerely,

Dawn M. McKay

Dawn M. McKay
Environmental Analyst 3

Attachment 7 – Calculated Radio Frequency Emissions Report

C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions Report

EVERSOURCE ENERGY

Danielson Area Work Center

173 Mechanic Street, Killingly, CT 06239

April 7, 2017

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed installation of Eversource antennas and a monopole tower on the rooftop of the building located at 173 Mechanic Street in Killingly, CT. The coordinates of the building are 41° 48' 40.58" N, 71° 53' 01.57" W.

Eversource is proposing to install the following:

1) Remove two existing wood pole towers and all associated antennas;
2) Install one 60' monopole tower;
3) Install one 47 MHz omnidirectional antenna;
4) Install one 154/158/173 MHz omnidirectional antenna;
5) Install one 450 MHz omnidirectional antenna.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right) \text{x Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final site configuration.

4. Calculation Results

Table 1 below outlines the power density information for the site. The proposed Eversource omnidirectional antennas have a relatively narrow vertical beamwidth which causes the majority of the RF power to be focused out towards the horizon, with respect to the vertical plane. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical patterns of the proposed Eversource antennas. The calculated results in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
Eversource	84.5	47.74	1	120	0.0070	0.2000	0.35%
Eversource	87.2	154.46375	1	331	0.0181	0.2000	0.90%
Eversource	87.2	158.4225	1	100	0.0055	0.2000	0.27%
Eversource	87.2	173.25	1	380	0.0207	0.2000	1.04%
Eversource	86.7	450	3	250	0.0414	0.3000	1.38%
						Total	3.94%

Table 1: Carrier Information

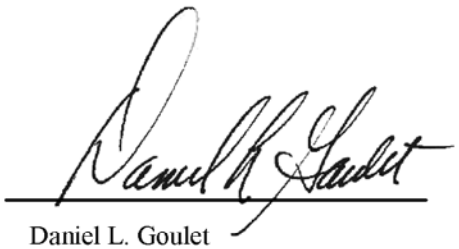
5. Conclusion

The above analysis verifies that RF emissions from the site, after the proposed installation has been completed, will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed antenna configuration is below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **3.94% of the FCC General Population/Uncontrolled limit**.

As noted previously, obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the final site configuration.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.



Daniel L. Goulet
C Squared Systems, LLC

April 7, 2017
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

IEEE C95.1-2005, IEEE Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2002 (R2008), IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[1]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[2]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[1] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[2] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

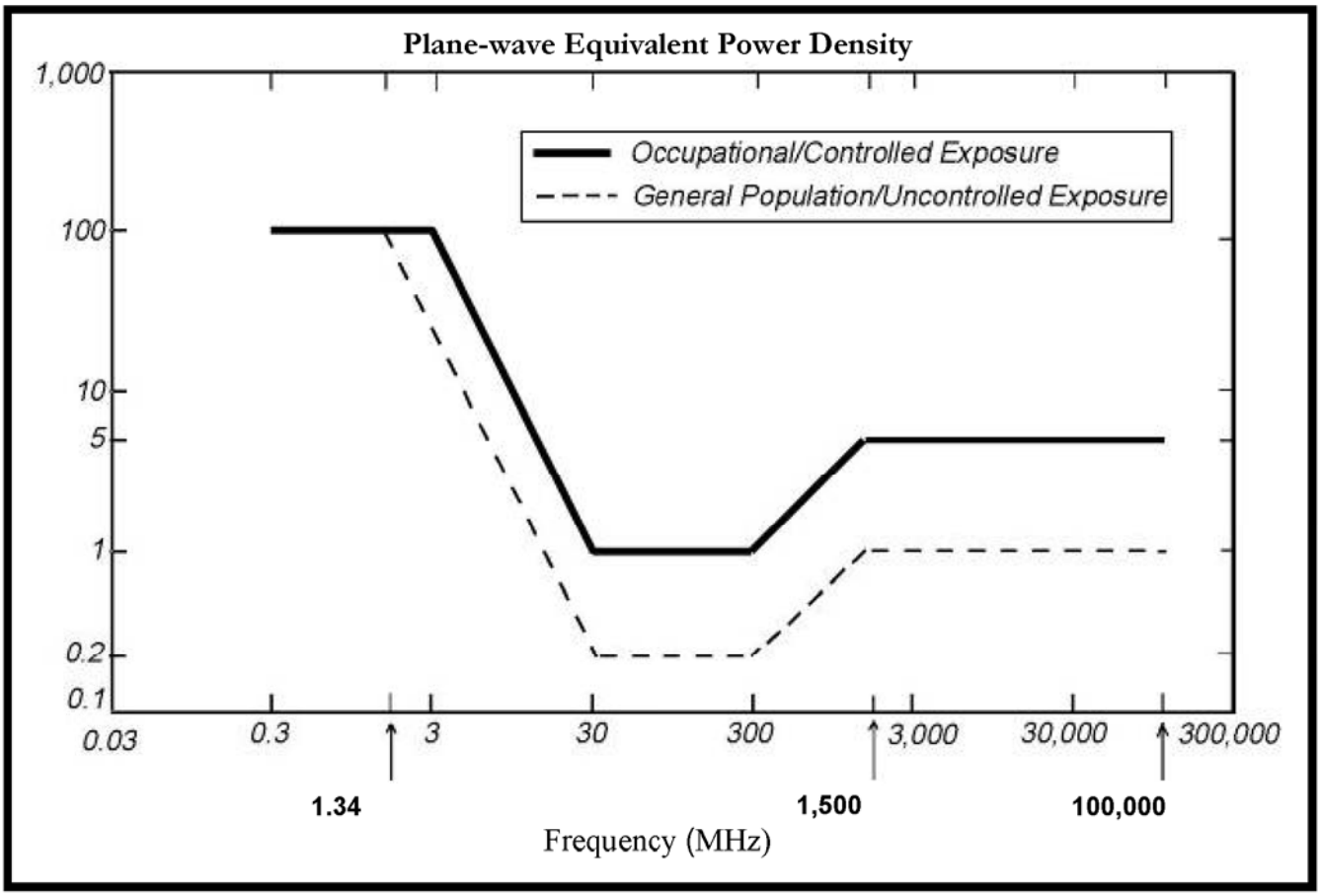
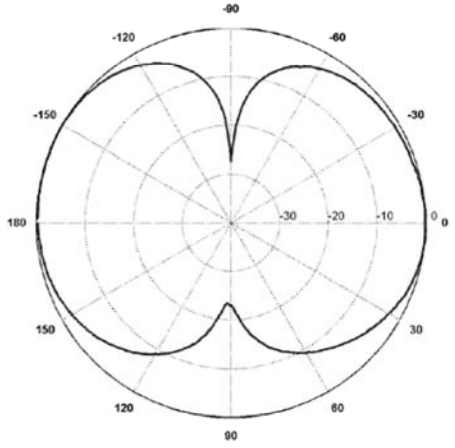


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: Eversource Antenna Data Sheets and Electrical Patterns

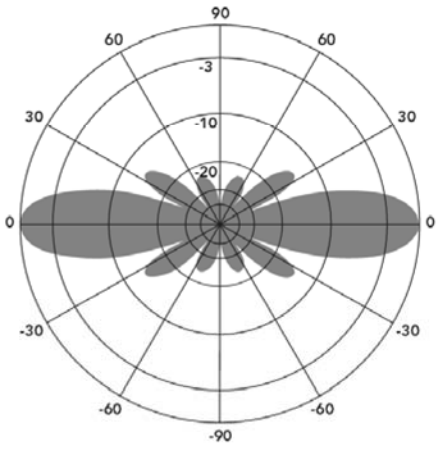
47 MHz

Manufacturer:	Kreco
Model #:	CO-36A
Frequency Band:	30-50 MHz
Gain:	2.1 dBi
Vertical Beamwidth:	N/A
Horizontal Beamwidth:	360°
Polarization:	Vertical
Length:	15.0’



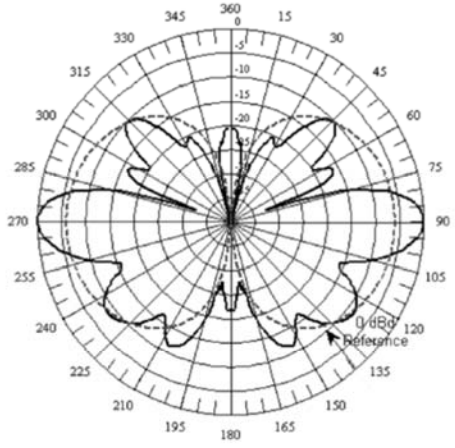
154/158/173 MHz

Manufacturer:	Telewave
Model #:	ANT150F6
Frequency Band:	138-175 MHz
Gain:	8.1 dBi
Vertical Beamwidth:	20°
Horizontal Beamwidth:	360°
Polarization:	Vertical
Length:	20.3’



450 MHz

Manufacturer:	dBSpectra
Model #:	DS4C06F36D-D
Frequency Band:	450-482 MHz
Gain:	8.1 dBi
Vertical Beamwidth:	16°
Horizontal Beamwidth:	360°
Polarization:	Vertical
Length:	19.4’



Attachment 8 – Visibility Analysis

VISIBILITY ANALYSIS

DANIELSON WORK CENTER
173 MECHANIC STREET
KILLINGLY, CONNECTICUT

Prepared for:

Eversource
107 Selden Street
Berlin, CT 06037

Prepared by:

All-Points Technology Corporation, P.C.
3 Saddlebrook Drive
Killingworth, CT 06419

JUNE 2017

Project Introduction

Eversource Energy ("Eversource" or the "Company") is pursuing a Petition that no Certificate of Environmental Compatibility and Public Need is required from the Connecticut Siting Council ("Council") for replacing an existing wireless communications facility ("Replacement Facility") at 173 Mechanic Street in Killingly, Connecticut ("Property"). At the request of Eversource, All-Points Technology Corporation, P.C. ("APT") prepared this Visibility Analysis to evaluate the potential visibility of the proposed Replacement Facility within a two mile radius of the proposed site location ("Study Area"). The Study Area also includes parts of the neighboring municipalities of Brooklyn and Pomfret which are located in the west and northwest portions of the Study Area, respectively.

Site Description and Setting

The 3.84-acre Property is located at 173 Mechanic Street, Killingly, Connecticut, north of Hutchins Street, south of Westfield Avenue, and east of Five Mile Pond and the Quinebaug River. The Property is used by Eversource as a service center and maintenance yard. Two (2) radio communication poles (Existing Facilities) with antenna, approximately 75 feet and 92 feet Above Ground Level (AGL), currently occupy an area in the central portion of the Property next to an existing building used for operations and office space. The Replacement Facility will consist of a tall steel monopole with appurtenances constructed on top of the existing service center building located approximately 76 feet south of the Existing Facilities. The steel monopole would rise to a height of ±78.5 feet AGL. The Replacement Facility will include two (2) 20-foot omni-directional whip antennas and one (1) 15-foot omni-directional whip antenna, making the overall height approximately 97 feet AGL[1]. The roof space will only house the Replacement Facility while support utilities will be located within the existing service center building.

Land use within the immediate vicinity is primarily a mix of light to medium density, rural commercial and residential development within the US Interstate 395 corridor. Killingly Memorial School and US Interstate 395 are located to the east, Main Street (CT Route 12) to the south, the Quinebaug River and Five Mile Pond to the west, while residential development dominates to the north. The topography within the Study Area is characterized by reasonably flat to moderately undulating terrain to the north and south with rising hills to the east. To the west, the Quinebaug River and Five Mile Pond flood plains influence a relatively level landscape. Ground elevations around the Property range from approximately 115 feet to 855 feet above mean seal level. The tree cover within the Study Area (consisting of mixed deciduous hardwoods with interspersed stands of conifers) occupies approximately 6,053 acres of the 8,042-acre study area (±75%).

Proximity to Open Space, Parks, Recreational Facilities and Hiking Trails

The nearest Local Park to the Property is Davis Park located approximately 0.29 mile to the south. The nearest trail system, the Quinebaug River Trail, is located ±0.4 mile to the south. Some recreational activities exist on Five Mile Pond located approximately 0.18 mile to the west but designated park, open space or recreational facilities were not noted during research. The nearest State Park, Old Furnace State Park, is located ±1.67 miles to the southeast. Based on a review of publicly-available information, no designated state scenic roads exist within the Study Area.

[1] Two (2) 20-foot tall whip antennas and one (1) 15-foot tall whip antenna are proposed to be collar-mounted 1.5 feet below the top of the monopole.

Methodology

APT used the combination of a predictive computer model and in-field analysis to evaluate the visibility associated with the proposed Replacement Facility on both a quantitative and qualitative basis. The predictive model provides a measurable assessment of potential visibility throughout the entire Study Area including private properties and other areas inaccessible for direct observations. The in-field analyses included a balloon float and reconnaissance of the Study Area to record existing conditions, verify results of the model, inventory visible and nonvisible locations, and provide photographic documentation from publicly accessible areas. A description of the procedures used in the analysis is provided below.

Preliminary Computer Modeling

To conduct this assessment, a predictive computer model was developed specifically for this project using TerrSet, an image analysis program developed by Clark Labs at Clark University, to provide an estimation of potential visibility throughout the Study Area. The predictive model incorporates Project- and Study Area-specific data, including the site location, its ground elevation and the proposed Facility height, as well as the surrounding topography, existing vegetation, and structures (which are the primary features that can block direct lines of sight).

Information used in the model included lidar[2]-based digital elevation data and customized land use data layers developed specifically for this analysis. Lidar is a remote-sensing technology that develops elevation data in meters by measuring the time it takes for laser light to return from the surface to the instrument's sensors. The varying reflectivity of objects also means that the returns can be classified based on the characteristics of the reflected light, normally into categories such as "bare earth," "vegetation," "road," or "building." The system is also designed to capture many more data points than older radar-based systems. Thus, lidar-based digital elevation models ("DEM"s) have a much finer resolution and can also identify the different features of the landscape at the time that it was captured.

Viewshed analysis using lidar data provide a much more detailed view of the potential obstacles (especially trees and buildings), and therefore the viewshed modeling produces results with many smaller areas of visibility than those produced by using radar-based DEMs. Its precision makes lidar a superior source of data, but at present it is only available for limited areas of the state. The viewshed results are also checked against the most current aerial photographs in case significant changes (a new housing development, for example) have occurred since the time the lidar data was captured.

The lidar-based DEM created for this analysis represents topographic information for the state of Connecticut that was derived through the spatial interpolation of airborne LiDAR-based data collected in 2010. In addition, multiple land use data layers were created from the Natural Resources Conservation Service (through the USDA) aerial photography (flown in 2014) using the image processing tools. Terrset develops light reflective classes defined by statistical analysis of individual pixels, which are then grouped based on common reflective values such that distinctions can be made automatically between deciduous

[2] Lidar (a word invented to mean "light radar") may also be referred to as LiDAR, an acronym for Light Detection and Ranging. It is a technology that utilized lasers to determine the distance to an object or surface. LiDAR is similar to radar, but incorporates laser pulses rather than sound waves. It measures the time delay between transmission and reflection of the laser pulse.

and coniferous tree species, as well as grassland, impervious surface areas, surface water and other distinct land use features.

With these data inputs, the model is then queried to determine where the top of the Replacement Facility can be seen from any point(s) within the Study Area, given the intervening existing topography and vegetation. The results of the preliminary analysis are intended to provide a representation of those areas where portions of the Replacement Facility *may* potentially be visible to the human eye without the aid of magnification, based on a viewer eye-height of five (5) feet above the ground and the combination of intervening topography, trees and other vegetation, and structures. The Replacement Facility however may not necessarily be visible from all locations within those areas identified by the predictive model. It is important to note that the computer model cannot account for mass density, the height, diameter and branching variability of the trees, or the degradation of views that occur with distance. In addition, each point – or pixel - represents about one square meter in area, and thus is not predicting visibility from all viewpoints through all possible obstacles. Although large portions of the predicted viewshed may theoretically offer visibility of the Replacement Facility, because of these unavoidable limitations the quality of those views may not be sufficient for the human eye to recognize the tower or discriminate it from other surrounding objects. Visibility also varies seasonally with increased, albeit obstructed, views occurring during "leaf-off" conditions. Beyond the density of woodlands found within the given Study Area, each individual tree has its own unique trunk, pole timber and branching pattern characteristics that provide varying degrees of screening in leafless conditions which cannot be precisely modeled.

Field Reconnaissance

To supplement and fine tune the results of the computer modeling efforts, APT completed in-field verification activities consisting of a balloon float, vehicular and pedestrian reconnaissance, and photo-documentation.

Balloon Float and Field Reconnaissance

To supplement and fine tune the results of the computer modeling efforts, APT completed in-field verification activities consisting of a balloon float, vehicular and pedestrian reconnaissance, and photo-documentation.

On March 30, 2016, APT personnel conducted a balloon float and field reconnaissance to evaluate the visibility associated with the proposed Replacement Facility and to obtain existing conditions photographs for use in this report. At each photo location, the geographic coordinates of the camera's position were logged using global positioning system ("GPS") technology. Photographs were taken with a Canon EOS 6D digital camera body and Canon EF 24 to 105 millimeter ("mm") zoom lens. APT uses a standard focal length of 50mm, presenting a consistent field of view throughout the document. On occasion, APT will include photos taken at lower focal lengths/greater depth of field in order to include existing contextual surroundings and/or more of the proposed Replacement Facility within the photograph.

The balloon float consisted of raising an approximately four-foot diameter, red helium-filled balloon tethered to a string height of 89 feet AGL at the Site. Weather conditions were favorable for the in-field activities, with calm winds (around 3 miles per hour) and mostly sunny skies.

Subsequent to the balloon float Eversource decided to lower the proposed height to ±78 feet to minimize any potential interference with the nearby Danielson Airport.

Final Visibility Mapping

Information obtained during the field reconnaissance was incorporated into the mapping data layers, including observations of the balloon float, the photo locations, areas that experienced recent land use changes and those places where the initial model was found to over-predict visibility. Once the additional field data was integrated into the model, APT re-calculated the visibility of the proposed Replacement Facility from within the Study Area to assist in producing the final viewshed map.

Photographic Simulations

Photographic simulations were generated to portray scaled renderings from several representative locations where the proposed Replacement Facility may be visible. Using field data, site plan information and 3-dimension (3D) modeling software, spatially referenced models of the site area and tower were generated and merged. The geographic coordinates obtained in the field for the photograph locations were incorporated into the model to produce virtual camera positions within the spatial 3D model. Photo simulations were then created using a combination of renderings generated in the 3D model and photo-rendering software programs. For presentation purposes in this report, the photographs were produced in an approximate 7-inch by 10.5-inch format.

Photo-documentation of existing conditions and photo-simulations of the proposed Replacement Facility are presented in the attachment at the end of this report. The photo-simulations are intended to provide the reader with a general understanding of the different views that might be achieved of the Replacement Facility. The Existing Facilities are visible year-round in ten (10) of the photographs and seasonally visible in seven (7); the Existing Facilities have been removed from the corresponding photo-simulations of the Replacement Facility to provide a representation of proposed conditions once the project is complete. Please note that Eversource decided to lower the proposed height of the new monopole from ±89 feet to ±78 feet. Because of this, some photo-simulations of the Replacement Facility may look slightly lower than the existing conditions shown during the original balloon float. Photographs within the attachment are noted as such.

It is important to consider that the publicly-accessible locations selected are typically representative of a "worst case" scenario. They were chosen to present unobstructed view lines (wherever possible), are static in nature and do not necessarily fairly characterize the prevailing views from all locations within a given area. From several locations, moving a few feet in any direction may result in a far different perspective of the tower than what is presented in the photographs. In several cases, a view of the tower may be limited to the immediate area of the specific photo location.

The simulations provide a representation of the Replacement Facility under similar settings as those encountered during the balloon float and reconnaissance. Views of the tower can change substantially throughout the season and are dependent on environmental conditions, including (but not necessarily limited to) weather, light conditions, seasons, time of day, and the viewer location.

Photograph Locations

The table below summarizes characteristics of the photographs and simulations presented in the attachment to this report including a description of each location, view orientation, the distance from where the photo was taken relative to the proposed Replacement Facility and the general characteristic of that view. The photo locations are depicted on the photolog and viewshed maps provided as attachments to this report.

Photo No.	Photo Location	View Orientation	Distance to Facility	View Characteristic
1	Mashentuck Road at Westcott Road	Northwest	±1.11 Miles	Not Visible
2	Gauthier Avenue	Northwest	±0.58 Mile	Not Visible
3	North Main Street	Southwest	±0.77 Mile	Not Visible
4	Main Street	Southwest	±0.48 Mile	Not Visible
5	Main Street	West	±0.33 Mile	Seasonal
6	Killingly Memorial School	Northwest	±0.29 Mile	Year Round
7	Winter Street	Northwest	±0.18 Mile	Seasonal
8	Mechanic Street	North	±0.11 Mile	Year Round
9	Host Property	North	±292 Feet	Year Round
10	Adjacent to Host Property	Southwest	±380 Feet	Year Round
11	Westfield Avenue at Mechanic Street	South	±664 Feet	Year Round
12	Mechanic Street	South	±0.21 Mile	Year Round
13	Connecticut Mills Avenue	South	±0.45 Mile	Year Round
14	Connecticut Mills Avenue	South	±0.61 Mile	Year Round
15	Schooman Road	Southeast	±0.29 Mile	Seasonal
16	Athol Street	Southeast	±0.21 Mile	Seasonal
17	Westfield Cemetery	Southeast	±0.48 Mile	Seasonal
18	Upper Maple Street	Southeast	±1.10 Miles	Not Visible
19	Danielson Airport	Southeast	±0.91 Mile	Not Visible
20	HH Ellis Technical School	Southeast	±0.81 Mile	Not Visible
21	Maple Street	Southeast	±0.59 Mile	Not Visible
22	Holy Cross Cemetery	Southeast	±0.48 Mile	Seasonal
23	River Ridge Road	East	±0.42 Mile	Year Round
24	River Ridge Road	East	±0.33 Mile	Year Round
25	Prospect Avenue	Northeast	±0.32 Mile	Seasonal
26	West Palmer at Maple Street	Northeast	±0.45 Mile	Not Visible
27	Danielson Footbridge – Quinebaug River Trail	Northeast	±0.39 Mile	Not Visible
28	Main Street	North	±0.43 Miles	Not Visible

Note: All photo locations are within the municipality of Killingly.

Photo-documentation and simulations are presented in the attachment at the end of this report.

Visibility Analysis Results

Results of this analysis are graphically displayed on the viewshed maps provided in the attachment at the end of this report. Areas from where the proposed Facility would be visible above the tree canopy, year-round, comprise a total of approximately ±75 acres. When the leaves are off the trees, seasonal views through intervening tree trunks and branches have the potential to occur over some locations within an area of ±127 additional acres.

In general, year-round views of portions of the Facility would occur from the areas within the immediate vicinity of the Property, extending about 0.6 mile to the north, and approximately 0.4 mile to the east and west. Beyond these areas, year-round visibility is restricted due to the combination of the sloping topography, dense forest cover and existing structures. Seasonal views (during "leaf-off" conditions) would extend to 0.5 mile or less in all directions from the Site.

LIMITATIONS

The viewshed maps presented in the attachment to this report depict areas where the proposed Facility may potentially be visible to the human eye without the aid of magnification based on a viewer eye-height of 5 feet above the ground and intervening topography. This analysis may not necessarily account for all visible locations, as it is based on the combination of computer modeling, incorporating 2014 aerial photographs, and in-field observations from publicly-accessible locations. No access to private properties was provided to APT personnel. This analysis does not claim to depict the only areas, or all locations, where visibility may occur; it is intended to provide a representation of those areas where the Facility is likely to be seen.

The simulations provide a representation of the Facility under similar settings as those encountered during the balloon floats and reconnaissance. Views of the Facility can change throughout the seasons and the time of day, and are dependent on weather and other atmospheric conditions (e.g., haze, fog, clouds); the location, angle and intensity of the sun; and the specific viewer location.

ATTACHMENTS

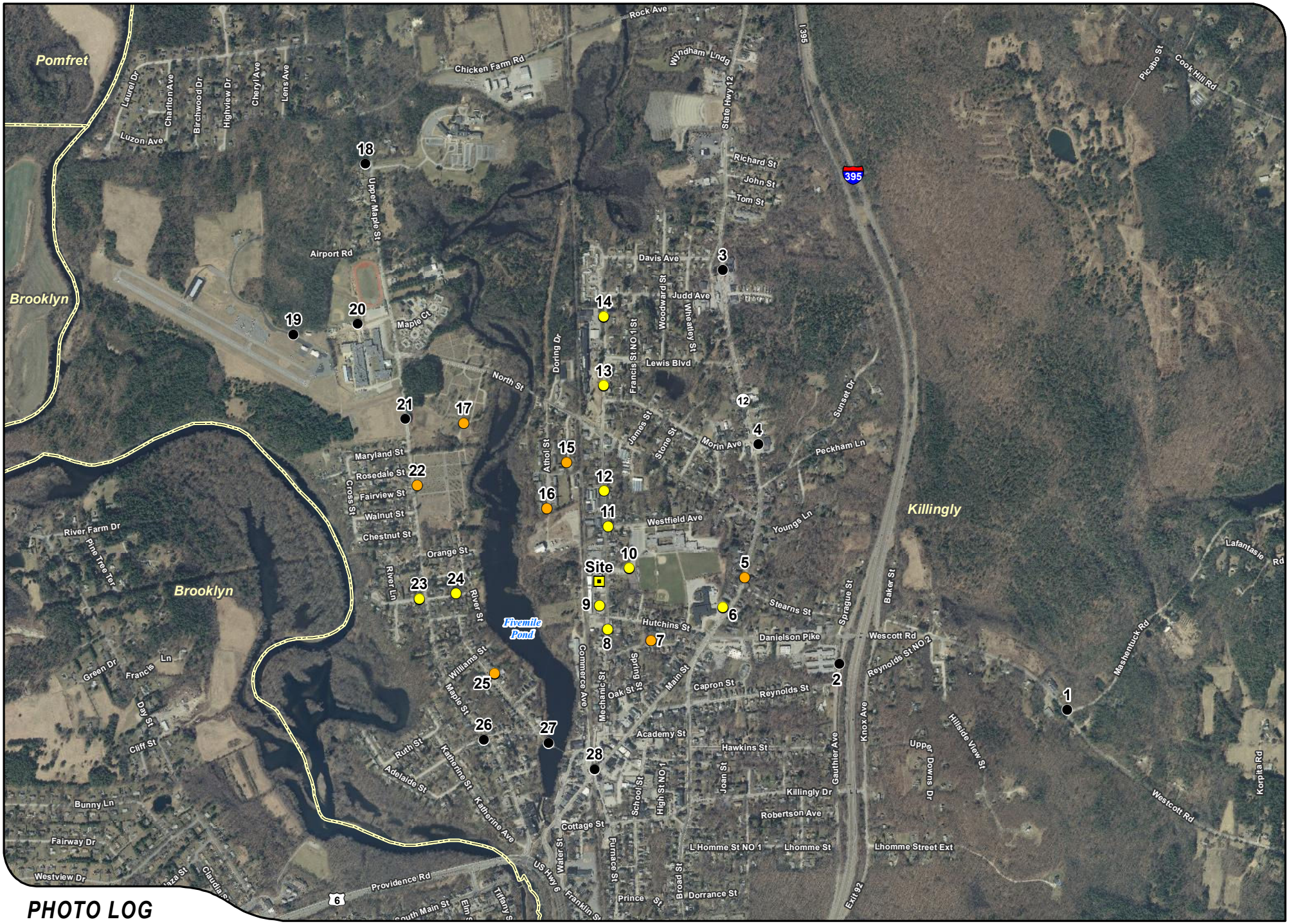


PHOTO LOG

Legend

Site | Year-Round Visibility | Seasonal Visibility | Not Visible | Municipal Boundary

N W E S

1,800 900 0 1,800 Feet

1 inch = 1,500 feet

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	**MASHENTUCK ROAD AT WESTCOTT ROAD**	**NORTHWEST**	**+/- 1.11 MILES**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	**GAUTHIER AVENUE**	**NORTHWEST**	**+/- 0.58 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	**NORTH MAIN STREET**	**SOUTHWEST**	**+/- 0.77 MILE**	**NOT VISIBLE**

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	**MAIN STREET**	**SOUTHWEST**	**+/- 0.48 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
5	**MAIN STREET**	**WEST**	**+/- 0.33 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
5	**MAIN STREET**	**WEST**	**+/- 0.33 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

BALLOON FLOWN AT 89' AGL

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	**KILLINGLY MEMORIAL SCHOOL**	**NORTHWEST**	**+/- 0.29 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	**KILLINGLY MEMORIAL SCHOOL**	**NORTHWEST**	**+/- 0.29 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	**WINTER STREET**	**NORTHWEST**	**+/- 0.18 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	**WINTER STREET**	**NORTHWEST**	**+/- 0.18 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
8	**MECHANIC STREET**	**NORTH**	**+/- 0.11 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
8	**MECHANIC STREET**	**NORTH**	**+/- 0.11 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	**HOST PROPERTY**	**NORTH**	**+/- 292 FEET**	**YEAR ROUND**

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	**HOST PROPERTY**	**NORTH**	**+/- 292 FEET**	**YEAR ROUND**

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10	**ADJACENT TO HOST PROPERTY**	**SOUTHWEST**	**+/- 380 FEET**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10	**ADJACENT TO HOST PROPERTY**	**SOUTHWEST**	**+/- 380 FEET**	**YEAR ROUND**

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
11	**WESTFIELD AVENUE AT MECHANIC STREET**	**SOUTH**	**+/- 664 FEET**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
11	**WESTFIELD AVENUE AT MECHANIC STREET**	**SOUTH**	**+/- 664 FEET**	**YEAR ROUND**

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
12	**MECHANIC STREET**	**SOUTH**	**+/- 0.21 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
12	**MECHANIC STREET**	**SOUTH**	**+/- 0.21 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
13	**CONNECTICUT MILLS AVENUE**	**SOUTH**	**+/- 0.45 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
13	**CONNECTICUT MILLS AVENUE**	**SOUTH**	**+/- 0.45 MILE**	**YEAR ROUND**

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
14	**CONNECTICUT MILLS AVENUE**	**SOUTH**	**+/- 0.61 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
14	**CONNECTICUT MILLS AVENUE**	**SOUTH**	**+/- 0.61 MILE**	**YEAR ROUND**

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
15	**SCHOOMAN ROAD**	**SOUTHEAST**	**+/- 0.29 MILE**	**SEASONAL**

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
15	**SCHOOMAN ROAD**	**SOUTHEAST**	**+/- 0.29 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
16	**ATHOL STREET**	**SOUTHEAST**	**+/- 0.21 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
16	**ATHOL STREET**	**SOUTHEAST**	**+/- 0.21 MILE**	**SEASONAL**

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
17	**WESTFIELD CEMETERY**	**SOUTHEAST**	**+/- 0.48 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
17	**WESTFIELD CEMETERY**	**SOUTHEAST**	**+/- 0.48 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
18	**UPPER MAPLE STREET**	**SOUTHEAST**	**+/- 1.10 MILES**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
19	**DANIELSON AIRPORT**	**SOUTHEAST**	**+/- 0.91 MILE**	**SEASONAL**

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
20	**HH ELLIS TECHNICAL SCHOOL**	**SOUTHEAST**	**+/- 0.81 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
21	**MAPLE STREET**	**SOUTHEAST**	**+/- 0.59 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

BALLOON FLOWN AT 89' AGL

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
22	**HOLY CROSS CEMETERY**	**SOUTHEAST**	**+/- 0.48 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
22	**HOLY CROSS CEMETERY**	**SOUTHEAST**	**+/- 0.48 MILE**	**SEASONAL**

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
23	**RIVER RIDGE ROAD**	**EAST**	**+/- 0.42 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
23	**RIVER RIDGE ROAD**	**EAST**	**+/- 0.42 MILE**	**YEAR ROUND**

BALLOON FLOWN AT 89' AGL

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
24	**RIVER RIDGE ROAD**	**EAST**	**+/- 0.33 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
24	**RIVER RIDGE ROAD**	**EAST**	**+/- 0.33 MILE**	**YEAR ROUND**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
25	**PROSPECT AVENUE**	**NORTHEAST**	**+/- 0.32 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
25	**PROSPECT AVENUE**	**NORTHEAST**	**+/- 0.32 MILE**	**SEASONAL**

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
26	**WEST PALMER STREET AT MAPLE STREET**	**NORTHEAST**	**+/- 0.45 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
27	**DANIELSON FOOTBRIDGE - QUINEBAUG RIVER TRAIL**	**NORTHEAST**	**+/- 0.39 MILE**	**SEASONAL**

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
28	**MAIN STREET**	**NORTH**	**+/- 0.43 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

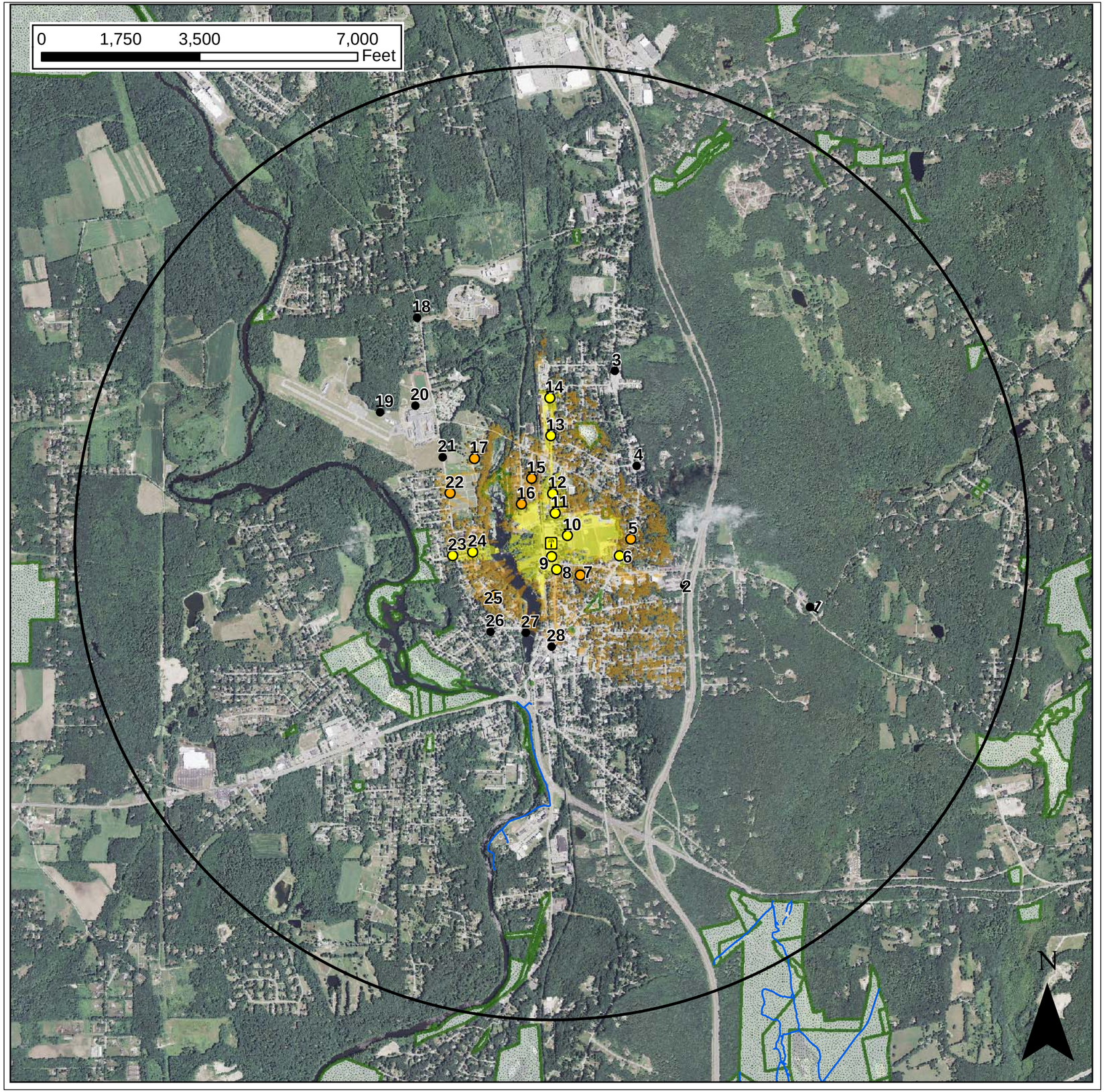
EVERSOURCE ENERGY

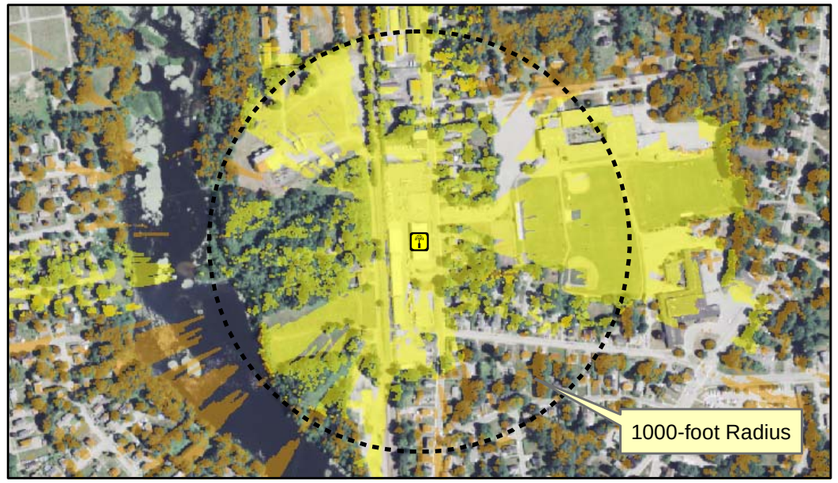
PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
28	**MAIN STREET**	**NORTH**	**+/- 0.43 MILE**	**SEASONAL**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY





Viewshed Map – Aerial Base

Proposed Wireless Communications Facility
Replacement Tower
173 Mechanic Street, Killingly, CT

Proposed monopole height is 78 feet AGL. Top of whip antennas is 97 feet AGL. Forest canopy height is derived from lidar data. Study area encompasses a two-mile radius and includes 8,042 acres of land.
Map compiled 5/2/2016.

Map information field verified by APT on 3/30/2016.

Only those resources located within the extent of the map are depicted. For a complete list of data sources consulted for this analysis, please refer to the Documentation Page.

Legend

- Proposed Tower

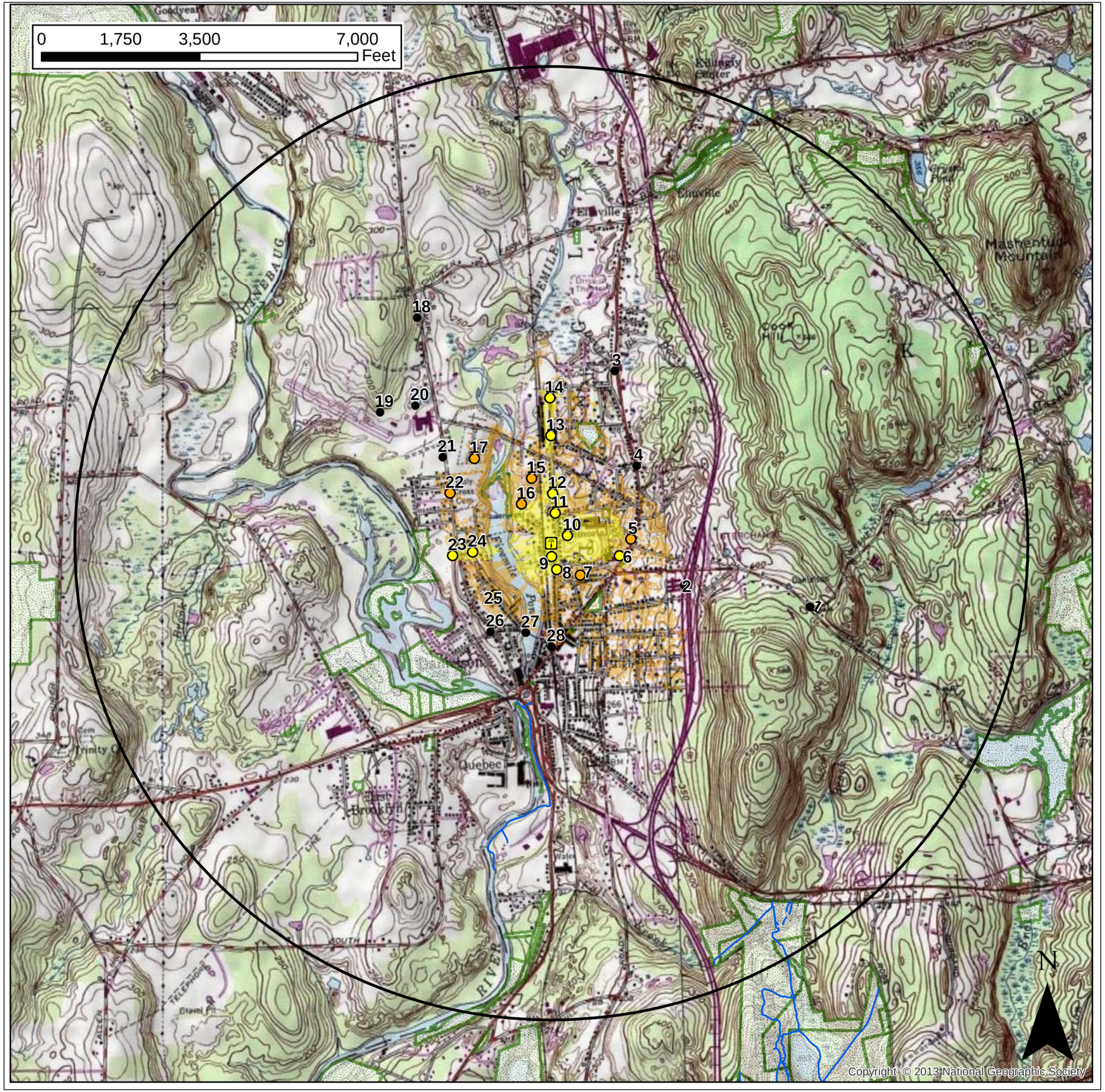
Photo Locations

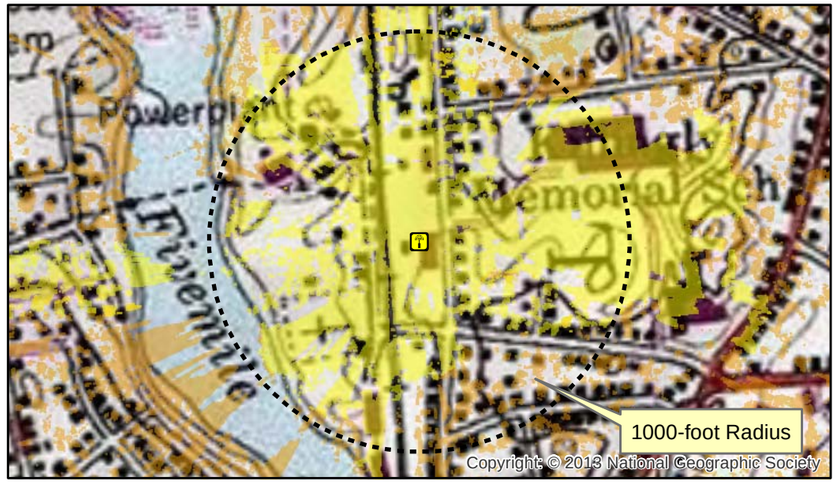
- Not Visible
- Seasonal Views
- Year-round Views
- Trails
- Predicted Seasonal Visibility (127 Acres)
- Predicted Year-Round Visibility (75 Acres)
- Towns
- 2-Mile Study Area
- Open Space

Location

EVERSOURCE ENERGY

ALL-POINTS TECHNOLOGY CORPORATION





Viewshed Map – Topo Base

Proposed Wireless Communications Facility
Replacement Tower
173 Mechanic Street, Killingly, CT

Proposed monopole height is 78 feet AGL. Top of whip antennas is 97 feet AGL. Forest canopy height is derived from lidar data. Study area encompasses a two-mile radius and includes 8,042 acres of land.
Map compiled 5/2/2016.

Map information field verified by APT on 3/30/2016.

Only those resources located within the extent of the map are depicted. For a complete list of data sources consulted for this analysis, please refer to the Documentation Page.

Legend

- Proposed Tower

Photo Locations

- Not Visible
- Seasonal Views
- Year-round Views
- Trails
- Predicted Seasonal Visibility (127 Acres)
- Predicted Year-Round Visibility (75 Acres)
- Towns
- 2-Mile Study Area
- Open Space

Location

EVERSOURCE ENERGY

ALL-POINTS TECHNOLOGY CORPORATION

DOCUMENTATION

SOURCES CONSULTED FOR VIEWSHED MAPS
173 Mechanic Street
Killingly, Connecticut

Physical Geography / Background Data
Digital elevation model (DEM) derived from 1-meter USACE/NRCS lidar data obtained from NOAA (2010)

Forest areas are generated with TerrSet (Clark University) image processing from the lidar data and 2014 NRCS/NAIP digital orthophotos with 1-foot pixel resolution (leaf-on) and CLEAR 2012 0.30-foot (leaf-off)

Municipal Open Space, State Recreation Areas, Trails, County Recreation Areas, and Town Boundary data obtained from CT DEEP and the towns

United States Geological Survey
*USGS topographic quadrangle maps – Danielson, East Killingly (1984)
Department of Transportation data
^State Scenic Highways (2015)
Heritage Consultants
^Municipal Scenic Roads

Cultural Resources
Heritage Consultants
^National Register
^State Register of Historic Places
^Local Survey Data

Dedicated Open Space & Recreation Areas
Connecticut Department of Energy and Environmental Protection (DEEP)
*DEEP Property (May 2007)
*Federal Open Space (1997)
*Municipal and Private Open Space (1997)
*DEEP Boat Launches (1994)
Connecticut Forest & Parks Association
^Connecticut Walk Books East & West –
The Guide to the Blue-Blazed Hiking Trails of Western Connecticut Western Connecticut, 19th Edition, 2006.

Other
^ConnDOT Scenic Strips (based on Department of Transportation data)

*Available to the public in GIS-compatible format (some require fees)
^ Data not available to general public in GIS format. Reviewed independently and, where applicable, GIS data later prepared specifically for this Study Area.

NOTE Not all the sources listed above appear on the Viewshed Maps. Only those features within the scale of the graphic are shown.

LIMITATIONS
Viewshed analysis conducted using Clark University's TerrSet. The visibility analysis map(s) presented in this report depict areas where the proposed Facility may potentially be visible to the human eye without the aid of magnification based on a viewer eye-height of 5 feet above the ground and intervening topography, tree canopy and structures. This analysis may not necessarily account for all visible locations, as it is based on the combination of computer modeling, incorporating the lidar DEM, 2016 digital aerial photographs, and in-field observations from publicly-accessible locations. No access to private properties beyond the host Property was provided to APT personnel. This analysis does not claim to depict the only areas, or all locations, where visibility may occur; it is intended to provide a representation of those areas where the Facility is likely to be seen.

Attachment 9 – SHPO Correspondence

Department of Economic and Community Development

Connecticut
still revolutionary

August 4, 2016

Lucas Karmazinas
All-Points Technology Corporation
3 Saddlebrook Drive
Killingworth, CT 06419

Subject: Proposed Telecommunications Facility
173 Mechanic Street
Killingly, CT
Eversource Engery

Dear Mr. Karmazinas:

The State Historic Preservation Office is in receipt of the proposal for the above-referenced project, submitted for review and comment pursuant to the National Historic Preservation Act and in accordance with Federal Communications Commission regulations.

The SHPO concurs with All-Points Technology's determination that the proposed undertaking, which includes the installation of a 60' pole omni-directional antenna on the rooftop of the subject and the removal of two existing poles, will have no adverse effect on contributing resources listed on or eligible for listing on the National Register of Historic Places, with the following conditions:

1. The pole, antennas and the associated equipment will be designed and installed to be as non-visible as possible,

2. if not in use for six consecutive months, the pole, antennas and equipment shall be removed by the telecommunications facility owner. This removal shall occur within 90 days of the end of such six-month period.

The State Historic Preservation Office appreciates the opportunity to review and comment upon this project. These comments are provided in accordance with the Connecticut Environmental Policy Act and Section 106 of the National Historic Preservation Act. For further information please contact Todd Levine, Environmental Reviewer, at (860) 256-2759 or todd.levine@ct.gov.

Sincerely,

Catherine Labadia
Deputy State Historic Preservation Officer

Attachment 10, FAA Registration

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2016-ANE-1032-OE

Issued Date: 08/03/2016

Telecom Manager
Eversource Energy Service Company
PO Box 270
Hartford, CT 06141-0270

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Antenna - Top Mount Killingly
Location:	Killingly, CT
Latitude:	41-48-40.60N NAD 83
Longitude:	71-53-01.60W
Heights:	239 feet site elevation (SE)
	100 feet above ground level (AGL)
	339 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.
Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 L.

Any height exceeding 100 feet above ground level (339 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (404) 305-6531. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-ANE-1032-OE.

Signature Control No: 287924450-300784552 (DNE)
Darin Clipper
Specialist

Attachment(s)
Additional Information
Case Description
Frequency Data
Map(s)

cc: FCC

Additional information for ASN 2016-ANE-1032-OE

AGL height reduced from 110 ft. AGL to 100 ft. AGL.

Antennas to be added to an existing 89 ft. building.

Antennas (11 ft. AGL) not to exceed a total top mount height of 100 ft. AGL.

The applicant seeks to construct an 89 foot tower on a building with 21 feet of appurtenances resulting in an overall height of 110 feet.

Frequency Data for ASN 2016-ANE-1032-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
154.4638	154.4638	MHz	331	W
158.4225	158.4225	MHz	100	W

TOPO Map for ASN 2016-ANE-1032-OE